Spring 1998

Essay I. Intra-Industry Contagion and Competitive Effects Associated With Corporate Liquidation Announcements: Does Shareholder Governance Influence the Results? Essay II. Investors' Pricing of Exchange Rate Risk in U. S. Firms That File for Bankruptcy

J. Terry Ray
Old Dominion University

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and

Essay II:

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by

J. Terry Ray

MBA May 1974, Old Dominion University
BS June 1971, Tennessee Technological University

A Dissertation submitted to the Faculty
of Old Dominion University in Partial Fulfillment of the
Requirement for the Degree of

DOCTOR OF PHILOSOPHY

FINANCE

OLD DOMINION UNIVERSITY
May 1998

Approved by:

Mohammad Najand (Codirector)

Kenneth Yung (Codirector)

Eric Anderson

ABSTRACT

Essay I:

Intra-Industry Contagion and Competitive Effects Associated with Corporate Liquidation Announcements: Does Shareholder Governance Influence the Results?

J. Terry Ray
Old Dominion University, 1998
Director: Dr. Kenneth Yung

This essay extends earlier research by investigating the role shareholder governance may play in the abnormal stock returns of the liquidating firms' competitors. The empirical model used for analyzing the abnormal returns includes variables to capture the influence of: leverage, Tobin's *q*, the Herfindahl index, Book Equity-to-Market Equity ratio, the level of institutional stock ownership, and the level of stock ownership by insiders.

The conclusion is leverage of the liquidating firm as well as its competitors is the major factor affecting the stock returns of the competitor firms. Additionally, there are significantly negative returns for the rival firms when institutional investors held more than 21% of the liquidating firm's equity.

Essay II:

Investors' Pricing of Exchange Rate Risk in U.S. Firms that File for Bankruptcy

Director: Dr. Mohammad Najand

The thesis of this essay is those firms that file for bankruptcy are more sensitive to changes in the exchange rate, as well as changes in the overall economy, than other firms. Using the 48-month period preceding the bankruptcy announcement, we examine the relationship between abnormal returns and changes in: 1) the economy, and 2) the foreign exchange rate.

Applying a couple of filters to the data resulted in a significant relationship for changes in both the industrial production index — our proxy for the economy — and foreign exchange rate for years three and four preceding the bankruptcy announcement, but not years one or two. One may conclude that: 1) financially weakened firms are sensitive to changes in the foreign exchange rate and industrial production index, or 2) not just the financially weakened, but all firms are sensitive to changes in these two economic barometers. In either case, when it becomes obvious that bankruptcy is a strong likelihood, the forthcoming bankruptcy overshadows other economic influences.

Acknowledgements

I thank the Lord, our Creator, who gives not only our life and health, but also endows each of us with incontrovertible gifts and blessings — including the opportunity to pursue and complete this academic endeavor.

Words are not adequate to express my gratitude and the debt I owe to my parents who, many years ago, provided the firm and loving guidance that implanted within me the appreciation for a formal education. They encouraged and supported my undergraduate studies when, if left to my own devises, I would have chosen a different direction in life.

My sisters also played an invaluable role in the successful completion of this undertaking. They not only were quick to provide encouragement and moral support, but also obliquely intimated — although never explicitly stated — that stopping short of the goal would be setting an inappropriate example for my niece and nephews.

Recognition is due a special friend who was the motivator for embarking on the path that led to these doctoral studies. Without this catalyst I probably would not have begun the journey and the Ph.D. degree would be nothing more than an unfulfilled dream.

I gratefully acknowledge the many professors who contributed to making this educational venture a truly memorable experience. There is a humble "thank you" owed the members of my dissertation committee. I highly value their patience, advice, assistance, and the scholarly suggestions that were indispensable in researching, writing, and editing this dissertation.

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Intra-Industry Contagion and Competitive Effects Associated with Corporate Liquidation Announcements: Does Shareholder Governance Influence the Results?

I. Introduction

A corporation is an artificial, legal person or being, created by governmental grant, that for many purposes is treated as a natural person. Unlike a natural person, a corporation is unique in that it is generally considered to have an indefinite life — it is immortal. If we weigh the issuance of the corporate charter as the most significant event in the life of a corporation (its birth), then liquidation (corporate death) is certainly the second most significant event.

Surprisingly, there is a dearth of literature focused on corporate liquidations; the majority of the extant research into corporate financial distress has concentrated on reorganizations. Moreover, with one exception, the research that has addressed liquidations has been related to the banking industry, not industrial firms. This lack of attention to liquidations has left a void in the corporate finance literature. This research addresses this oversight and provides some empirical analysis that, while certainly not filling the abyss, renders a contribution toward reducing it.

When a firm files for protection from its creditors under the provisions of corporate bankruptcy law, there are two possible avenues it may take: either Chapter 11 or Chapter 7 bankruptcy. Under the provisions of Chapter 11, the firm seeks the bankruptcy court's protection while it reorganizes. The presumption is the firm has identified the problems responsible for its financial distress, and has a viable plan for correcting these problems. Thus, assuming the firm can develop a plan for repaying its creditors — in whole or in part — that is acceptable to the creditors' committee, the firm will continue operations and emerge from the bankruptcy proceedings. On the other hand, if the firm is unable to develop an acceptable plan for repaying its creditors, the creditors can force the firm into liquidation. Therefore, when a firm announces it is filing for Chapter 11 bankruptcy, it is not known whether the firm will successfully reorganize or will be forced to liquidate. Consequently, a firm announcing that it is filing for Chapter 11 bankruptcy is similar to a doctor announcing a patient is chronically ill with a life-threatening condition; at the time of the initial diagnosis it is not known whether the patient will recover or die.

The second type of bankruptcy, Chapter 7, is where the firm's managers, or possibly the firm's creditors, do not consider it likely that management can restore the operation to a profitable basis. Hence, they decide that liquidation of the firm is the best alternative. In this situation the firm ceases to exist and its assets are liquidated; after all other claim holders are paid under the supervision of the bankruptcy court, the share-

holders of the common stock receive the residual, if any, from the liquidation proceeds. In our doctor-patient analogy, the diagnosis would be a terminal illness instead of simply life-threatening.

As already mentioned, the majority of the research into corporate bankruptcies has focused on corporate reorganizations. Specifically, the prior research, with some exceptions, has concentrated upon firms filing for Chapter 11 bankruptcy. A preponderance of this research has examined the market's reaction at the time of the bankruptcy announcement.[1] In addition, other research has investigated intra-industry contagion and competitive effects related to Chapter 11 bankruptcy announcements. While the act of seeking the bankruptcy court's protection during a corporate reorganization is a significant event, and investigating the market's reaction to this event is informative, limiting the research to the announcement period leaves many unanswered questions.

The literature, to cite a couple of these unanswered questions, has not examined: 1) whether there is a reversal to the documented contagion and competitive effects when a firm successfully emerges from bankruptcy, or 2) are the effects exacerbated when the Chapter 11 firm subsequently announces it will liquidate?

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[1]Clark and Weinstein (1983), using data from 1938 through 1979, found large, negative abnormal returns during the month a bankruptcy occurs with most of the losses during the three trading day interval surrounding a bankruptcy filing. Kim and Papaioannou (1994), using data from 1970 through 1990, documented abnormal returns consistent with Clark and Weinstein's results. Additionally, Russel and Branch (1994) obtain similar results using bankrupt firms from the period of January 1984 through June 1993. On the other hand, Morse and Shaw (1988) found negative abnormal returns for firms filing for bankruptcy before implementation of the Bankruptcy Reform Act of 1978, but they observed average abnormal returns very close to zero for firms filing after the 1978 Act.

These unanswered questions arise from the fact that a Chapter 11 filing does not have a definitive outcome. That is, at the time of the announcement the market does not know whether the firm will successfully emerge from bankruptcy (such as Toys-R-Us), or will fail to develop a satisfactory reorganization plan and be forced into liquidation by its creditors (Lionel, for example). Thus, limiting our research to the market's reaction to the announcement of a Chapter 11 filing does not reveal a clear, complete picture.

In addition, we are leaving ourselves exposed to the possibility of obtaining contradictory results associated with potential contagion and competitive effects. These contradictory results are manifest in the fact that at the time the firm announces its bankruptcy filing the market must assess the firm's probability for successfully emerging from bankruptcy. This, in turn, requires the market to forecast how the competitors will be affected given the firm in question either liquidates or successfully emerges from bankruptcy — an exercise in conditional probability.

Appropriately, the purpose of this research is to redirect the focus from investigating the market's reaction to an announcement with an uncertain outcome to examining the market's reaction to an announcement with a more definitive outcome. Firms announcing a liquidation decision provide the event that satisfies the more definitive outcome criterion.

Furthermore, it has been suggested that, similar to the emotional effects experienced by relatives of its human counterpart, corporate death

may generate financial effects transmitted to other firms within their respective industries. An adjunct consideration that may serve to confound these results is the role agency relationships may play in these intra-industry effects. Summarily, the contribution of this research is an investigation and analysis of these industry-related effects associated with corporate liquidations, and extending the analysis to examine specific firm characteristics and the extent to which shareholder governance may exert an influence on the results.

There are two philosophies that dominate the thinking with respect to the financial effects corporate bankruptcies/liquidations may have on other firms within their respective industries. One, discussed by Meltzer (1967) related to his investigation into banking regulations, is that bankruptcy is contagious within the industry. As articulated by Lang and Stulz (1992), there are a couple of arguments that provide the foundation for this contagion philosophy. One argument supporting this philosophy is the liquidation of one firm causes its customers and suppliers to be skeptical of other firms in the industry irrespective of their financial position; therefore, the other firms suffer economically. Another argument supporting the contagion philosophy is that one firm's liquidation announcement conveys adverse cash flow information that is common to all firms in the industry. Clearly, for the contagion effect, we expect other firms within the industry to experience a negative market reaction when one firm announces it is filing for liquidation.

The second philosophy — a contrapositive of the first — perhaps best described by Altman (1983), is that although economic conditions exogenous to the firm may contribute to its failure, in almost all cases the fundamental business failure problems lie within the firm itself. This line of thought eliminates consideration for the contagion effect and suggests there should be no negative reactions felt by other firms in the industry when one firm announces it is filing for liquidation. In fact, Titman (1984) and Altman (1984b) suggest an opposite effect could occur — potential customers of the firm facing bankruptcy (Chrysler in Titman's and Altman's examples) would buy from a competitor (Ford).[2] Thus, they present the argument for what has been referred to as the competitive effect. Therefore, for the competitive effect, as suggested by the Chrysler-Ford example, we expect other firms within the industry to experience a positive market reaction when one firm announces it is filing for liquidation.

For this analysis, we adopt Lang and Stulz's (1992) methodology for investigating intra-industry contagion and competitive effects. However, instead of focusing on Chapter 11 announcements as did Lang and Stulz, our analysis concentrates on corporate liquidations, which is consistent with the focus of this research. We extend their analysis by incorporating a factor to represent how well the other firms within the respective

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[2]A. Bennett (1981) quotes Lee Iacocca as saying ". . . when Chrysler applied in January for the latest $400 million installment of its $1.2 billion of federal loan guarantee, its share of new car sales dropped nearly two percentage points because potential buyers feared the company would go bankrupt. That cost Chrysler $200 million in lost sales."

industries are managed. We also examine the influence shareholders governance may have on the results. The hypotheses to be tested are:

1. Whether there is an intra-industry contagion effect associated with a firm's liquidation announcement. Does the market interpret the liquidation announcement as firm-specific, or is the announcement an indication of industry-wide problems?
2. Are there intra-industry competitive effects emanating from a firm's liquidation announcement? That is, does the liquidation of one firm provide benefits to the other firms in the industry by redistributing wealth from the liquidating firm to its competitors?

In keeping with the methodology employed by Lang and Stulz, we use the Herfindahl index, a measure of industry concentration, to classify the respective industries as either competitive or concentrated. They, Lang and Stulz, found a negative market effect for industries with high leverage and intense competition. Conversely, they found a positive market reaction for industries with a high degree of concentration (limited competition) and low leverage. Given that their sample data included only six firms that subsequently liquidated, we would expect the contagion and competitive effects, if they exist, to be more pronounced for our sample of corporate liquidations, assuming they exhibit similar leverage, industry-concentration characteristics, and comparable total liabilities.

In addition to using the Herfindahl index to classify the industries of the liquidating firms, we use an approximation for Tobin's q to classify each of the competitor firms. The purpose is to determine if the contagion and competitive effects are a function of the market's perception of how well the competitor firms are managed. A priori, we expect the contagion effect to be present with poorly managed competitors and the competitive effect to appear in well-managed competitors.

Following the analysis of the contagion and competitive effects, we address the issue of the role agency relationships and governance may be playing in the preceding results. That is, we refine the classification of the sample data to including categorizing the firms by certain agency characteristics. With respect to the issue of how agency relationships and governance may influence the intra-industry results, there are at least two different perspectives one may use for classifying the competitor firms.

The first, is that while corporate managers are the agents of shareholders, typically no single shareholder exerts sufficient influence over management. Thus, management is the agent for a faceless mass and may not take their fiduciary responsibilities as seriously as they should. Tempering this extreme is the role being taken more aggressively by external holders of large blocks of stocks — pension funds, for example. Here we find the external blockholders coercing directors and management to be more cognizant of the shareholders expectations, and these holders of large blocks of stock, in effect, force management to be more accountable for

their actions. For this perspective of the agency relationships and governance issue, we should expect, assuming all other factors are the same, firms with concentrated holdings of stock ownership to experience a larger competitive effect than other firms whose stockholdings are distributed among many small shareholders.

The second vantage point is that debtholders may be partially substituted for the stockholders; this gives rise to an additional agency relationship of management-debtholders. Here, through indenture agreements, debtholders may relieve shareholders of some of the burdens associated with certain monitoring functions. That is, the debtholders presumably will enforce the indenture agreements which limit management's ability to perform in ways that do not maximize the value of the firm. While we can formulate expectations about the results of market's reaction associated with concentrated holdings of stock, the role debt may play is more complex and may produce opposing results dependent not only upon the level of debt in the firms' capital structure, but also upon the firms' positive net present value investment opportunities.

Examples of some of the more subtle underlying issues that contribute to the results may be found in the firms' choices for leverage that we classify at this time as the indefinite categories of reasonable and excessive. For firms in the former category, debt may, as postulated by Jensen (1986), function as a control mechanism that ameliorates potential agency problems; these firms may be less likely to liquidate. However, if

they do liquidate, it may be a manifestation of industry-wide problems — not simply firm-specific problems. For firms in the latter category, leverage may exacerbate the agency problems. In this situation we may find: 1) the managers not wanting to liquidate because they are enriching themselves at the stockholders/debtholders expense and liquidation would end their self-serving opportunities, or 2) conversely, managers at other similarly leveraged firms, after enriching themselves and devaluing the company, may be motivated to liquidate in anticipation of purchasing the firm and/or its assets at a distressed price. Consequently, it is not possible to postulate congruous results for the agency relationship associated with debt.

II. Background

In this section we lay the foundation and construct the infrastructure that supports our investigation and analyses. First, we discuss the principal concepts that are cogent to the thesis of this research. These concepts include: the contagion effect, the competitive effect, agency relationships, financial ratios traditionally used for identifying financial distress, the Herfindahl index, and Tobin's *q*.

In addition to discussing these concepts, the second portion of this section reviews the major contributions to the literature that are relevant to this research. This literature review focuses upon the corporate valuation-consequences related to: Capital Structure, Debt, Bankruptcy, and Liquidation; Industry-Related Contagion and Competitive Effects; and Corporate Value and Concentrated Stockholdings.

The final portion of this section summarizes the relevant empirical research and presents the implications for this study.

a. Principal Concepts

The Contagion Effect: Briefly, the contagion effect is characterized as a negative change in the value of other firms — that is, competitors — when a financially distressed firm announces it is filing for liquidation. As stated

by Lang and Stulz, it "is the change in the value of competitors that cannot be attributed to a wealth redistribution from the bankrupt firm."[3]

This negative change in value may be based on the fact, or perhaps simply the market's perception, that all firms within a given industry hold similar portfolios of investments. Since the market is unable to observe the performance of these portfolios directly, they must rely upon the firms' financial conditions, or the information the firms' provide about their financial condition — either individually or collectively — as an indicator of the performance of these portfolios. Ergo, the market interprets the liquidation announcement of one firm as an indication of the poor performance of the firms' investments and, therefore, the liquidation announcement is a harbinger of the financial distress afflicting all firms in the industry.

Correspondingly, contrary to Altman's argument, all firms within an industry may be exposed to comparable economic factors that affect their cash flows — the commercial airline industry, for example. The information that one airline is encountering cash flow problems due to higher fuel and other operating costs, or that it has reduced fares in an attempt to attract more passengers, may serve as a signal that the airline industry as a whole is engulfed in a financially challenging period. This perception of financial distress may be a self-fulfilling prophecy in that vendors may tighten their credit policies for firms in the industry and/or potential customers may seek substitutes for the products/services offered by the troubled industry.

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[3]Lang and Stulz (1992), p. 47.

The Competitive Effect: In a more positive perspective, one firm's liquidation does not necessarily convey a signal of bad news for the other firms in the industry. According to Titman and Altman, news of financial distress may cause customers to migrate to the other firm(s) in the industry. The rival firms thereby capture revenue and market value from the liquidating firms.

In Titman's and Altman's examples using the automotive industry, this migration may be due the customer's concern about service work that should be performed under warranty, the future availability of replacement parts, and trade-in value of the vehicle to name a few potential concerns. It is important to note the automotive industry is obviously a concentrated industry with relatively few firms — that is, limited competition. According to Lang and Stulz, this is an essential ingredient for the competitive effect, because in perfectly competitive industries shareholders of existing firms cannot earn abnormal returns from an increase in demand. It follows that the magnitude of the competitive effect should be inversely related to the number of firms in the industry. Thus, the larger the number of firms in an industry, the lower the degree of the competitive effect.

Agency Relationships: In general, this is a relationship that exists between a person, or group of persons, identified as the principal, and a second person, or group of persons, referred to as the agent. Typically, the agents conduct business on behalf of the principals. In the context of a corporation, the shareholders are the principals and the firm's directors and managers are the agents. Introducing confusion to the issue, in the corpo-

rate setting, the directors and managers also may be shareholders, which in certain instances could present a conflict of interest. Irrespective of the potential conflicts of interest, it is the responsibility of the directors and managers to maximize the shareholders' value.

Problems may arise in agency relationships when managers own only a fraction of the total shares of the firm. This limited ownership may create an environment wherein the managers' primary focus is on enriching themselves instead of maximizing the shareholders' value, because the majority owners bear most of the cost. The managers may enrich themselves via unnecessary perquisites such as use of company cars and planes, traveling first class, membership in clubs, and munificent expense allowances. A typical argument is that managers may be able to enrich themselves at the shareholders' expense because it is too difficult and expensive for the shareholders to monitor the managers' activities.

One common measure used to motivate managers to maximize the value of the firm is to include debt in the firm's capital structure. Through the use and enforcement of indenture agreements, the debtholders hold the managers accountable for their actions. Thus, debtholders assume certain responsibilities and perform some of the monitoring functions that were previously the domain of the shareholders. In effect, management becomes the agent for both the shareholders and the debtholders.

Financial Ratios: Lang and Stulz's (1992) research into the contagion and competitive effects used, in addition to a threshold level of liabilities to

qualify firms for their sample, the firms' degree of leverage to segregate firms into different groups. A financial ratio, in itself, is not necessarily a meaningful number — it must be compared with something else before it becomes useful. The two basic types of comparative analysis are: 1) trend analysis, and 2) comparison with other firms in the same industry or other homogeneous grouping. We are not using financial ratios in this study for the purpose of conducting comprehensive financial analyses of the respective firms, nor are the ratios intended to be used for developing discriminating characteristics associated with predicting bankruptcy. The objective is to use those ratios other researchers have found to be important, and examine the extent to which they may be useful for identifying competitor firms exposed to contagion/competitive effects.

There are five broad groups of financial ratios: leverage ratios, liquidity ratios, activity ratios, profitability or efficiency ratios, and market value ratios. The leverage ratios measure the extent to which the firm has been financed by debt while the liquidity ratios provide a measure of the firm's ability to meet its maturing short-term obligations. Beaver (1966) documented that the current ratio was the first ratio used to evaluate credit worthiness (circa 1908). The activity ratios show how effectively the firm is using its resources, and profitability ratios reflect management's overall effectiveness as shown by the returns generated on sales and investments. Finally, the market value ratios are a combination of accounting and stock market data that reflect how the market values the firm's performance.

Beaver (1966, 1968), in his investigation into financial ratios as predictors of failure, found that failed firms not only have lower cash flow than comparable non-failed firms, but failed firms also have a smaller reservoir of liquid assets. Moreover, although failed firms have less capacity to meet their financial obligations, they tend to incur more debt than the non-failed firms. Of the six ratios Beaver tested, he found the "Cash Flow to Total Debt" was the best indicator of financial distress.

Altman (1968, 1983) combined the use of various financial ratios and multiple discriminant analysis to develop a model for predicting financial distress. From his earlier work, that included five separate ratios, he found Working Capital divided by Total Assets provided the most useful data for predicting financial distress. His later research, which was constructed around seven ratios, improved upon the financial distress predicting ability of his original model. However, it is not possible to determine from this recent model which ratio, or ratios, provide(s) the greatest contribution.

Ohlson (1980), working with a group of nine different ratios, concluded that four, and perhaps possibly five, were useful for predicting financial distress. According to his results, the most significant ratios are: Size; Total Liabilities divided by Total Assets; Working Capital divided by Total Assets (or used in conjunction with Current Liabilities divided by Current Assets); and Net Income divided by Total Assets (or Funds Provided by Operations divided by Total Liabilities).

Dambolena and Khoury (1980) took a slightly different approach toward investigating financial ratios that provided advance information

about potential financial distress. They were concerned with not just the ratios, but whether the ratios were stable or volatile over time. Their best model was limited to five ratios.

Fama and French (1995) found two variables — size, or market equity (ME) and the book equity to market equity ratio (BE:ME) — are significant factors in explaining variation in stock returns, and these two variables are related to profitability. They found that high BE:ME is an indicator of persistent poor earnings while low BE:ME is a reflection of strong earnings.

This study uses the leverage ratio and the book equity to market equity ratio to classify the competitor firms. We compute these ratios for each of the competitor firms and their respective industries. Each competitor firm is then classified as either high/low-leverage and high/low-BE:ME relative to their industry averages and industry medians, respectively.

The Herfindahl Index: The heart of this research is not the firms that announce their liquidation, but the competitors of the liquidating firms. Hence, we require appropriate indices for classifying these competitor firms and their respective industries. One of the indices we use is the Herfindahl index to classify the industry of the liquidating firm and its competitors.

Used as a measure of industry concentration, the Herfindahl index is the sum of the squared fractional output rates for all the firms in an industry. A high index is indicative of a small number of firms within an industry, or that the total output of the industry is concentrated in a few

firms. A low index reflects a total industry output that is distributed among many firms in the industry inferring there is a high degree of competition.

The Herfindahl index has been used in a wide range of research into economics and finance-related issues. Cowling and Waterson (1976) use the Index in their investigation into price-cost margins and market structure. Copeland and Weston (1988) report the current Department of Justice merger guidelines (1982 and 1984) rely upon the Herfindahl index to reflect not only the degree of concentration, but also as an indicator of inequality among firms. Farrell and Shapiro (1990) used the Index in their investigation into horizontal mergers. Dickson (1992) used the Herfindahl index as an adjustment factor for the Cobb-Douglas production function and to measure the effect of industry concentration on industry cost in his research into the problems related to aggregation of costs by industry.

Lang and Stulz (1992), in their investigation into contagion and competitive effects, used sales—as a measure of output—to compute the index. To be consistent with their methodology, and to allow meaningful comparisons between the results of the two studies, we follow their methodology. To wit: we use net sales, exclusive of the liquidating firms, to compute the Herfindahl Index for each industry. A high index is one for a specific industry that is above the median index value for all industries. Similarly, a low index is one that is below the median value for all industries.

Tobin's q: While we are using the Herfindahl index to classify industries, we use Tobin's q to classify the individual firms within their respective indus-

tries. This is the ratio of the market value of a firm's debt and equity to the current replacement cost of its assets. In other words, the ratio reflects the current market value of the firm divided by its replacement costs.

Typically, Tobin's q may be used to represent diverse characteristics of a firm. Four of these characteristics are: an indication of the ability of the firm to generate abnormal profits over a period of time; a measure of the firm's managerial performance; a reflection of the firm's level of investment activity (a high q is associated with underinvestment while a low q is associated with overinvestment); and to capture the value of intangible assets (for example, Research and Development, Advertising, Goodwill, etc.).

Tobin's q is similar to the market-to-book ratio, but with several notable differences. First, the numerator of the ratio includes all the firm's debt and equity securities, not just the common stock. Second, the denominator includes all the firm's assets, not just its net assets. In addition, these assets are reported at their replacement cost — not the original acquisition cost.

These variables present a couple of dilemmas in the estimation of this ratio. A major problem is estimating the replacement costs (the denominator). It is difficult to estimate the market value of the firm's assets because they are not normally traded in the market place. The second problem is estimating the value of long-term debt (in the numerator). According to Lindenberg and Ross,[4] the difficulty of obtaining the market value of debt

[4]Lindenberg and Ross (1981), p. 11.

is because a substantial amount of the bond trading is not done on the floor of the exchanges; consequently, the published exchange data does not fully reflect investors' valuations. In our methodology section, we explain an alternate approach to estimating Tobin's *q* that eliminates the problems of estimating the market values for the long-term debt and existing assets.

The use of Tobin's *q* for this analysis is a reflection of the market's perception of how well the firm is managed. We use it to classify the competitor firms into two groups: poorly managed and well managed. A poorly managed firm is one whose *q* is below the industry median, and a well-managed firm is above the industry median. Although prior research has produced contradictory results related to industry concentration and the *q* ratio, our implementation of *q* is not affected by industry concentration; the degree of concentration applies to each industry as a whole, we identify firms as either high or low *q* relative to the other firms within their respective industries.

b. Previous Relevant Research

Supporting the objective of this research, which is to analyze the effects upon competitors when a firm announces it is liquidating, and then extend this analysis to investigate the influence agency relationships may have, we first examine the theory/evidence that casts some light on: 1) the path that leads to corporate liquidation, and 2) the firm-specific characteristics of the competitors that contribute to the positive and negative financial effects

experienced by the competitors when firms liquidate. Accordingly, we begin with a review of previous research that paves the way for, and at the extreme even encourages, a philosophy that endures the possibility of corporate liquidation — a survey of capital structure, debt, bankruptcy, and liquidation. The second portion of the review of relevant research is a study of the industry-related contagion and competitive effects. We complete the perusal of previous research with an examination of the corporate valuation consequences related to the distribution of equity holdings.

Capital Structure, Debt, Bankruptcy, and Liquidation: In simplest terms, the primary source of corporate bankruptcy/liquidation is too much debt. There are various theories of capital structure that encourage the employment of debt to the extent that the recommended level of debt skirts the threshold of excessiveness. This survey of capital structure is limited to the salient literature that establishes a solid argument for using debt to finance corporate investments and how leverage may influence the value of a firm. A discussion of capital structure is pertinent at this point to establish the framework for our method of using leverage to classify the sample data.

Briefly, we categorize the theories related to capital structure into three groups: 1) capital structure does not matter — the value of the firm does not depend upon the proportions of debt and equity used to finance the firm; 2) capital structure is relevant to determining the value of the firm — the higher the proportion of debt, the higher the value of the firm;

and 3) employing debt in the capital structure increases the value of the firm, but too much debt also reduces the firm's value.

The theory that capital structure is irrelevant was developed by Modigliani and Miller (1958, 1963). There have been subsequent studies that support this theory including Baron (1974), but Stiglitz (1974) — using financial intermediaries and the arbitrage opportunity argument — provides the most general proof of the theory.

Opposing the irrelevance theorem are those who stress the advantages of debt and argue a high degree of leverage is necessary to maximize the value of the firm. These authors include Scott (1977), Brennan and Schwartz (1978), and Kim (1978). Others, such as Jensen and Meckling (1976), suggest debt introduces added value-enhancing benefits to the shareholders by relieving them of some of the monitoring burdens.

The last group is exemplified by Baxter (1967) who presents the view that a high degree of leverage increases the probability of bankruptcy which increases the riskiness of the firm's future cash flows. Consequently, excess leverage can reduce the total value of the firm. There are other authors who have noted that bankruptcy costs may provide an economic rationale for an optimal capital structure.[5] They suggest an optimal capital structure is reached through the tax advantages of debt being counterbalanced by the expected value of bankruptcy costs. Thus, according to the "The Static Tradeoff Hypothesis," a firm attains an optimal debt-equity combination

[5]Kraus and Litzenberger (1973), Castanias (1983), and Myers (1984).

when the present value of the debt-induced tax shield is equal to the present value of expected bankruptcy costs.[6]

For the final verdict as to which theory dominates and how to view leverage for classifying the data, we look to the empirical evidence. The evidence to date does not support the theory of irrelevance.[7] Moreover, given the mixed results associated with changes in the value of the firm arising from leverage increasing transactions, the empirical data neither conclusively support nor unequivocally reject the claim that increasing

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[6]Haugen and Senbet (1978) counter this rationale by arguing the magnitude of the bankruptcy costs related to capital structure decisions cannot be sufficient to offset the tax advantages of debt, because the bankruptcy costs must be trivial or nonexistent if we assume that capital market prices are competitively determined by rational investors. Miller (1977) also criticizes these earlier authors for what he considers the use of unrealistically large marginal bankruptcy costs to offset the expected corporate tax savings of debt. Miller uses a horse and rabbit stew analogy, where the horse represents the tax savings of debt and the rabbit is the expected bankruptcy costs, to argue the bankruptcy costs are insignificant compared to the debt tax shield. (In support of Miller, Kim, McConnell, and Greenwood (1977) did not obtain evidence supporting a bankruptcy cost effect. Additionally Masulis (1980), consistent with the results of Kim, McConnell, and Greenwood, found no evidence of a large expected cost of bankruptcy.) In Miller's analysis, the supply of debt is perfectly elastic.

DeAngelo and Masulis (1980) provide a rebuttal to Miller's argument of perfect elasticity for the supply of debt by introducing the consideration of non-debt tax shields (depreciation, investment tax credits, etc.) into the analysis. They reason these non-debt tax shields may be substituted for debt tax shields. They concede that to the extent a firm can fully use all its debt and non-debt tax shields (for the current year as well as carry-back to prior years), the supply schedule for debt is perfectly elastic. But, at a point where the firm has unused tax shields that it must carry forward to future tax years, the supply schedule for debt loses some of its elasticity and begins to bend upward. Thus, to the extent the firm must defer some of its tax benefits, it requires compensation in the form of a premium (a lower interest rate) for its debt. Accordingly, they conclude a unique optimal capital structure will often exist in this tax environment, where at the margin, the corporate tax advantage of debt exactly offsets the personal tax disadvantage of holding debt.

[7]There is evidence that straight debt offerings produce non-positive market reactions (Eckbo (1986), Kim and Stulz (1988), and Mikkelson and Partch (1986)). In addition, we have Dann and Mikkelson's (1984) finding of a negative reaction (significant at the .10 level). For empirical research that focused exclusively on capital structure-changing transactions we have the studies by Kim, McConnell, and Greenwood (1977) and Masulis (1980); they found leverage increasing transactions produce positive market results.

leverage enhances the value of the firm. Although earlier research did not produce results supporting the Static Tradeoff Hypothesis that is a central tenet for the optimal capital structure theory, subsequent research has found evidence of significant bankruptcy costs.[8]

At this point, the review of theory and empirical research present us with widely diverging thoughts and results regarding capital structure. Opposing Modigliani and Miller's proposition of irrelevance, we have two separate lines of thought that share the common theme that including debt in the capital structure enhances the firm's value. One group suggests the value of the firm increases monotonically with increases in leverage while the other group presents arguments for an optimal capital structure.[9]

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[8]In contrast to the findings of Kim, McConnell, and Greenwood and Masulis, support for the position of sufficiently large bankruptcy costs can be found in the research of Castanias (1983), Altman (1984b), and Ferris, Jayaraman, and Makhija (1994). Using a sample more heavily weighted toward smaller firms than the data sets used in earlier research, Castanias concludes that ex ante default costs are large enough to have a substantial impact on the leverage policy of the firm.

Altman also obtains strong evidence that bankruptcy costs are not insignificant as suggested by Haugen and Senbet (1978), Miller (1977), and others. He found in many cases they exceed 20% of the value of the firm measured just prior to bankruptcy — and even in some cases measured several years prior to bankruptcy. These bankruptcy costs, on average, ranged from 11% to 17% of the value of the firm up to three years prior to the bankruptcy.

Additionally, Ferris, Jayaraman, and Makhija (1994) found the mean direct costs of bankruptcy for liquidations and reorganizations are higher for their sample of firms than those reported in earlier studies of both large and small firms. They found, for reorganizations, the direct costs are positively related to size of the firm (using reported assets or total disbursements as a proxy for size), time spent in bankruptcy, and the complexity of the case (based upon the number of the creditors).

[9]Baumol and Malkiel (1967), Brennan and Schwartz (1978), DeAngelo and Masulis (1980), Castanias (1983), and Myers (1984). This argument for an optimal capital structure does not necessarily suggest uniformity across industries — there may not be an optimal capital structure within an industry. For example, referring to Pilotte's (1992) research, it may be that well-managed (underinvested) firms can justify and support a higher debt-equity ratio than overinvested firms in the same industry.

Notwithstanding the conflicting theories or the conflicting results of the extant research, there are possible explanations we can draw from this web of confusion. One plausible explanation for obtaining seemingly contradictory results from the empirical research is the limitations inherent in the use of linear methodologies to analyze nonlinear relationships. The combination of theories and empirical results suggest the relationship between leverage and firm value is nonmonotonic, at a minimum, and highly probable that it is nonlinear. It is, therefore, possible that with more robust analytical techniques and refined classification/segmentation of the data we would obtain a higher degree of consistency among the researchers and their empirical results.

Stepping beyond the constraints of linear methodologies, Figure 1 is a graphical representation that shows the similarities and differences between the two groups of theorists that contend debt increases the value of the firm. (The size, shape, and relative placement of the these curves were arbitrarily chosen and were not intended to

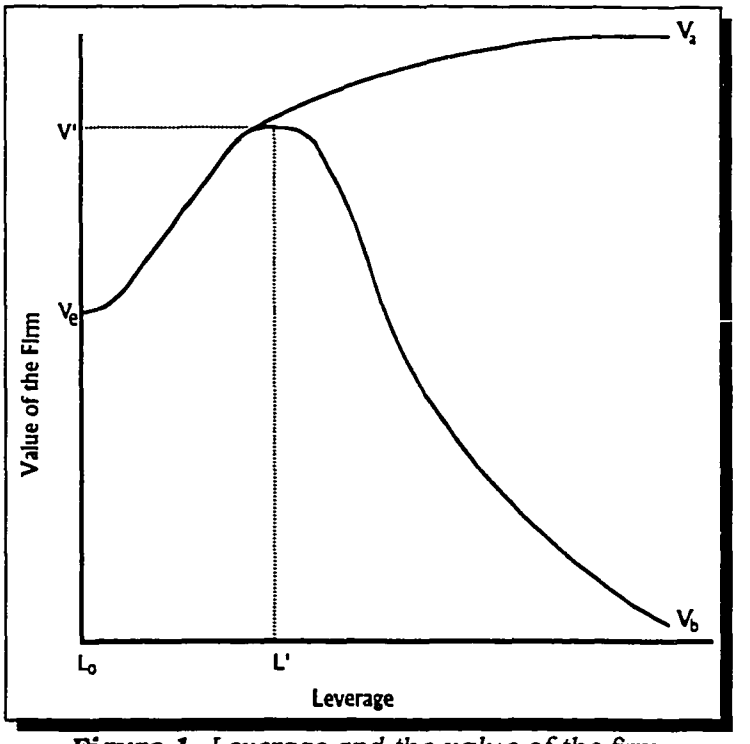

Figure 1. *Leverage and the value of the firm.*

suggest definite relationships between firm value and leverage when they do not exist.) The point V_e represents the possible value of an all equity firm while the points V_a and V_b represent the possible values for all debt firms. The curve V_e–V_a shows the value of the firm increasing monotonically with increases in leverage. This is consistent with the Existing Asset Signaling and Wealth Transfer hypotheses, and the theories of Scott (1977) and Brennan and Schwartz (1978). Furthermore, the empirical evidence from the research of Kim, McConnell, and Greenwood (1977) and Masulis (1980) appear to support the general shape of this curve.

In contrast, we have the curve V_e–V_b, where the value of the firm increases with leverage until it reaches the point V'L'; further increases in leverage beyond the level L' result in a decrease in the value of the firm. This decrease in value may be attributed to increased volatility of earnings as suggested by Lev (1974), and/or increasing costs of bankruptcies that are not offset by the tax benefits of debt as suggested by Castanias (1983), Altman (1984), and Ferris, Jayaraman, and Makhija (1994).

With the uncertainty regarding the appropriate level(s) of debt, the relevant costs of bankruptcy, and allocation of equity ownership, it is not surprising there is even more obfuscation when we attempt to extend the discussion from bankruptcy to corporate liquidation. That is, given that liquidation is usually an extreme action of last resort related to corporate bankruptcy, the limited research into this phase of corporate activities should be expected. Although there has been very little research into corp-

orate liquidations, Titman, Shleifer, and Vishny provide contributions to the development of a theoretical framework related to capital structure.

Titman (1984) presents the introductory work for development of capital structure and corporate liquidation theory. He suggests the selection of an appropriate capital structure serves as a bonding mechanism such that the incentives are aligned to ensure the firm implements the ex ante value-maximizing liquidation policy. He explores a new frontier by suggesting that liquidation costs (the increased costs that are borne by the firm's customers), along with the conflicting incentives of bondholders and stockholders, are relevant to the theory of an optimal capital structure.[10]

The crux of Titman's argument is "If the customers and other associates of a firm rationally assess its probability of liquidation, the firm will indirectly bear the imposed liquidation costs ex ante."[11] This argument is based upon the presumption that the price a consumer is willing to pay for durable goods declines as the probability of the manufacturer's liquidation increases, thus reflecting the customer's anticipation of an increase in expected maintenance costs. Titman further explains that a firm's capital structure controls its future liquidation decision that, consequently, affects the terms of trade at which the firm must transact business with its customers, employees, and vendors. Hence, any increase in the firm's level

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[10]Altman (1984b) follows Titman's lead and develops the argument for the competitive effect as previously discussed.

[11]Titman (1984), pp. 138–139.

of debt is associated with an increased probability of bankruptcy and liquidation; this is accompanied by a deterioration in the terms of trade. It is these less favorable terms of trade that introduce another cost of debt financing that is relevant to the firm's capital structure decision.

In summary, Titman suggests the fact that liquidation may impose costs upon the firm's customers and business associates dictates an optimal capital structure. Additionally, Titman's argument allows the optimal capital structure to vary among industries.

Approaching the relationship between corporate liquidation and capital structure from a different path, Shleifer and Vishny (1992) consider the liquidation value of a firm, and the level of debt the firm can carry, to be a function of the firm's "asset redeployability." That is, some assets are more versatile than others (these others they refer to as illiquid assets) and may be used effectively in a wider range of revenue producing activities. Thus, they are more redeployable than the illiquid assets and will likely command a higher price, relative to their "highest and best use" value, in the event of a firm's financial distress and forced liquidation. For example, commercial land is more redeployable than a steel mill. Therefore, these redeployable assets support a higher level of leverage than illiquid assets.

Shleifer and Vishny draw several conclusions from their research that include the following: optimal debt levels are a function of asset illiquidity (or asset redeployability), the optimal leverage of a firm depends upon the leverage of other firms in the industry (there may be an optimal debt capac-

ity for the industry even if there isn't one for the individual firms), asset liquidity changes over time, and optimal debt levels also change over time.

If, as this survey of the subject suggests, capital structure is relevant not only to determining the value of a firm, but also ensuring the firm's long-term viability, and if management is striving to maximize the value of the shareholders wealth while avoiding bankruptcy/liquidation and its attendant costs, what is the optimum debt-equity combination? Baumol and Malkiel (1967) provide us the wisdom we seek: ". . . the tax advantages of bond financing and the near zero transaction costs incurred in *un*doing leverage make it desirable for the firm to employ as much debt as is consistent with considerations of financial prudence."[12]

The operational phrase upon which we should focus is "financial prudence." Obviously, it is easier to determine retrospectively the fine line separating financial foolishness from financial prudence — or, too much debt from just enough — particularly if, as Shleifer and Vishny conclude, optimal debt levels change over time. Unfortunately, managers do not have this luxury of making capital structure decisions ex post. They rely upon the best information presently available about future business conditions when they decide not only to pursue certain investment opportunities, but also decide whether to use retained earnings, debt, equity, or some combination to finance these investments. If managers could predict the future with 100% accuracy, then the problems associated with bankruptcies and

[12]Baumol and Malkiel (1967), p. 571.

liquidations would be greatly diminished. We should not judge managers too harshly for their inability to predict the future, because economists do not always reach a consensus about the current state of the economy.[13]

If we presume that management is striving to maximize the value of the shareholder's wealth by maintaining an optimal capital structure, and then, due to changes in the economic conditions, there is a shift in the optimal debt-equity combination (to a lower level of leverage) à la Shleifer and Vishny, it is reasonable to conclude financial stress is only a short step away. Moreover, if other firms in the industry were at, or above, the optimal capital structure before the change in economic conditions, then we would expect a fertile environment for widespread financial distress (that is, the contagion effect). Constructing a similar argument, if there are other firms in the industry operating at less than the optimal capital structure before economic change, it is conceivable they would benefit from this change (the competitive effect).

It is not practical at this time, due to the previously discussed limitations of linear methodologies, to attempt estimating the optimal capital structure for each industry. We can, however, compute the average leverage for each industry and use this average as a point of reference similar to the point V'L' shown in Figure 1. Using this approach we com-

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[13]For example, in early November 1992, during the presidential election, economists were not in agreement whether the U.S. economy was still in a recession or had begun to recover. It was not until *after* the election that there was a consensus the recession had ended several months earlier. We now consider the recession to have ended in March 1991 — approximately 20 months before the presidential election.

pare each of the competitor firms in the sample with the industry-average for leverage to determine if the individual firms are above, or below, the industry mean. Having established the framework for using leverage to classify the competitor firms, we now proceed with a review of the research into the intra-industry contagion and competitive effects.

Industry-Related Contagion and Competitive Effects: The period in the United States' history referred to as "The Great Depression"[14] provides the data for some of the earliest research into contagion effects. This research, including the work of Meltzer (1967) and Bernanke (1983), focused on the ubiquitous failures within the banking industry and provides us with an introduction to the contagion effect. In addition, Aharony and Swary (1983) examine the contagion effects associated with bank failures, but using data from the 1970s. Also looking at data that began with the Great Depression and continued through 1955, Warner (1977a, 1977b) investigated bankruptcy within the railroad industry. Working with data that is more current, 1970 through 1989 and 1970 through 1990, Lang and Stulz (1992) and Kim and Papaioannou (1994), respectively, examine contagion and competitive effects associated with corporate bankruptcy within the industrial sector. Finally, Akhigbe and Madura's (1995) research investigates the intra-industry effects of voluntary corporate liquidations.

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[14]From October 29, 1929, the crash of the New York stock markets, until December 8, 1941 when the U.S. entered into World War II.

Warner's (1977a) investigation into bankruptcies in the railroad industry and the pricing of risky debt also examined the stock returns for competitors. Using selection criteria of Class I railroads that both initiated and terminated voluntary bankruptcy proceedings between 1930 and 1955, Warner obtained a sample of 73 bonds on 20 separate railroads.[15] It is interesting to note that while the average railroad bankruptcy took more than 12 years to settle, the longest took more than 20 years — none of the bankrupt firms liquidated completely. He finds significantly negative returns in the month a firm files for bankruptcy. He suggests one explanation is that the market did not anticipate that the railroad would file for bankruptcy at that time. Warner states: "Particular bankruptcy announcements do not appear to be associated with adverse industry returns. These findings also suggest that bankruptcy had no 'contagion effect' since the other railroads do not appear to be adversely affected by a railroad's bankruptcy petition."[16]

Lang and Stulz (1992) were the first to investigate specifically the intra-industry contagion and competitive effects associated with industrial firms filing for Chapter 11 bankruptcy. Their 58 firm sample was restricted to firms with liabilities in excess of $120 million. (They focused on large bankruptcies to limit their analysis to announcements with a potential industry-wide effect.) Their results found evidence of value consequences,

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[15]A Class I railroad was defined by the Interstate Commerce Commission as one with revenues (in some pre-bankruptcy period) greater than one million dollars per year.

[16]Warner (1977a), p. 262.

both contagion and competitive effects, for their intra-industry competitors. For their overall sample the results were consistent with those expected for the contagion effect. However, their subsample of industries with low leverage and a low degree of competition (as measured by the Herfindahl index) produced evidence of the competitive effect. They contrast this with their subsample of industries with high leverage and high degree of competition that exhibited the contagion effect.

Kim and Papaioannou (1994) extend Lang and Stulz's research to consider another industry factor — resource mobility (asset redeployability as discussed by Shleifer and Vishny) — that may weaken any extant competitive effects. Relaxing the constraint for at least $120 million in liabilities, their findings, contrary to the results of Lang and Stulz, reveal that industries with a low degree of competition realize greater value losses than industries with a high degree of competition. In essence, they find stronger evidence (than Lang and Stulz) supporting the contagion effect and obtain no evidence in support of the competitive effect.

Akhigbe and Madura (1995) essentially follow Lang and Stulz's methodology for investigating the intra-industry effects, but addressing voluntary liquidations instead of bankruptcies. Their overall results, similar to those obtained by Lang and Stulz as well as Kim and Papaioannou, reveal significant negative price valuations associated with the contagion effect. Their results also support the findings of Kim and Papaioannou in that the valuation effects are more unfavorable in industries with: 1) more growth

opportunities, and 2) higher leverage ratios. Interestingly, their results again agree with Lang and Stulz but not Kim and Papaioannou in their finding that the valuation effects were more favorable for rivals (that is, the competitive effect) when the liquidating firms had more monopoly power.

Corporate Value and Concentrated Stockholdings: It is only within the past few years that we have witnessed large holders of blocks of stock exercise their muscle for the purpose of motivating management to pursue their primary mission: maximizing the shareholders' value. In reporting on an upcoming AT&T Corporation annual meeting, Lublin (1996) revealed that more than a dozen pension funds intend to "withhold votes for the re-election of certain AT&T directors as a protest against the multimillion dollar compensation awarded last year to Mr. Allen," AT&T's CEO.[17] Certainly proxy fights for the purpose of gaining control of a corporation are not new, but typically, in the past, the initiator of the power play was pursuing corporate control which was not necessarily in the interest of all shareholders. Although the proxy fights of yesteryear are still with us, they now are joined by groups of shareholders whose motive is to enrich all shareholders through improved corporate governance.

Recent research into this new wave of shareholder activism includes the work of Wruck (1989) who disclosed the market reacts positively with average abnormal returns of 4.5% related to the announcement of a private sale of equity associated with a change in concentration of firm ownership,

[17]Lublin (1996), p. A3.

and Wahal's (1996) survey of the nine most active pension funds, although producing similar results for a subset of the data, does not produce the overall positive results one might expect given Wruck's finding. Nesbitt's (1994) study focused on the long-term stock-price performance of companies targeted by CalPERS, the California Public Employees' Retirement System, for increased corporate governance. Smith's (1996) analysis of shareholder activism by institutional investors found significant positive stock price reactions for successful targeting actions and significant negative reactions for targeting actions that were unsuccessful. McConnell and Servaes (1995) present several findings related to the value of the firm and allocation of equity ownership between managers and outside shareholders, and the ownership of stock by institutional investors. Finally, Shome and Singh (1995) analyze the valuation consequences of external blockholdings.

The implication of Wruck's (1989) study is the market perceives increased concentration of firm ownership as a signal the blockholder will be in a position to exercise greater corporate governance, which, on average produces a positive reaction. That is, the market anticipates the blockholder will enforce closer alignment of management and shareholders' interests, but in some cases, as the results reveal, the increase in concentration may be a hindrance to the alignment of interests. Wruck obtained a positive market reaction to a change in concentration when the ownership concentration was either low or high, but a negative reaction when the concentration was in a middle range.

Wahal (1996) discovered that 40% of the proxy proposals to change corporate governance structures introduced by pension funds were adopted by the target firms. Although Wahal's abnormal returns were significantly positive for a subset of firms subject to nonproxy targeting, the overall results for the targeting announcement abnormal returns were not significantly different from zero. A possible explanation for these results is that the market, when the block formation is announced, anticipates the proxy-targeting action and this is incorporated into the market reaction documented by Wruck. Additionally, the fact that some firms responded to the blockholders' request without a proxy initiative, may have been interpreted by the market as additional information not anticipated at the time of the block formation announcement, hence the supplementary abnormal returns. Additional findings include the fact that long-term abnormal stock price performance of targeted firms was negative before and after the targeting experience.

Nesbitt (1994) reports the collective ownership of the U.S. equity market held by institutional investors passed the 50% level in 1993, and they accounted for 80% of all shares traded, suggesting they primarily were trading among themselves for the purpose of enhancing returns or managing risk. It is because of their growing importance as stock owners that institutional investors have found themselves in a position that enables them to influence corporate behavior to the benefit of all shareholders. Hence, this increasing level of shareholder activism observed over the past

eight years. Nesbitt found the companies targeted by CalPERS had performed below the averages by 66% for the five-year period prior to its initiative. After its involvement, the targeted companies outperformed the S&P index by 41% for the subsequent five-year period.

Smith (1996) followed-up Nesbitt's study and investigated the value to the shareholders resulting from CalPERS's initiatives. For the five-year period of 1989–1993, 72% of the targets either adopted the proposed governance structure resolutions or made changes sufficient to warrant a settlement. Smith found a significantly positive stock price reaction for the successful targeting events and significantly negative reaction for the unsuccessful events. Overall, CalPERS's activism increased the value of its holdings by $19 million while its estimated costs were only $3.5 million over the five-year period.

McConnell and Servaes (1990, 1995)—examining the relation between Tobin's *q*, debt, and equity ownership for high and low-growth firms — found a negative relationship between corporate value and leverage for high-growth firms, but a positive relationship for low-growth firms. When analyzing the relationship between *q* and percentage of common stock held by inside owners, they found a significantly positive relationship, but a significantly negative relationship for the squared value of the percentage of inside ownership; suggesting a curvilinear relationship between *q* and the fraction of shares held by inside owners. In addition, they obtained a significantly positive relationship between *q* and the fraction of shares held by

institutional investors. Collectively, these results imply that the allocation of equity ownership matters.

Shome and Singh's (1995) investigation into the stock price reaction associated with new external block formations found, on average, positive gains to the blockholder. Although they obtained positive results, they caution the results do not provide any evidence that blockholders play a valuable role in limiting managerial discretion over free cash flow. But, they conclude, the valuation increases in target firms may be due to "potential synergy gains from future takeovers and/or from reducing potential opportunistic managerial behavior."[18]

c. Implications for this Research

The empirical research into the competitive and contagion effects has produced mixed results. Although we consistently find evidence supporting the contagion effect, as well as contradictory evidence, Lang and Stulz and Akhigbe and Madura are the only researchers who find any evidence of the competitive effect discussed by Titman and Altman. Considering that Lang and Stulz used a filter of $120 million in liabilities and found the competitive effect present only in highly concentrated industries (indicative of oligopolistic industries with high barriers to entry) suggests the competitive effect is an isolated phenomenon while the contagion effect may be more pervasive. This conclusion is reinforced by Akhigbe and Madura's finding of a competitive effect when the liquidating firms had more monopoly power.

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[18]Shome and Singh (1995), p. 12.

Using the $120 million in liabilities as a criterion for inclusion in their sample produced only six firms that eventually liquidated in Lang and Stulz's study. Since the heart of this research is corporate liquidations, we deem it necessary to relax the criterion for $120 million in liabilities to qualify for the sample. As a result, we expect to find evidence of the contagion effect similar to Kim and Papaioannou's results, and no support for the competitive effect. Moreover, eliminating the $120 million in liabilities as a threshold to qualify for our sample, we expect any industry-wide effects present in this research to be less pronounced than Lang and Stulz's.

With respect to our examination of the extent to which agency governance issues may be contributing to the contagion/competitive results, we examine the allocation of equity ownership in the liquidating firms as well as the competitor firms. The rationale for looking at the distribution of equity in the liquidating firms is to investigate if either insider or institutional ownership may be playing a role in liquidations arising from agency problems.

For competitor firms, we expect insider ownership to be more positively correlated with the abnormal returns for low-growth competitors than for high-growth competitors. We draw this inference from the relationship between market valuation and insider ownership explained by Morck, Shleifer, and Vishny (1988), Stulz (1988), and McConnell and Servaes' (1990, 1995) because there is a convergence of interest among managers and shareholders for lower levels (approximately 35%–40% from McConnell

and Servaes) of insider ownership/lower levels of growth opportunities. When insider ownership exceeds this level, the relationship between insider ownership and market value is negative (a curvilinear relationship), which they claim is explained by the entrenchment hypothesis.

Equally important is the inference that competitor firms whose shareholders include institutional investors should experience a more positive effect than firms without the concentration of voting power — particularly for firms with high growth opportunities (that is, high *q*). The basis for this expectation is the research of Shome and Singh (1995) and Park and Song (1995). Although Shome and Singh found no evidence that blockholders play a valuable role in limiting managerial discretion over free cash flow, they suggested the value increase they obtained may be due to reducing potential opportunistic managerial behavior. Additionally, Park and Song using an unconditional comparison between firms with outside blockholders and firms without them found an improvement in performance that was limited to block firms.

III. Data

The sample analyzed by this study is limited to firms announcing their voluntary liquidation, due to financial distress, during the years 1975 through 1994. The initial sample of announcing firms was obtained from the 1995 COMPUSTAT® II Industrial Annual Research File.[19] This source produced a sample of 128 firms in 83 industries, according to their 4-digit SIC code, announcing their liquidation. The sample was then filtered by verifying the liquidation announcement date in *The Wall Street Journal*; this step reduced the sample to 70 firms. This refined listing of firms is provided in Appendix A. Using data from the Research File, we computed the following characteristics for each of the firms in Appendix A:

- high/low Herfindahl Index for the liquidating firm's industry. We code the industry as "0" if it is competitive (that is, the total sales for the industry are spread among a relatively large number of firms), and "1" if the industry is concentrated (total sales limited to a relatively few firms). We determine this relative value by comparing the Herfindahl Index for the industry with the median index of all industries for the liquidation year. An industry index greater than the

[19]A code of "03" in Footnote Slot No. 35 indicates liquidation was the reason a firm was deleted from the file.

median value indicates a concentrated industry; conversely an industry index less than the median value indicates a competitive industry. The Herfindahl Index for each industry (as identified by four-digit SIC code) for the years 1975–1994 is provided in Appendix B. The computation of this index is discussed in the methodology section that follows.

- high/low Tobin's *q*: A firm with a low *q* (lower than the median value for all firms in that industry) is coded as "0" while a high *q* firm is coded as "1." Appendix C provides the industry values of Tobin's *q* computed using the approach presented in the methodology section.
- high/low BE:ME ratio: A firm with strong earning's potential – a low BE:ME ratio — is coded as "1" while a firm with weak earnings potential is coded as "0." A firm with strong earnings potential is one whose BE:ME ratio is less than the median value for its respective industry. The industry median values for the BE:ME ratio are provided in Appendix D.
- high/low leverage: A firm with a high level of leverage (higher than the average leverage for all firms in the industry) is coded as "0" while a low-leverage firm is coded as "1." Appendix E provides the industry averages for leverage during the years of 1975–1994.

In addition to the data obtained from the COMPUSTAT® File, we also used data produced by Disclosure Incorporated (formerly CDA, Inc., formerly Computer Directions Advisors, Inc.) to classify each of the firms accord-

ing to the percentage of their equity held by insiders and institutional investors. For 1991 and later years, the information was extracted from *Compact Disclosure*. For the years prior to 1991, *Spectrum 3* and *Spectrum 6* provided the data for institutional and insider, respectively, equity holdings.[20]

Table I, on the following pages, presents the characteristics of each of the firms announcing their liquidation. This list is sorted according to SIC and the announcement date. While there was data to classify the degree of competition for each of the industries except "firm067" whose SIC is 8050, it is particularly interesting to note there was insufficient data to compute Tobin's *q* for any of the liquidating firms.

With respect to the BE:ME ratio, most of the firms had a weak earnings potential, but we find seven of the liquidating firms had a low ratio (that is, the firms were coded as "1") suggesting a strong earnings potential. One possible reaction to this information might be: "Why would a firm with

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[20]The Securities Act Amendments of 1975 established the requirement for institutional investment managers exercising discretion over accounts with combined equity assets exceeding $100,000,000 to file quarterly reports, Form 13F, with the Securities and Exchange Commission. Equity holdings less than 10,000 *and* $200,000 in principal value and market value are exempt from the reporting requirements. Consequently, institutional equity holdings that do not meet these criteria are neither included in the *Spectrum 3* report nor are they reflected in the classification of the firms. Furthermore, *Spectrum 3* was first published in 1978; as such the data to classify firms according to institutional equity holdings are not available for the years 1975 - 1977.

Officers, Directors,and 10% principal stockholders ("insiders") of all companies having securities registered with the Securities and Exchange Commission are required to file periodic reports detailing initial equity ownership (Form 3) and all subsequent transactions (Form 4). *Spectrum 6*, published semi-annually as of June 30 and December 31, is a listing of all insiders owning 1,000 shares ($25,000 principal amount), or more. Insiders whose holdings are less than this threshold are not included in *Spectrum 6*, nor are they reflected in our firm classifications. *Spectrum 6* was first published in December 1980; the data to classify firms according to insider holdings are not available for the years 1975 - 1979.

Table I
Characteristics for the Liquidating Firms

Liquidating Firms	SIC	Announcement Date	Total Number of firms	Herfindahl Index "0"	Herfindahl Index "1"	Tobin's *q* "0"	Tobin's *q* "1"	BE:ME Ratio "0"	BE:ME Ratio "1"	Leverage "0"	Leverage "1"	Insider Stock Owners "0"	Insider Stock Owners "1"	Institutional Stock Owners "0"	Institutional Stock Owners "1"
firm001	1220	08/31/79			✓			✓		✓		✓		✓	
firm002	1311	05/21/76		✓				✓		✓					
firm003	1311	03/22/77		✓				✓		✓					
firm004	1311	07/12/89		✓				✓		✓					
firm005	1311	10/22/86		✓				✓		✓					
firm006	1531	09/26/80		✓				✓		✓		✓			
firm007	2086	09/26/78			✓			✓		✓					
firm008	2100	06/22/81			✓			✓		✓		✓			
firm009	2200	09/19/79			✓			✓		✓					✓
firm010	2300	03/16/81			✓			✓		✓		✓			
firm011	2340	07/27/84			✓			✓		✓		✓			✓
firm012	2400	11/26/75		✓				✓		✓					
firm013	2400	04/16/80		✓				✓		✓			✓		
firm014	2451	03/06/89		✓				✓		✓		✓			✓
firm015	2510	04/18/75		✓				✓		✓					
firm016	2510	08/19/83		✓				✓		✓		✓			✓
firm017	2670	12/24/81		✓				✓		✓		✓			✓
firm018	2670	01/29/86		✓				✓		✓		✓			✓
firm019	2721	03/30/76		✓				✓		✓					
firm020	2741	02/10/77			✓				✓						
firm021	2911	05/22/75		✓				✓		✓					
firm022	2911	03/03/76		✓				✓		✓					
firm023	2911	05/27/79		✓				✓		✓					✓
firm024	3312	04/21/77		✓				✓		✓				✓	

Table I
Characteristics for the Liquidating Firms

Liquidating Firms	SIC	Announce-ment Date	Total Number of firms	Herfindahl Index "0"	Herfindahl Index "1"	Tobin's *q* "0"	Tobin's *q* "1"	BE:ME Ratio "0"	BE:ME Ratio "1"	Leverage "0"	Leverage "1"	Insider Stock Owners "0"	Insider Stock Owners " 1"	Institutional Stock Owners "0"	Institutional Stock Owners "1"
firm025	3350	09/17/81		✓				✓		✓			✓		✓
firm026	3350	03/08/84		✓				✓			✓	✓			✓
firm027	3443	06/02/77			✓			✓		✓					
firm028	3541	01/03/86		✓				✓		✓			✓		✓
firm029	3572	02/24/84		✓				✓		✓		✓			✓
firm030	3585	02/04/83		✓				✓			✓	✓			✓
firm031	3663	12/05/79		✓				✓		✓					✓
firm032	3674	07/10/79		✓				✓		✓					
firm033	3713	07/19/78			✓				✓						✓
firm034	3714	09/05/85		✓				✓		✓			✓		✓
firm035	3827	03/17/75			✓			✓		✓					
firm036	3851	08/28/80			✓			✓		✓					✓
firm037	3944	05/08/78			✓			✓		✓					
firm038	4210	06/27/75			✓				✓						
firm039	4210	04/09/79			✓				✓						
firm040	4400	05/08/75		✓				✓		✓					
firm041	4512	11/29/91		✓				✓			✓		✓		✓
firm042	4522	07/31/78			✓			✓			✓				✓
firm043	4832	01/19/79			✓				✓						✓
firm044	4833	03/30/82			✓			✓			✓		✓	✓	
firm045	4833	03/21/84			✓			✓			✓		✓		✓
firm046	5040	12/09/75			✓			✓		✓					
firm047	5080	12/31/76		✓				✓		✓					
firm048	5122	06/05/81		✓				✓		✓			✓		

Table I
Characteristics for the Liquidating Firms

Liquidating Firms	SIC	Announcement Date	Total Number of firms	Herfindahl Index "0"	Herfindahl Index "1"	Tobin's q "0"	Tobin's q "1"	BE:ME Ratio "0"	BE:ME Ratio "1"	Leverage "0"	Leverage "1"	Insider Stock Owners "0"	Insider Stock Owners "1"	Institutional Stock Owners "0"	Institutional Stock Owners "1"
firm049	5190	01/10/77			✓			✓							
firm050	5211	12/01/86		✓				✓		✓			✓		
firm051	5331	11/25/87		✓				✓		✓					
firm052	5900	12/19/75			✓				✓						
firm053	5961	09/15/83		✓				✓			✓	✓			✓
firm054	6021	05/15/75		✓				✓			✓				
firm055	6311	03/31/83		✓				✓		✓		✓		✓	
firm056	6512	06/09/78		✓				✓			✓				✓
firm057	6512	03/14/85		✓				✓		✓					
firm058	6552	04/14/81		✓				✓		✓		✓			✓
firm059	6798	09/24/85		✓				✓		✓			✓	✓	
firm060	6798	02/16/90		✓				✓		✓			✓		✓
firm061	6799	01/19/79		✓				✓		✓				✓	
firm062	6799	09/01/83		✓				✓		✓					
firm063	6799	12/01/83		✓				✓		✓			✓	✓	
firm064	7350	03/14/78			✓				✓						
firm065	7359	10/30/78			✓			✓			✓				✓
firm066	7372	03/27/79		✓				✓		✓					
firm067	8050	07/15/75													
firm068	8060	01/27/77		✓				✓		✓					
firm069	8071	06/22/93			✓			✓			✓				
firm070	9995	02/04/88			✓			✓		✓			✓		✓
Overall			70	44	25			62	7	50	11	15	13	7	26

strong earnings potential liquidate?" A closer inspection reveals that each of these seven firms is in a concentrated industry. The implication at this point is the relatively high market equity for each of these firms is attributable to the limited number of firms in the industry for which the median BE:ME ratio was calculated. (Unfortunately, we cannot examine the effect on rivals when a liquidating firm has a low BE:ME ratio, because, as shown in Table II, we were unable to construct portfolios for any of these seven liquidating firms [020, 033, 038, 039, 043, 052, and 064].)

The next step was to form portfolios of competitors using the 1995 COMPUSTAT® Annual File. For a firm to qualify for inclusion in a portfolio of competitors, there had to be sufficient data in the COMPUSTAT® File to allow computation of: the Herfindahl Index, Tobin's *q*, the BE:ME ratio, the Leverage ratio, and the Trading Volume Index. Furthermore, there had to be sufficient daily return data in the *CRSP* (Center for Research into Security Prices) File, to allow the computation of abnormal returns.

Table II, on the following pages, presents a summary of the characteristics for each of the portfolios. The imposed constraint of requiring COMPUSTAT® data to compute all the classification characteristics resulted in no qualified firms for portfolios 020, 033, 038, 039, 043, 046, 049, 052, 064, and 067. In effect, this reduced the number of liquidation announcements from 70 to 60. For the remaining 60 liquidation announcements we formed portfolios ranging from one to 79 competitors for a total of 649 competitors. Using *CRSP* data and the market model (see the Methodology Section), we

Table II
Summary of the Characteristics for the Portfolios of Competing Firms

Portfolio	SIC	Announcement Date	Total Number of Firms	Herfindahl Index "0"	Herfindahl Index "1"	Tobin's *q* "0"	Tobin's *q* "1"	BE:ME Ratio "0"	BE:ME Ratio "1"	Leverage "0"	Leverage "1"	Insider Stock Owners "0"	Insider Stock Owners "1"	Institutional Stock Owners "0"	Institutional Stock Owners "1"	Trading Volume Index
portf001	1220	08/31/79	1	0	1	0	1	0	1	0	1	1	0	1	0	7.0000
portf002	1311	05/21/76	22	22	0	11	11	9	13	13	9	0	0	2	15	6.5455
portf003	1311	03/22/77	24	24	0	12	12	12	12	13	11	0	0	2	16	7.4167
portf004	1311	07/12/89	28	28	0	16	12	14	14	11	17	15	10	8	16	6.3214
portf005	1311	10/22/86	36	36	0	19	17	20	16	16	20	10	19	10	20	5.3889
portf006	1531	09/26/80	11	11	0	5	6	5	6	7	4	7	3	2	8	4.9091
portf007	2086	09/26/78	1	0	1	1	0	1	0	1	0	0	0	0	0	8.0000
portf008	2100	06/22/81	1	0	1	0	1	0	1	1	0	0	0	0	0	6.0000
portf009	2200	09/19/79	3	0	3	1	2	0	3	2	1	0	0	0	2	4.3333
portf010	2300	03/16/81	3	0	3	1	2	2	1	2	1	2	1	1	1	4.0000
portf011	2340	07/27/84	1	0	1	0	1	0	1	0	1	1	0	0	1	3.0000
portf012	2400	11/26/75	2	2	0	0	2	0	2	1	1	0	0	2	0	10.0000
portf013	2400	04/16/80	2	2	0	0	2	0	2	1	1	0	2	2	0	10.0000
portf014	2451	03/06/89	5	5	0	2	3	2	3	3	2	1	3	2	3	3.2000
portf015	2510	04/18/75	5	5	0	3	2	3	2	3	2	0	0	1	4	4.8000
portf016	2510	08/19/83	5	5	0	2	3	3	2	3	2	1	4	2	3	5.4000
portf017	2670	12/24/81	6	6	0	3	3	3	3	2	4	1	3	2	1	3.8333
portf018	2670	01/29/86	6	6	0	3	3	3	3	2	4	1	4	2	3	4.1667
portf019	2721	03/30/76	3	3	0	2	1	2	1	1	2	0	0	1	2	3.6667
portf020		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf021	2911	05/22/75	26	26	0	11	15	12	14	11	15	0	0	14	8	8.1154
portf022	2911	03/03/76	27	27	0	12	15	12	15	13	14	0	0	14	9	8.4815
portf023	2911	05/27/79	25	25	0	12	13	12	13	15	10	3	15	14	8	9.2800
portf024	3312	04/21/77	13	13	0	7	6	7	6	5	8	0	0	4	8	6.2308

Table II
Summary of the Characteristics for the Portfolios of Competing Firms

Portfolio	SIC	Announcement Date	Total Number of Firms	Herfindahl Index "0"	Herfindahl Index "1"	Tobin's *q* "0"	Tobin's *q* "1"	BE:ME Ratio "0"	BE:ME Ratio "1"	Leverage "0"	Leverage "1"	Insider Stock Owners "0"	Insider Stock Owners " 1"	Institutional Stock Owners "0"	Institutional Stock Owners "1"	Trading Volume Index
portf025	3350	09/17/81	4	4	0	2	2	1	3	2	2	3	0	1	2	5.5000
portf026	3350	03/08/84	3	3	0	2	1	2	1	1	2	1	2	1	2	3.3333
portf027	3443	06/02/77	2	0	2	1	1	1	1	1	1	0	0	0	1	2.5000
portf028	3541	01/03/86	3	3	0	1	2	1	2	1	2	0	3	3	0	6.3333
portf029	3572	02/24/84	3	3	0	2	1	1	2	1	2	1	2	2	1	8.0000
portf030	3585	02/04/83	3	3	0	2	1	1	2	1	2	1	2	0	2	5.3333
portf031	3663	12/05/79	7	7	0	2	5	1	6	3	4	0	0	3	4	7.2857
portf032	3674	07/10/79	14	14	0	7	7	7	7	5	9	0	0	5	4	6.3571
portf033		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf034	3714	09/05/85	24	24	0	12	12	13	11	12	12	3	17	15	5	5.9583
portf035	3827	03/17/75	1	0	1	0	1	0	1	0	1	0	0	0	1	5.0000
portf036	3851	08/28/80	1	0	1	1	0	0	1	1	0	0	1	1	0	9.0000
portf037	3944	05/08/78	2	0	2	0	2	1	1	2	0	0	0	0	1	2.0000
portf038		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf039		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf040	4400	05/08/75	3	3	0	2	1	2	1	1	2	0	0	1	1	5.0000
portf041	4512	11/29/91	14	14	0	7	7	7	7	5	9	1	11	9	3	8.2857
portf042	4522	07/31/78	2	0	2	1	1	1	1	1	1	0	0	0	1	7.0000
portf043		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf044	4833	03/30/82	3	0	3	2	1	2	1	0	3	0	3	2	1	7.3333
portf045	4833	03/21/84	5	0	5	2	3	2	3	3	2	0	4	4	1	6.0000
portf046		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf047	5080	12/31/76	4	4	0	3	1	2	2	3	1	0	0	1	3	4.0000
portf048	5122	06/05/81	3	3	0	2	1	1	2	1	2	0	1	1	0	5.0000

Table II
Summary of the Characteristics for the Portfolios of Competing Firms

Portfolio	SIC	Announcement Date	Total Number of Firms	Herfindahl Index "0"	Herfindahl Index "1"	Tobin's q "0"	Tobin's q "1"	BE:ME Ratio "0"	BE:ME Ratio "1"	Leverage "0"	Leverage "1"	Insider Stock Owners "0"	Insider Stock Owners "1"	Institutional Stock Owners "0"	Institutional Stock Owners "1"	Trading Volume Index
portf049		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf050	5211	12/01/86	5	5	0	2	3	3	2	1	4	1	4	4	1	8.2000
portf051	5331	11/25/87	9	9	0	5	4	5	4	2	7	1	6	5	2	7.6667
portf052		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf053	5961	09/15/83	1	1	0	1	0	1	0	0	1	0	0	0	0	9.0000
portf054	6021	05/15/75	43	43	0	22	21	21	22	27	16	0	0	10	17	5.4186
portf055	6311	03/31/83	16	16	0	7	9	7	9	5	11	3	6	3	9	5.1250
portf056	6512	06/09/78	3	3	0	1	2	1	2	1	2	3	0	1	2	6.3333
portf057	6512	03/14/85	4	4	0	1	3	1	3	3	1	2	1	2	1	4.0000
portf058	6552	04/14/81	2	2	0	0	2	0	2	1	1	2	0	0	2	3.5000
portf059	6798	09/24/85	32	32	0	15	17	15	17	16	16	8	12	7	13	4.0938
portf060	6798	02/16/90	72	72	0	27	45	37	35	35	37	5	42	22	26	4.1111
portf061	6799	01/19/79	1	1	0	1	0	0	1	0	1	0	0	0	1	9.0000
portf062	6799	09/01/83	2	2	0	1	1	1	1	1	1	0	0	0	1	5.0000
portf063	6799	12/01/83	2	2	0	2	0	1	1	1	1	0	0	0	1	3.5000
portf064		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf065	7359	10/30/78	1	0	1	0	1	0	1	0	1	0	0	0	1	8.0000
portf066	7372	03/27/79	2	2	0	1	1	1	1	1	1	0	0	0	0	6.0000
portf067		/ /	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000
portf068	8060	01/27/77	3	3	0	2	1	2	1	1	2	0	0	1	2	3.6667
portf069	8071	06/22/93	4	0	4	1	3	1	3	1	3	1	2	0	4	6.5000
portf070	9995	02/04/88	1	0	1	1	0	1	0	0	1	0	1	1	0	5.0000
Overall			560	528	32	264	296	266	294	266	294	79	184	191	244	5.9482

computed the abnormal returns for all firms for which sufficient daily return data were available. This additional requirement for computing the abnormal returns reduced the final sample down to 560 firms.

Reviewing the information from Table II, we find:

- For the Herfindahl Index, there are only 32 firms for the concentrated industries, but 528 for the competitive industries. Earlier research suggests firms in the concentrated industries should experience positive abnormal stock returns (that is, the competitive effect) associated with a liquidation announcement while the firms in the competitive industries should experience negative abnormal stock returns (the contagion effect).
- There is a fairly even distribution of firms for Tobin's q — 264 firms whose q values are below the industry median and 296 firms above the median. Since the q ratio may be considered to represent how well a firm is managed, we expect the high-q firms (coded as "1") to have a positive stock price reaction to the liquidation announcement and the low-q firms to have a zero or negative price reaction.
- For the BE:ME ratio we also find an approximately even distribution of firms. There are 266 firms with a high BE:ME ratio (coded as "0") and 294 firms with a low ratio. The implication from Fama and French's (1995) research is the firms with a low BE:ME ratio should experience a nonnegative stock price reaction because they have a strong earnings potential, and the high BE:ME ratio firms should have a nonpositive reaction because of persistently poor earnings.

- With respect to the Leverage ratio, there are 266 firms whose leverage ratios are above the industry average (coded as "0") and 294 firms below the industry average. If, according to Shleifer and Vishny (1992), the optimal leverage of a firm depends upon the leverage of other firms in the industry, then we should expect those firms whose leverage is below the industry average (assuming the industry as a whole is operating with the optimal leverage) to be better positioned to exploit market opportunities presented when competitors liquidate, even if it requires taking on additional debt. Conversely, firms whose leverage is already above the industry average do not have the same degree of flexibility. That is, firms whose leverage is above the industry average may not have the flexibility of choosing between debt or equity to finance new investment without paying a premium. Consequently, the expectation is nonnegative returns for the lower leveraged firms and nonpositive returns for the higher leveraged firms.
- We selected the breakpoints for classifying the insider and institutional equity holders by reviewing the cumulative abnormal returns for the three-day announcement period interval (discussed in the Methodology Section). The abnormal returns for the insider equity holders generally were increasing from zero per cent through 28% of the total outstanding shares, decreasing from 29% through 38%, increasing from 39% through 60%, decreasing from 61% through 86%, and increasing above 86%. These results are consistent with

earlier studies (McConnell and Servaes [1990, 1995]) that suggest a non-linear relationship between insider holdings and firm performance, but with more than one change-in-sign. Considering the majority of the observations — 184 of 263 — were for insider equity holdings of 28%, or less, we elected to divide the sample into only two categories; there are not enough firms in the sample to warrant further subdivision. For those firms whose insider equity holdings did not exceed 28% (coded as "1"), we expect nonnegative returns, and nonpositive returns for firms with insider equity holdings above 28% (79 firms coded as "0"). For a comparison, we refer to McConnell and Servaes who suggested a breakpoint of approximately 35%– 40%.

For the institutional equity holders we also observe a non-linear pattern. In this instance we observe increasing abnormal returns from zero percent through 21% of equity holdings (244 firms of 435 total), decreasing abnormal returns from 22% through 33% (71 firms in this range), and vacillating abnormal returns above 33% of outstanding shares held by institutional investors. Again, electing to segregate the sample into only two categories, we coded those firms with 21%, or less, of their equity held by institutions as "1," and the other firms for which data were available as "0." The implication is firms with 21%, or less, of their equity held by institutions should experience nonnegative abnormal returns, and institutional equity holdings above 21% (191 firms) should be associated with non-positive abnormal returns.

- The Trading Volume Index denotes whether the stocks in a given portfolio are thinly or heavily traded. We are concerned with the trading volume of the competitor firms because using daily returns introduces potential bias and inconsistency into the parameter estimates. (See footnote 22 in the Methodology section for a discussion of this problem). Using the COMPUSTAT® data for common shares traded on the NYSE, ASE, and NASDAQ stock exchanges, we generated Appendix F that breaks the trading volume into ten groups for each year. To achieve the goal of perfect balance, indicating a representative cross-section of firms with respect to stock trading volume, the ideal Trading Volume Index would be 5.5000. Although it is not reasonable to expect each portfolio to be perfectly balanced, we should expect the overall index for all the portfolios to fall within the range of 4.5–6.5. For this sample of 560 firms in 60 portfolios, the overall Trading Volume Index is 5.9482 indicating sufficient balance to preclude any concerns about bias in our parameter estimates.

IV. Methodology

The methodology used for the analysis of the data supporting this research employs techniques/methods that have been used extensively in a variety of academic research published in the finance literature. These methods/techniques include: Estimating the Market Model, Computing the Herfindahl Index, and Estimating Tobin's *q*. The final portion of this section presents the empirical model for the macroanalysis of the data.

a. Estimating the Market Model

In financial research we often are concerned with the market's reaction to a specific, well-defined event — a firm announcing its liquidation is the event of interest for this research. An event study, to determine if security holders realize abnormal returns related to a specific event, is one of the most frequently used instruments for this research. An abnormal return is an observed return that is different from the expected return if no event had occurred. For this research we use the market model to estimate the abnormal returns because it has been used extensively and is accepted as a valid technique for event study research.[21]

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[21]Recent finance-related research using the market model, for other than corporate bankruptcy event studies, includes: Asquith and Mullins (1986), Bartov and Bodnar (1994), Blackwell, Marr, and Spivey (1990), Chan, Martin, and Kensinger (1990), Dann and (continued...)

A literal interpretation of the market model is: the return on any security is a linear function of the market return plus a random error term that is independent of the market. In mathematical terms, it is a bivariate model that uses ordinary least squares (OLS) to estimate the unknown parameters. Equation (1) presents the mathematical relationship for the market model:

$$R_{id} = \alpha_i + \beta_i R_{md} + \varepsilon_{id}, \quad i = 1, 2, \ldots N, \tag{1}$$

where,

R_{id} = the rate of return for security i, or firm i, on event day d (data obtained from CRSP),

α_i = the intercept coefficient for security i,

β_i = the slope coefficient for security i,

R_{md} = the rate of return for the CRSP equally weighted index on event day d,

ε_{id} = the error term for security i on event day d.

Note that α_i and β_i are parameters that vary from security to security and ε_{id} is a random error term. Briefly the assumptions of OLS are:

- The relationship between R_{id} and R_{md} is linear, as described in Equation (1).

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[21](...continued)
Mikkelson (1984), Eckbo (1986), Fama, Fisher, Jensen, and Roll (1969), Ferreira (1994), Gibbons (1982), Jensen and Pugh (1991), Kim, McConnell, and Greenwood (1977), Kim and Stulz (1988), Linn and Pinegar (1988), MacKinlay (1987), Mikkelson and Partch (1985 & 1986), Patell (1976), Pilotte (1992), Tang and Singer (1993), Tehranian, Travlos, and Waegelein (1987), and Varma and Chambers (1990). In addition, relevant corporate bankruptcy-related research using the market model includes: Aharony and Swary (1983), Brown, James, and Mooradian (1993), Clark and Weinstein (1983), Dhillon, Noe, and Ramirez (1994), Johnson (1989), Kim and Papaioannou (1994), Lang and Stulz (1992), Russel and Branch (1994), and Warner (1977a).

- The R_{md}s are nonstochastic variables whose values are fixed.
- The error term, ε_{id}, has zero expected value and constant variance for all observations. That is, $E(\varepsilon_i) = 0$ and $E(\varepsilon_i^2) = \sigma^2$.
- The error terms, ε_i, are statistically independent. That is, $E(\varepsilon_i\varepsilon_j) = 0$, for $i \neq j$.
- The error terms are normally distributed.

As was indicated in the data section of this paper, we use daily stock returns for the investigation into the intra-industry effects of liquidation announcements. Using daily returns typically engenders three potential problems for the use of OLS to analyze the data. These problems are bias, inconsistency, and inefficiency of the parameter coefficients. Fortunately, the results of earlier research allow us to use OLS with confidence to estimate the parameter coefficients without concern with respect to bias, inconsistency, or inefficiency of the coefficient estimates.[22]

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[22]Looking first at the issue of bias and inconsistency, research has identified two sources for this bias and inconsistency. According to the arguments presented by Scholes and Williams (1977), Dimson (1979), and Fowler and Rorke (1983), one source of bias is nonsynchronous data (sometimes referred to as thin trading). We have nonsynchronous data because the trading activity for the individual securities is not coincidental with all the trading activity that is used to compute the market returns. With most securities, we can characterize the trading activity as discrete, with stochastic time intervals, and with prices that reflect actual trades. It is this discontinuity in the trading of the individual securities that results in the errors in variables problem. For securities that are traded less frequently, the coefficient estimates are biased downward while the coefficient estimates are biased upward for the more frequently traded securities. Each of these authors developed techniques to adjust the coefficient estimates for this bias.

Cohen, Hawawini, Maier, Schwartz, and Whitcomb (1983a, 1983b) document price adjustment delays as a second source of bias in estimating the coefficients for the market model parameters. They cite three factors contributing to the price adjustment delays: 1) the lag of transaction price adjustments behind quotation price adjustments (Fisher effect); 2) specialists/dealers impeding quotation price adjustments for the purpose of complying with exchange stabilization obligations or compensating for inventory imbalances; and (continued...)

To estimate the market model parameters, α and β, we use the period from $d = -200$ to $d = -30$. These event days d are relative to the date when the firm announced its liquidation, where $d = 0$ is the announcement date.

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[22](...continued)
3) individual traders who trade only periodically due to information, decision, and transaction costs. They conclude that price-adjustment delays longer than one trading day exist. Building upon the work of Scholes and Williams and Dimson, Cohen, Hawawini, Maier, Schwartz, and Whitcomb develop a more robust methodology that adjusts the coefficient estimates for both nonsynchronous data and price-adjustment delays.

Given these two sources of bias and the alternate methods for adjusting the coefficient estimates, we must select a methodology that will minimize, if not eliminate, the bias and inconsistency. For the answer, we turn to the research of McInish and Wood (1986). They reason these two sources of bias are related because "prices cannot adjust to reflect a changed market equilibrium without a transaction occurring." They, McInish and Wood, test the effectiveness of these proposed beta-adjustment methodologies using actual data. They constructed five portfolios with known true betas, and compared the results of these alternate beta estimating techniques with OLS.

The five portfolios were similar except for trading frequency. They ranged from portfolios with infrequently traded securities to portfolios with frequently traded securities. To be completely successfully in eliminating the bias, the procedure used to adjust the estimate of beta for each of the portfolios would have to result in a coefficient of 1.0. Although all the proposed methods resulted in beta spreads — the difference between the high and low beta estimates (in the respective portfolios) for each method — narrower than OLS (as much as 29% less), none were successful in eliminating the bias. Of primary interest for the research at hand is their finding that the mean beta estimates (for the five portfolios) were 1.0 for OLS, Scholes and Williams, and Dimson, but the mean beta estimates for Fowler, Rorke, and Jog and Cohen, Hawawini, Maier, Schwartz, and Whitcomb were biased upwards. Therefore, assuming the industry portfolios we use are composed of a cross-section of firms — that is, not dominated by firms whose securities are traded either frequently or infrequently — the resulting OLS estimates should be unbiased.

Further support for using the OLS estimates for the market model is provided by Levinsohn, MacKie, and Mason (1990). They conclude that estimating abnormal event-day returns with OLS typically generates consistent estimators when the event affects a small fraction of all firms in the market.

We now turn our attention to the potential problem of inefficient estimators arising from the autocorrelation of data that occurs in time-series data. Autocorrelation, or serial correlation, occurs when the errors in one time period carry forward to future time periods. That is, we violate the assumption that the error terms are statistically independent ($E(\varepsilon_i \varepsilon_j) = 0$). Brown and Warner (1985), using simulation procedures with actual stock return data, investigated the distribution of excess returns and the empirical properties of the test statistics. As expected, they found small — but statistically significant — excess market model returns (-0.027 and -0.071 for the New York and American stock exchanges, respectively) attributable to serial correlation. Interestingly, after adjusting for autocorrelation, they found no dramatic changes in their results. They conclude although there is evidence to suggest the test statistic is improved by using procedures to adjust for autocorrelation, the improvements are small and apply only in a couple of special cases. These special cases are when the study uses data primarily from the American Stock Exchange (AMEX) or there is a clustering of event days.

Then, using equation (2), we determine if there were abnormal returns for the other firms in the respective industries related to the firm's liquidation announcement and estimate the daily abnormal returns for the period from $d = -1$ to $d = 1$ — a three-day interval.[23] The definition of an abnormal return for security i on event day d, (AR_{id}), is: $AR_{id} = R_{id} - \hat{R}_{id}$, where $\hat{R}_{id}$ is estimated using the parameters from the market model as follows:

$$\hat{R}_{id} = \hat{\alpha}_i + \hat{\beta}_i R_{md} \tag{2}$$

The daily average abnormal return ($\overline{AR}_d$) for each event day d, for N firms, is a simple average computed as follows:

$$\overline{AR}_d = \frac{1}{N}\sum_{i=1}^{N} AR_{id} \tag{3}$$

The expected value of $\overline{AR}_d$ is zero for no abnormal performance. To evaluate whether $\overline{AR}_d$ is statistically different from zero, we calculate t-statistics using the average standardized abnormal return ($ASAR$). The $ASAR$ is the average of the abnormal returns ($\overline{AR}_d$) divided by the sample standard deviation for each security, s_i, as shown in the following equation:

$$ASAR_d = \frac{1}{N}\sum_{i=1}^{N} \frac{AR_{id}}{s_i} \tag{4}$$

We calculate the sample standard deviation for each security, s_i, from the R_{id} over the 171-day trading period $d = -200$ through $d = -30$, inclusive, and standardize each abnormal return for security i during the three-day

[23]Clark and Weinstein (1983) document that although we can obtain a precise announcement date (bankruptcy filing date in their study), there is ambiguity about when the news of each announcement was publicly released and the market's response. Using a window one day before the announcement date through one day after the announcement date compensates for the ambiguity related to the actual announcement.

event period by dividing it by s_i. Finally, the *t*-statistic to test the hypothesis that the average standardized abnormal return equals zero is:

$$t(ASAR_d) = \frac{1}{\sqrt{N}} \sum_{i=1}^{N} \frac{AR_{id}}{s_i} \tag{5}$$

Given the ambiguity associated with when the news of the each announcement was publicly released prompting the market's response, typically we are interested in the cumulative abnormal returns over two, or more, days. For this research we calculate the cumulative abnormal returns (CAR_i) for each firm i and the cumulative average abnormal return ($CAAR$) of a group of N firms for the three-day announcement period of $d = -1$ through $d = 1$ as:

$$CAR_i = \sum_{d=-1}^{d=1} AR_{id} \tag{6}$$

$$CAAR = \sum_{d=-1}^{d=1} \overline{AR}_d \tag{7}$$

As with $\overline{AR}_d$, the expected value for $CAAR$ is zero for no abnormal performance. To test the significance of the abnormal returns for a group of firms, the average standardized cumulative abnormal return ($ASCAR$) is:

$$ASCAR = \sum_{d=-1}^{d=1} ASAR_d \tag{8}$$

and the corresponding *t*-statistic is:

$$t(ASCAR) = \frac{1}{\sqrt{N}\,(d_2 - d_1 + 1)} \sum_{i=1}^{N} \sum_{d=-1}^{d=1} \frac{AR_{id}}{s_i} \tag{9}$$

To determine if differences in the cumulative abnormal returns between two distinct groups of firms are statistically significant, we calculate the mean differences of cumulative average abnormal returns ($MDCAAR$) for the three-day announcement period in the following manner:

$$MDCAAR = CAAR_x - CAAR_y \tag{10}$$

where the subscript "*x*" represents one group of firms and the subscript "*y*" represents the second group.

The *t*-statistic to test the hypothesis that the difference in the abnormal returns between the two groups equals zero is:

$$t = \frac{ASCAR_x - ASCAR_y}{\sqrt{\frac{d_2 - d_1 + 1}{N_x} + \frac{d_2 - d_1 + 1}{N_y}}} \qquad (11)$$

where N_x and N_y represent the number of firms in the respective groups.

b. Computing the Herfindahl Index

There are a couple of approaches for computing the Herfindahl Index (*H*). One method converts the relative output for each industry to a percentage from its fractional equivalent (through multiplying each value by 100).[24] Thus, for a given industry of five firms with the respective outputs of 15%, 15%, 19%, 22%, and 29%, we would compute *H* as:

$$H = 2(15)^2 + (19)^2 + (22)^2 + (29)^2 = 2,136$$

Similarly, if the industry consisted of 1,000 firms with the output evenly distributed among these firms, .1% each, we would compute *H* to be:

$$H = 1,000(.1)^2 = 10$$

Given two extremes for the number of firms in an industry — either one firm or an infinite number of firms — this method results in an index for each industry that is within the following range: $0 < H \leq 10,000$.

[24]Copeland and Weston (1988), pp. 688 - 689.

While this method is acceptable, we prefer to use the method that produces an industry index in the following range: $0 < H \leq 1.0$. This is the method used by Dickson (1992), Farrell and Shapiro (1990), and Lang and Stulz (1992). (Referring to the first example, the index would be computed as follows: $H = 2(.15)^2 + (.19)^2 + (.22)^2 + (.29)^2 = .2136$.) Therefore, using net sales as a proxy for output (O), we first compute the total output (sales) for an industry (as defined by the four-digit SIC).

$$O_{SIC} = \sum_{i=1}^{N} O_i, \qquad i = 1, 2, \ldots N, \tag{12}$$

where,

O_{SIC} = the total output (sales) for the industry

O_i = the output (sales) for firm i.

From these data we then compute the Herfindahl Index for each industry in the following manner:

$$H_{SIC} = \sum_{i=1}^{N} \left(\frac{O_i}{O_{SIC}}\right)^2 \tag{13}$$

We compute this index for each year and for all SICs (industries) in COMPUSTAT. This ensures the determination of either high or low concentration[25] for each industry is based upon all available information, and if there is a change from the prior year in the number of firms in an industry, or its concentration, the index for the industry concentration is based upon the current year's data. Appendix B is a table listing all SICs in COMPUSTAT and their Index for each year.

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[25]Classifying a specific industry as either high or low concentration is relative to the median H_{SIC} of all industries for a given year. Thus, a highly concentrated industry is one whose index is higher than the median Herfindahl Index for the year in question.

c. Estimating Tobin's *q*

Given the definition of Tobin's *q* as the ratio of the market value of a company's debt and equity to the current replacement cost of its assets, we write the literal equivalent of the mathematical formula as:

$$q = \frac{\textit{market value of debt and equity}}{\textit{estimated replacement cost of assets}}$$

Considering the previously discussed difficulties in calculating Tobin's *q* according to the formula, there have been various studies that attempted to identify proxies for the firm characteristics the formula purports to measure. Pilotte (1992), for example, found a significant positive relationship between *q* and the abnormal returns for debt offerings. (He notes this contrasts with Barclay and Litzenberger (1988) finding no significant relationship between announcement period abnormal returns and the *q* ratio for equity offerings.) He also found a significant positive relationship between a firm's P/E ratio and the abnormal returns. This similarity in the relationship for *q* to abnormal returns and abnormal returns to the P/E ratio weakly suggests the P/E ratio may be used as a proxy for Tobin's *q*. Solt and Statman (1989) found a positive relationship between Tobin's *q* and the price-earnings ratio, and therefore conclude the P/E ratio serves as a proxy for growth opportunities.

Using the P/E ratio as a proxy for Tobin's *q*, or a firm's growth opportunities, is not without its problems. For example, if a firm has negative earnings, the P/E ratio is meaningless and not published in the *Wall Street*

Journal. Furthermore, if a firm has extremely low earnings, fractions of a cent per share, the resulting P/E ratio may be unrealistically high. Therefore, using the P/E ratio as a proxy for Tobin's q may not provide the precise measurement of a firm's under-/overinvestment characteristic necessary to differentiate accurately between the two groups.

Chung and Pruitt (1994) provide a procedure that overcomes the traditional obstacles for estimating q in terms of data requirements and computational effort. Their procedure relies upon data that is available from the COMPUSTAT industrial file. Using OLS and the period of 1978 – 1987, they compare their approximation for q with the more theoretically correct Lindenberg and Ross (1981) procedure for computing q. While Chung and Pruitt's approximation typically overestimated the value for q (as determined from the Lindenberg and Ross procedure) when looking at randomly selected firms, the coefficients for their approximate q ranged from a low of 0.917 to a high of 0.993, and in seven of the ten years studied, the coefficients exceeded 0.940. Moreover, the R^2 value for their regressions was never lower than 0.966. That is, at least 96.6% of the variability in q was explained by Chung and Pruitt's approximation.

Given the difficulties associated with the other methods for computing or estimating q, and considering the precision and consistency of Chung and Pruitt's procedure, we use their methodology for approximating q for each of the firms in the sample. Their formula for approximating q is:

$$q = \frac{MVSP + PS + DEBT}{TA} \qquad (14)$$

where,

MVSP = the product of a firm's share price and the number of common stock shares outstanding,

PS = the liquidating value of the firm's outstanding preferred stock,

DEBT = the value of the firm's short-term liabilities net of its short-term assets, plus the book value of the firm's long-term debt,

TA = the book value of the total assets of the firm.

We compare the approximate q for each firm with the median q value for its respective industry (using all firms in COMPUSTAT) to determine if a given firm is above, or below, the industry median. Appendix C provides the industry-median value of q computed using Chung and Pruitt's procedure.

d. Empirical Model

Although the abnormal returns estimated from the market model may be employed to test for significant differences between various subsets of the sample, using equations (10) and (11), one also may use the abnormal returns to construct a mathematical model to test whether certain firm-specific characteristics are causing the abnormal returns. As a precursor to the employment of equations (10) and (11) to test for the magnitude and significance of the differences of the respective subsets of the competitor firms, we first use the OLS model shown in equation (15) as a complementary tool to identify the firm-specific characteristics related to the abnormal

returns. Thus, equation (15) identifies the variables of significance and equations (10) and (11) provide the additional details.

The firm-specific characteristics, previously discussed in the data section, are: Leverage, Tobin's *q*, the Herfindahl Index, the Book Equity to Market Equity ratio, the fraction of common stock owned institutional investors, and the fraction of common stock owned by corporate insiders (officers and directors). The formulation of the model is:

$$CAR_i = \xi_0 + \xi_1 L_i + \xi_2 Q_i + \xi_3 H_i + \xi_4 B_i + \xi_5 S_{1i} + \xi_6 S_{2i} + \upsilon_i \qquad (15)$$

where,

CAR_i = Cumulative Abnormal Return — for event days −1, 0, and 1 — for firm *i* computed using equation (6).

L_i = Leverage rating for firm *i*. $L_i = 0$ for firms whose leverage ratios are above the industry mean and "1" for firms below the industry mean. From this formulation we expect positive coefficients for *L*, signifying that competitors with lower than industry-average leverage experience nonnegative abnormal returns when a firm announces its liquidation. (For the liquidating firms, 50 of the firms were above their respective industry's average for leverage and only 11 were below the industry average.)

Q_i = Tobin's *q* rating for firm *i*. $Q_i = 0$ for firms whose computed *q* values are below the median value for the industry and "1" for firms above the industry median. Similar to *L*, we expect the

coefficient for Q to be positive. That is, underinvested firms — firms whose q value is greater than the industry median — are better poised to expand their capacity if necessary to take advantage of the liquidation announcement than their over-invested brethren. (There was insufficient data to calculate the q ratio of any of the liquidating firms.)

H_i = Herfindahl Index rating for firm i's industry. $H_i = 0$ for firms whose industry ratings are below the median value for all industries (that is, a highly competitive industry), and "1" for firms whose industry ratings are above the median value for all industries. If the competitive effect is present, we expect to obtain a positive coefficient for H.

B_i = Book Equity to Market Equity rating for firm i. $B_i = 0$ for firms whose ratios are greater than the industry median and "1" otherwise. If, as Fama and French (1995) found, a low BE:ME ratio signals strong earnings, and if investors appropriately consider this information at the time of the liquidation announcement, the coefficient for this variable also should be positive. (There were seven liquidating firms with a low BE:ME ratio, but each of these firms was in a concentrated industry according to their industry's Herfindahl Index.) Furthermore, there were insufficient data in COMPUSTAT/CRSP files to form portfolios of competitors for these seven firms.

S_{1i} = The fraction (decimal equivalent) of common stock owned by institutional investors of firm *i*. Firms whose institutional ownership of equity did not exceed 21% were coded as "1," and the remaining firms were coded as "0." Based upon the presumption that institutional ownership implies an increased level of shareholder governance, we expect to obtain a nonnegative coefficient for this variable.

S_{2i} = The fraction (decimal equivalent) of common stock owned by corporate officers and members of the board of directors of firm *i*. Firms with insider ownership of 28%, or less, were coded as "1" and the other firms as "0." Given the results of Morck, Shleifer, and Vishny (1988), Stulz (1988), and McConnell and Servaes (1995) that suggest a curvilinear relationship between value (or *q*) and insider ownership, and inferring similar results hold for the abnormal returns, we do not expect to obtain statistically significant results for the overall sample. However, for the subset of competitors whose insiders own 28% or less of the common stock we expect to obtain a positive coefficient, but a negative relationship when the insiders own more than 28% of the common stock.

V. Empirical Results

a. The Verdict on Contagion and Competitive Effects

Our initial objective is to determine whether contagion and/or competitive effects emanate from liquidation announcements and manifest themselves in the abnormal returns of the competitor firms. We make this determination by using equation (7) to compute the cumulative average abnormal return of the 560 rival firms for the three-day announcement period, and equation (9) to compute the *t*-statistic for these data. For these 560 competitor firms, we have a cumulative average abnormal return of -.11% (the cumulative average abnormal returns were positive for 248 firms, and negative for 312 firms). This negative abnormal return, which is the sum of contagion and competitive effects and is significant at the .05 level (*t*-statistic = -1.9918), indicates that overall there are intra-industry contagion effects associated with corporate liquidation announcements. That is, for the overall sample, the data have spoken and it is the consensus that contagion effects dominate any competitive effects that may be present.

Having established the presence of the contagion effect, it is useful to compare these results with earlier research investigating this effect. Table III, on the following page, provides this comparison. Although there

are some variations in the samples and their associated abnormal returns, there is the consistency of significantly negative abnormal returns in each of the studies that reinforces the pervasiveness of contagion effects. This overall agreement bolsters the argument that the market interprets bankruptcy and liquidation announcements as a signal of problems more appropriately classified as industry-wide rather than firm-specific.

Table III
Comparison of the Cumulative Average Abnormal Returns with Previous Studies

Author(s)	Type of Announcement	Cumulative Average Abnormal Returns	Significance Level	No. of Portfolios	No. of Different SICs
This research	Liquidation	-.11%	.05	60	47
Akhigbe-Madura (1995)	Liquidation	-.23%	.10	91	59
Kim-Papaioannou (1994)	Bankruptcy	-2.32%	.05[a]	92	-
Lang-Stulz (1992)	Bankruptcy	-.85%	.01[a]	59	41

a. Although the presentation of the previous studies' results allowed us to compare the cumulative average abnormal returns for the three-day announcement period, they do not permit a direct comparison of the significance levels for the overall three-day period. Consequently, the significance level shown is an approximation.

Although these results reveal the presence of the contagion effect for the overall sample, they do not eliminate the possibility of the competitive effect for certain segments of the sample. In the earlier studies, Lang and Stulz and Akhigbe and Madura detected the presence of competitive effects, but Kim and Papaioannou did not. Both Lang and Stulz and Akhigbe and Madura report the competitive effect when the announcing firms (either bankruptcy or liquidation) were in less competitive (that is, more concentrated) industries, or the liquidating firm had monopoly power, respectively.

Using the Herfindahl index to differentiate the competitive from the concentrated industries, we computed the abnormal returns and *t*-statistic

for the 32 competitors in concentrated industries. (If the liquidating firm is in a concentrated industry, then its intra-industry rivals also must be in the same concentrated industry.) Our results do not support the earlier research of Lang and Stulz or Akhigbe and Madura. Specifically, the average abnormal return for the 32 rivals was 1.01% (12 positive and 20 negative), but the *t*-statistic was insignificant (0.94333).

We attribute this contradiction in results to the criterion Lang and Stulz used for qualifying their announcing firms and the method employed by Akhigbe and Madura for determining monopoly power. As previously noted, Lang and Stulz required the announcing firm to have liabilities in excess of $120 million to ensure the presence of industry-wide effects. We did not impose this constraint upon our sample. Accordingly, it is possible the liquidating firms in our sample would have less impact on intra-industry rivals than the bankruptcy-announcing firms of Lang and Stulz's research. This reasoning is reinforced by the magnitude and significance of the abnormal returns for the contagion effect shown in Table III for Lang and Stulz compared with the results of this study.

Akhigbe and Madura used the market value of the liquidating firm relative to other firms in the industry to determine monopoly power. They acknowledge the limitations of this method and also use sales to estimate monopoly power obtaining similar results with both methods. Interestingly, Lang and Stulz and our research used sales to compute the Herfindahl index, but interpret its use differently than Akhigbe and Madura. Whereas,

we use sales as a proxy for output in the comparison of industries to determine whether an industry is competitive or concentrated, they use sales to compare firms within their respective industries. We credit this disparity associated with the competitive effect obtained by Akhigbe and Madura to the different perspective they used for examining the data.

b. Testing the Empirical Model

With resolution of the question about contagion and competitive effects behind us, we now turn our attention to the factors that may be contributing to these results. To examine the specific factors of interest, we use the empirical model presented as equation (15). Testing our full model presents a dilemma because it requires us to discard the majority of our sample due to the limited data available to classify the Insider and Institutional equity holding variables. To skirt this impediment and capture the maximum information from the data, in addition to the full model we also test three variations of it. Table IV, on page 73, presents the results of these tests.

Before discussing the different variables of the model, we should determine if there is a potential for bias in our coefficient estimates. To identify whether the coefficient estimates are biased as a result of either thin or heavy trading of the individual stocks, we computed the Trading Volume Index for each iteration of testing. The index, shown at the bottom of Table IV, reveals the samples used for each of the tests are within the moderate range for the trading volume (that is, within the range of 4.5000

Table IV
Results of Estimating the Empirical Model:

$$CAR_i = \hat{\xi}_0 + \hat{\xi}_1 L_i + \hat{\xi}_2 Q_i + \hat{\xi}_3 H_i + \hat{\xi}_4 B_i + \hat{\xi}_5 S_{1i} + \hat{\xi}_6 S_{2i}$$

	Variation I		Variation II		Variation III		Full Model	
Variable	coefficient	p-value	coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Leverage (L)	0.007668	0.0370	0.006395	0.0715	0.013873	0.0033	0.015169	0.0016
Tobin's q (Q)	-0.000387	0.9312	0.002905	0.5036	-0.002068	0.7201	0.001593	0.7883
Herfindahl index (H)	0.011465	0.1454	0.008859	0.2424	0.000183	0.9844	0.001362	0.8862
BE:ME ratio (B)	0.003694	0.4091	0.001157	0.7887	0.008790	0.1302	0.006015	0.3076
Institutional equity (S_1)			0.005372	0.1358			-0.000610	0.9032
Insider equity (S_2)					-0.001204	0.8109	-0.003180	0.5620
No. of Observations	560		435		263		245	
Trading Volume Index	5.9482		6.2253		5.6654		5.8449	
Probability > F	0.1181		0.1934		0.0618		0.0747	
$\bar{R}^2$	0.0060		0.0056		0.0212		0.0227	

– 6.5000). Accordingly, we conclude none of the results are biased due to the relative volume of trading for the firms in each variation of the model.

A review of Table IV reveals the only variable that is significant, for either the full model or any variations thereof, is leverage; it is positive as theorized. Competitors with leverage less than their respective industry-averages realize positive returns upon a liquidation announcement while the more highly leveraged rivals experience negative abnormal returns.

Considering the presence of the contagion effect, which suggests industry-wide rather than firm-specific problems, the significant coefficient for the leverage variable is a manifestation of the markets's agreement with Baxter's (1967) argument that a high degree of leverage increases the probability of bankruptcy which increases the riskiness of the firm's future cash flows. These results also are consistent with Shleifer and Vishny's (1992) conclusions that: 1) the optimal leverage of a firm depends upon the leverage of other firms in the industry (there may be an optimal debt capacity for the industry even if there isn't one for individual firms), and 2) optimal debt levels may change over time.

In addition to Leverage, for each of the model variations there is one other variable (but not the same in all variations) that falls just outside the critical value for statistical significance at the .10 level. In Variation I it is the Herfindahl index (p-value = 0.1454), Institutional equity (p-value = 0.1358) in Variation II, and BE:ME ratio (p-value = 0.1302) in Variation III.

From the results shown in Table IV, our conclusion is the allocation of equity in the competitor firms, either insider or institutional ownership,

is not a factor in determining the market's reaction to a voluntary corporate liquidation announcement. While these results may answer the question from the rival's perspective, it does not provide any insight with respect to distribution of equity in the liquidating firms. It is to this viewpoint that we shift our attention.

c. The Liquidating Firms' Characteristics and the Market's Response for the Competitor's Stock

Notwithstanding the outcome of the empirical model that indicates leverage is the only characteristic (of the ones we examined) of the rival firms that contributes to the market's reaction to a liquidation announcement, these results tell us nothing about the characteristics of the liquidating firm that may influence the market's reaction for the rival firms. Appropriately, we extend our analysis to investigate whether the characteristics of the liquidating firms may affect the results.

Table V, on the following page, presents the results of this analysis. The cumulative average abnormal returns and *t*-statistic for each category were computed, as before, using equations (7) and (9), respectively. To compute the difference between two categories with the accompanying *t*-statistic, we use equations (10) and (11), respectively. In addition to Leverage, which — as was the leverage of the rivals — is a significant factor in explaining the abnormal returns of the competitors, the other significant factors of the liquidating firms are: Herfindahl index, and percentage of

Table V
Characteristics of the Liquidating Firms and the Cumulative Average Abnormal Returns of the Competitors

Liquidating Firms			Competitor Firms					
Characteristics	Category	No. of Liquidating Firms/Portfolios	No. of Rival Firms	No. of Positive Abnormal Returns	No. of Negative Abnormal Returns	Cumulative Average Abnormal Return (%)	*t*-statistic	Significance Level
	"0"	50	478	222	256	-0.07%	-1.28017	-
Leverage	"1"	11	82	26	56	-0.38%	-2.11433	.05
	Difference Between "0" and "1":					0.31%	1.46354	-
	"0"	0						
Tobin's *q*	"1"	0						
	Difference Between "0" and "1":							
	"0"	44	528	236	292	-0.18%	-2.28350	.05
Herfindahl index	"1"	25	32	12	20	1.01%	0.94333	-
	Difference Between "0" and "1":					-1.19%	-1.46184	-
	"0"	62	560	248	312	-0.11%	-1.99180	.05
BE:ME ratio	"1"	7	0					
	Difference Between "0" and "1":					-0.11%	-1.99180	.05
	"0"	7	68	23	45	-0.72%	-2.66380	.01
Institutional Equity	"1"	26	200	94	106	0.21%	1.00637	-
	Difference Between "0" and "1":					-0.93%	-2.80810	.01
	"0"	15	67	26	41	-0.50%	-0.99678	-
Insider Equity	"1"	13	170	74	96	0.04%	-0.74741	-
	Difference Between "0" and "1":					-0.54%	-0.44681	-

equity held by Institutional investors. Although the BE:ME ratio for the liquidating firm appears as a significant factor, because we were unable to form portfolios for the seven liquidating firms with a low BE:ME ratio (coded

as "1"), the high BE:ME ratio category (coded as "0") contains all 560 of the rival firms. Consequently, we do not view this result with the consideration it might otherwise deserve. Additionally, there are no data in the table for Tobin's *q*, because — as discussed in the Data Section — there were insufficient data in COMPUSTAT to compute this ratio for any of the liquidating firms. Finally, the percentage of equity in the liquidating firm held by insiders was not a factor in explaining the abnormal returns of rivals.

These results suggest the market is less alarmed when a firm whose leverage is above the industry average (coded as "0") liquidates than it is when lower leveraged firms liquidate. It is as though the market interprets the liquidation of the higher leveraged firms as expected events, consequently there are no significant abnormal returns for the competitor firms because the market has already compensated for the event. In contrast to the rival firms for which the abnormal returns were positive when their leverage was less than their respective industry's average, the abnormal returns of the rivals are significantly negative when it is a lower-leveraged firm that announces its voluntary liquidation.

The significant results associated with the liquidating firms that are in competitive industries — their Herfindahl index is coded as "0" — is consistent with the verdict for contagion effects obtained for the overall sample. That is, when a firm in a competitive industry liquidates, the market's negative reaction reflects its interpretation of the event as the revelation of an industry-wide, rather than firm-specific, problem.

An interesting result is the abnormal returns of the rival firms associated with the liquidating firms' institutional ownership of equity. When institutions held 21%, or less, of the liquidating firm's equity (coded as "1"), the abnormal returns for the competitors were nonnegative. But, when institutions held more than 21%, the competitors experienced significantly negative abnormal returns. Furthermore, the difference between the two groups was significant. An interpretation for these results is the market does not expect institutions collectively holding 21% or less of a firm's equity to exert sufficient governance over a firm to prevent its demise. Conversely, when the collective ownership of equity by institutions is greater than 21%, the market presumes the firm is better-managed as a result of the institutional oversight; their subsequent liquidation is an indication that even the better-managed firms are susceptible to the problems confronting the industry.

Perhaps one of the more perplexing questions related to these results is their contradiction of Akhigbe and Madura's conclusions. They, conclude (as reported in Akhigbe and Madura's Table 8) that Tobin's q of the liquidating firm is a significant variable in explaining the abnormal returns of rival firms related to liquidation announcements, but Leverage of the liquidating firm is not a significant variable. Our results for both Leverage and Tobin's q challenge this conclusion. Notably, for our sample, is the lack of data in COMPUSTAT required to calculate Tobin's q for the liquidating firms. Since the two studies have overlapping periods for the sample of

liquidating firms, it is puzzling that they had sufficient data to compute the *q* ratio when this research did not.

d. Revisiting McConnell and Servaes' Theory on Insider Equity and Low-Growth Firms

As a final exercise, we examine McConnell and Servaes' (1990, 1995) supposition that insider ownership should be more positively correlated with abnormal returns for lower-growth than higher-growth competitors. Focusing on the competitors' abnormal returns, the market returns for low-growth firms (Tobin's *q* = "0") with insider ownership greater than 28% (Insider equity = "0") were non-negative (0.0025), but not significant. For the high-growth firms (Tobin's *q* = "1" and Insider Equity = "0") abnormal returns were non-positive (-0.0041) and insignificant. The decisive measure is the difference between the two groups: it was positive (0.0065) at the .10 level of significance. We interpret these results as consistent with their theory.

VI. Summary and Conclusions

The overall sample of 560 rival firms experienced abnormal returns of -.11%, significant at the .05 level, arising from the announcement of a voluntary corporate liquidation. These results are consistent with earlier studies that documented the existence of intra-industry contagion effects when a firm announces either its bankruptcy or liquidation. When we continued with the analysis to consider only those firms in concentrated industries, we were unable to substantiate the presence of competitive effects that some, but not all, of the previous studies observed.

Classifying our sample of liquidating firms, as well as their intra-industry competitors, according to several characteristics allowed refining the analysis to focus on specific factors contributing to these contagion effects. The characteristics used were: Leverage, Tobin's *q*, the Herfindahl index, the Book Equity-to-Market Equity ratio, the percentage of equity held by institutional investors, and the percentage of equity held by inside owners.

Looking first at the competitors, the only factor that was significant in explaining their abnormal returns was their Leverage. Rivals whose leverage was less than their respective industry's average experienced positive

abnormal returns, as was theorized, while the more highly leveraged competitors experienced negative returns. This suggests the market considers the lower leveraged rivals to be better positioned to exploit any opportunities that may arise from the liquidation.

Shifting our attention to the characteristics of the liquidating firms, several factors emerged as significant in explaining the abnormal returns of the competitors. They are Leverage, the Herfindahl index, and the percentage of equity held by institutional investors. For the insignificant factors, we note: 1) there were insufficient data available from COMPUSTAT to estimate Tobin's *q* for any of the liquidating firms which stymied any further analysis; 2) there were insufficient data from COMPUSTAT and/or CRSP to construct portfolios of competitor firms for those liquidating firms whose BE:ME ratios were below their respective industry-median values; and 3) there were no significant returns for the competitor firms related to the level of equity held by insiders of the liquidating firms.

For the liquidating firms, there is a reversal in the role leverage plays in explaining the abnormal returns of the competitors. That is, instead of the positive abnormal return that was found for the competitors whose leverage was less than the industry-average, there is a negative abnormal return for the rivals when the liquidating firm's leverage is less than the industry-average. The abnormal returns were nonpositive when the liquidating firms' leverage was above their industry's average level suggesting the market was not surprised by the their liquidation announcements.

With respect to the Herfindahl index, we find significantly negative abnormal returns when the liquidating firm, as well as its competitors, is in a competitive industry while the returns were nonnegative for the firms in concentrated industries. These results are consistent with the overall finding of significant contagion effects and no significant competitive effects.

Finally, we found a significantly negative return for the rival firms when institutional investors held more than 21% of the liquidating firm's equity. When the institutional investors held 21% or less of the liquidating firm's equity, the competitors experienced nonnegative returns.

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Appendix A
Firms Announcing their Liquidation

Firm Announcing Liquidation	SIC	Date	Firm Announcing Liquidation	SIC	Date
AMERICAN BIOMEDICAL CORP	8060	01/27/77	HOUSE OF RONNIE	2300	03/16/81
AMERICAN CONTROLLED INDS	2670	01/29/86	INTERPOOL LTD	7350	03/14/78
AMERICAN MFG CO	2200	09/19/79	INTL INCOME PROPERTY INC	6798	02/16/90
AMERICAN MUSIC STORES INC	5900	12/19/75	KAISER INDUSTRIES CORP	3312	04/21/77
AMERICAN RECREATION GROUP	5040	12/09/75	KEYSTONE INDUSTRIES INC	3443	06/02/77
AMERIFIN CORP	6799	09/01/83	KIRBY INDUSTRIES INC	4400	05/08/75
AMTERRE DEVELOPMENT	6512	06/09/78	LEAR PETROLEUM PARTNERS -LP	9995	02/04/88
ANTA CORP	3350	03/08/84	LEISURE LODGES INC	8050	07/15/75
APCO OIL CORP	2911	03/03/76	LODGE & SHIPLEY CO	3541	01/03/86
AUSTRAL OIL INC	1311	03/22/77	MANSFIELD TIRE & RUBBER CO	2400	04/16/80
BARBER OIL CORP	1220	08/31/79	MCKEON CONSTRUCTION	1531	09/26/80
BAYUK CIGARS INC	2100	06/22/81	MERCHANTS INC	4210	04/09/79
CANAL-RANDOLPH CORP	6512	03/14/85	MICROWAVE SEMICONDUCTOR CORP	3674	07/10/79
CHC CORP	2741	02/10/77	MIDWAY AIRLINES INC	4512	11/29/91
COBURN OPTICAL INDS INC	3827	03/17/75	NATIONAL CSS INC	7372	03/27/79
COLUMBIA CORP	2400	11/26/75	OKC CORP	2911	07/27/79
CONROY INC	2510	08/19/83	OVERSEAS NATIONAL AIRWAYS	4522	07/31/78
CONSOLIDATED ENERGY PRT -LP	1311	07/12/89	PANEX INDUSTRIES INC	2340	07/27/84
CONSOLIDATED REFINING	3350	09/17/81	PASCO INC	2911	05/22/75
COOK UNITED INC	5331	11/25/87	PENTON INC	2721	03/30/76
COTT CORP	2086	09/26/78	R H MEDICAL SERVICES	3851	08/28/80
COWLES COMMUNICATIONS	4833	03/30/82	RAYMOND INDUSTRIES INC	3572	02/24/84
DAMON GROUP INC	8071	06/22/93	REEVES TELECOM CORP	4832	01/19/79
DE JUR AMSCO CORP-CL A	5080	12/31/76	ROSSMOOR CORP	6552	04/14/81
DYNEER CORP	3714	09/05/85	SARGENT INDUSTRIES INC-DEL	3713	07/19/78
ENERGY OIL INC	1311	10/22/86	SILVERCREST CORP	2451	03/06/89
GABRIEL INDUSTRIES INC	3944	05/08/78	SOUTHERN CALIF FIRST NATL CP	6021	05/15/75
GENERAL GROWTH PROP	6798	09/24/85	ST JOHNSBURY TRUCKING CO	4210	06/27/75
GENERAL INTERIORS CORP	2510	04/18/75	STRATFORD OF TEXAS INC	5190	01/10/77
GOLD MEDALLION CORP	5122	06/05/81	TANNETICS INC	3585	02/04/83
GROSS TELECASTING	4833	03/21/84	TELECOR INC	7359	10/30/78
GULF UNITED CORP	6311	03/31/83	TENNA CORP	3663	12/05/79
HANDYMAN CORP	5211	12/01/86	UNITY BUYING SERVICE	5961	09/15/83
HARLEY CORP	2670	12/24/81	UV INDUSTRIES INC	6799	01/19/79

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
0100	0.5268	0.5224	0.4949	0.6820	0.4979	0.4903	0.7978	0.4051	0.4693	0.4369	0.3749	0.4124	0.3856	0.3767	0.3818	0.3844	0.3819	0.3424	0.3403	0.3494
0200	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0700	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	-.-
0800	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	0.6100	0.6184	0.5727	0.5834	0.5421	0.5778	0.5923	0.6599	0.3790
1000	0.4593	0.4470	0.4227	0.3979	0.4216	0.3917	0.4194	0.4447	0.4459	0.4553	0.3108	0.3170	0.3870	0.3314	0.3391	0.3341	0.3221	0.3038	0.2988	0.3165
1040	0.4080	0.4571	0.3878	0.4461	0.3858	0.3493	0.3748	0.3274	0.2940	0.2915	0.2179	0.1156	0.1121	0.1005	0.1046	0.1036	0.0945	0.0970	0.0877	0.0869
1090	0.5289	0.5792	0.6830	0.5052	0.5385	0.6517	0.6674	0.6460	0.8478	0.9157	0.9704	0.9295	0.9625	0.9366	0.9665	0.9686	0.8944	0.8595	0.8417	1.0000
1220	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6201	0.5803	0.5479	0.5113	0.5076	0.3360	0.2668	0.2710
1221	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1311	0.4480	0.4104	0.4027	0.3813	0.4070	0.3897	0.3830	0.4527	0.4569	0.3831	0.3195	0.3843	0.3297	0.3801	0.3482	0.3234	0.1737	0.1419	0.1149	0.1364
1381	0.1863	0.1821	0.1729	0.1577	0.1572	0.1617	0.1530	0.1517	0.1551	0.1594	0.1369	0.1444	0.1395	0.1221	0.1137	0.1123	0.1102	0.0948	0.0998	0.1021
1382	1.0000	1.0000	1.0000	1.0000	1.0000	0.7350	0.7749	0.8403	0.8788	0.8051	0.8091	0.8126	0.6879	0.6272	0.3890	0.3680	0.2734	0.2688	0.7046	0.6501
1389	0.8058	0.8114	0.8161	0.8733	0.9079	0.8990	0.8846	0.8869	0.8948	0.8902	0.8993	0.8958	0.8910	0.8901	0.8622	0.7457	0.7336	0.7428	0.7170	0.7423
1400	0.4150	0.3861	0.3710	0.3563	0.3540	0.3590	0.4081	0.3875	0.4008	0.2886	0.2839	0.2688	0.2375	0.2411	0.2207	0.2545	0.2543	0.2216	0.2023	0.1916
1531	0.1581	0.1588	0.1558	0.1543	0.1518	0.1514	0.1631	0.1579	0.1403	0.1255	0.1048	0.0812	0.0768	0.0851	0.0883	0.0918	0.0970	0.0880	0.0850	0.0773
1540	0.3965	0.3902	0.3777	0.3652	0.3764	0.3695	0.3681	0.3699	0.3716	0.3683	0.3783	0.3843	0.3993	0.4064	0.4058	0.3992	0.3677	0.3654	0.3717	0.6007
1600	0.4578	0.4485	0.4446	0.4343	0.4307	0.3789	0.3500	0.3469	0.3329	0.3384	0.3250	0.3240	0.3034	0.3186	0.3351	0.3342	0.2814	0.2410	0.2515	0.3331
1623	0.2927	0.3009	0.3778	0.3408	0.3297	0.3304	0.3345	0.3190	0.3422	0.3405	0.3154	0.2712	0.2396	0.2560	0.3318	0.3325	0.2428	0.1758	0.2406	0.2422
1700	0.4843	0.4406	0.4785	0.5741	0.5898	0.5938	0.5987	0.5491	0.5075	0.4538	0.3164	0.3696	0.3558	0.4191	0.4617	0.3869	0.3341	0.3137	0.3344	0.3816
1731	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-
2000	0.2252	0.2185	0.2208	0.2169	0.2113	0.2018	0.1943	0.1848	0.1764	0.1727	0.1559	0.1552	0.1576	0.1548	0.1741	0.1617	0.1641	0.1676	0.1648	0.3515
2011	0.3457	0.3684	0.3486	0.3876	0.4274	0.4168	0.3983	0.3722	0.3837	0.3779	0.3785	0.3898	0.3838	0.3985	0.4314	0.4467	0.4579	0.4545	0.4633	0.6771
2013	0.4271	0.4311	0.4190	0.4175	0.4314	0.5543	0.6613	0.7879	0.7930	0.5826	0.6436	0.5316	0.4463	0.4058	0.4529	0.4898	0.4847	0.5104	0.6074	0.4395
2015	0.3736	0.3678	0.3568	0.3517	0.3679	0.3666	0.3775	0.5645	0.4728	0.4530	0.4418	0.4522	0.3521	0.3248	0.3406	0.4203	0.3756	0.3589	0.3628	0.4039
2020	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5421	0.6104	0.5887	0.6295	0.7137	0.7409	0.7588	1.0000
2024	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	0.9426	0.7450	0.5224	0.4748	0.4390	0.4025	0.3959	0.4217	0.3730	0.3831	0.4047	0.4160
2030	0.4671	0.4615	0.4549	0.4520	0.4539	0.4547	0.4553	0.4453	0.4366	0.4348	0.4332	0.4423	0.4369	0.4363	0.4319	0.4384	0.4464	0.4461	0.4418	0.8205
2033	0.5101	0.5097	0.5077	0.5120	0.5293	0.5269	0.5218	0.5441	0.5447	0.5398	0.5304	0.5009	0.5028	0.5043	0.5117	0.5096	0.5204	0.5196	0.5546	1.0000
2040	0.2175	0.2172	0.2183	0.2174	0.2177	0.2129	0.2131	0.2126	0.2131	0.2022	0.2058	0.1995	0.1974	0.1945	0.1966	0.1986	0.1976	0.1985	0.1837	0.2264
2050	0.4406	0.4244	0.4100	0.4178	0.4173	0.4156	0.4116	0.4010	0.3958	0.3884	0.3840	0.3927	0.4006	0.4108	0.4096	0.4059	0.4070	0.3307	0.3471	0.5055
2052	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9046	0.8788	0.8019	0.7471	0.7213	0.7076	0.6848	0.6616	0.8470	0.8448
2060	0.3255	0.3420	0.3568	0.3587	0.4026	0.3970	0.3951	0.4213	0.4290	0.4214	0.4193	0.3432	0.2709	0.2379	0.2297	0.2275	0.2522	0.2629	0.2731	0.3188

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2070	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9994	0.9972	0.9929	0.9931	0.9928	0.9929	0.9939	0.9953	0.9945	0.9934
2080	0.3117	0.3104	0.3170	0.3213	0.3472	0.3570	0.3553	0.3543	0.3535	0.3491	0.3478	0.2574	0.2321	0.2304	0.2323	0.2366	0.2322	0.2386	0.2538	0.3141
2082	0.6350	0.5868	0.6311	0.6606	0.6675	0.6656	0.6865	0.7222	0.7375	0.7473	0.7385	0.7503	0.7584	0.7511	0.4294	0.4294	0.4329	0.4388	0.4596	0.4589
2086	0.9124	0.9192	0.9210	0.9370	0.9471	0.9465	0.9417	0.9358	0.4962	0.5113	0.3739	0.3385	0.3161	0.3178	0.3160	0.3545	0.3474	0.2617	0.2529	0.2791
2090	0.4556	0.3628	0.3965	0.3767	0.4036	0.4271	0.4670	0.4866	0.4784	0.4680	0.4839	0.4876	0.4813	0.5101	0.5035	0.5193	0.5281	0.5385	0.5591	0.6422
2100	0.5600	0.5585	0.5486	0.5426	0.5330	0.5148	0.5088	0.5040	0.5304	0.5646	0.5477	0.5370	0.5156	0.5127	0.5075	0.5012	0.5020	0.5001	0.5021	0.7730
2111	0.5124	0.5271	0.5312	0.5202	0.5475	0.5538	0.5860	0.6062	0.5803	0.5715	0.6176	0.6273	0.6108	0.5633	0.5154	0.4905	0.4983	0.4954	0.4928	0.5430
2200	0.7802	0.7700	0.7839	0.7476	0.7093	0.7281	0.7225	0.7006	0.7079	0.7023	0.6840	0.6664	0.6685	0.5920	0.5133	0.5211	0.4642	0.3638	0.3610	0.3538
2211	0.2655	0.2640	0.2615	0.2579	0.2606	0.2517	0.2552	0.2370	0.2184	0.2821	0.2245	0.2168	0.2033	0.2045	0.2033	0.2031	0.1764	0.1694	0.1660	0.1851
2221	0.6014	0.8244	0.7706	0.7428	0.7886	0.7684	0.7760	0.8904	0.8350	0.7789	0.4257	0.4251	0.3959	0.4167	0.4186	0.3819	0.3754	0.3548	0.3636	0.3984
2250	0.4379	0.4533	0.4079	0.4326	0.4351	0.4600	0.4591	0.4838	0.4794	0.5318	0.5495	0.4138	0.4201	0.4327	0.4646	0.4967	0.5227	0.5291	0.5201	0.5512
2253	0.2666	0.2687	0.2814	0.2942	0.3045	0.3242	0.3304	0.3338	0.3565	0.3592	0.3723	0.3787	0.3323	0.3461	0.3643	0.3671	0.3846	0.3093	0.3244	0.3669
2273	0.5124	0.5197	0.5151	0.5098	0.5070	0.5000	0.5001	0.4074	0.4017	0.4177	0.4348	0.4218	0.3745	0.3752	0.3776	0.4078	0.3701	0.3752	0.3650	0.3323
2300	0.6777	0.6545	0.6181	0.6255	0.6372	0.6216	0.6340	0.6465	0.6583	0.5559	0.5653	0.5560	0.5377	0.5264	0.5227	0.5108	0.4438	0.3144	0.2398	0.2296
2320	0.1857	0.1898	0.1943	0.1957	0.1978	0.1945	0.2039	0.2064	0.2262	0.2168	0.2450	0.2346	0.3196	0.2908	0.2790	0.3074	0.3081	0.3432	0.3460	0.5168
2330	0.6679	0.6605	0.6966	0.6647	0.6208	0.6773	0.5503	0.4965	0.4648	0.3891	0.2294	0.2273	0.2284	0.2033	0.2097	0.1988	0.2116	0.1808	0.1801	0.2817
2340	0.9345	0.9222	0.9412	0.9397	0.9504	0.9536	0.8986	0.8990	0.8859	0.8666	0.8513	0.8336	0.8355	0.7751	0.6838	0.6970	0.7081	0.7333	0.7507	0.7955
2390	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8537	0.8359	1.0000
2400	0.2967	0.2935	0.2959	0.3029	0.3019	0.3008	0.3065	0.3110	0.3141	0.3107	0.3148	0.3162	0.3163	0.3144	0.3134	0.3266	0.3244	0.3181	0.3199	0.3152
2421	0.6430	0.6042	0.5529	0.5281	0.5159	0.5340	0.5423	0.5349	0.5195	0.5090	0.5097	0.5045	0.4715	0.4851	0.4177	0.4047	0.3949	0.3889	0.3669	0.3437
2430	0.3216	0.2729	0.2793	0.3027	0.3176	0.3005	0.3010	0.2961	0.3486	0.4568	0.2664	0.2757	0.2468	0.2432	0.2641	0.2604	0.2622	0.2555	0.2627	0.4810
2451	0.4623	0.4646	0.4698	0.4648	0.4527	0.4349	0.4263	0.3676	0.3658	0.3410	0.2994	0.2363	0.2118	0.2296	0.2150	0.1999	0.1994	0.2050	0.1963	0.2325
2452	0.5771	0.6417	0.6949	0.7203	0.7889	0.8145	0.8381	0.8894	0.8235	0.7727	0.7497	0.6677	0.5591	0.5105	0.5000	0.5043	0.5133	0.5359	0.5707	0.6350
2510	0.5145	0.4871	0.4763	0.4571	0.4405	0.4716	0.4746	0.4351	0.3941	0.3661	0.3309	0.3064	0.3163	0.2680	0.2827	0.2819	0.2854	0.2803	0.2658	0.3627
2511	0.6007	0.6104	0.6115	0.6202	0.5734	0.5608	0.5660	0.5886	0.5725	0.5021	0.4750	0.4252	0.3954	0.4433	0.4201	0.2867	0.2744	0.2854	0.2187	0.2125
2520	0.5594	0.5206	0.5053	0.5005	0.5009	0.5032	0.5068	0.5068	0.5239	0.5224	0.5163	0.5172	0.5197	0.5198	0.5171	0.5159	0.5168	0.5131	0.5095	1.0000
2522	0.5752	0.5613	0.5949	0.6049	0.5843	0.5753	0.6173	0.6116	0.6314	0.6482	0.6750	0.6834	0.6897	0.6843	0.6969	0.7278	0.7120	0.7418	0.7419	1.0000
2531	0.5593	0.5344	0.5336	0.6054	0.7139	0.7157	0.7243	0.7298	0.6819	0.6303	0.6667	0.7374	0.7312	0.7491	0.5260	0.5666	0.5731	0.5979	0.5470	0.5126
2540	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2590	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7326	0.7152	0.6939	0.7189	0.7041	0.7465	0.7757	0.7753	0.8131	0.8373	0.8266	0.8335
2600	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8103	0.8070	0.7916	0.7616
2611	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	1.0000	1.0000	1.0000

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2621	0.1166	0.1158	0.1125	0.1109	0.1078	0.1059	0.1010	0.0939	0.0906	0.0898	0.0923	0.0900	0.0935	0.0949	0.0995	0.1066	0.1091	0.1145	0.1133	0.1170
2631	0.2690	0.2701	0.2672	0.2573	0.2544	0.2558	0.2572	0.2626	0.1959	0.1655	0.1585	0.1672	0.1878	0.1735	0.2010	0.2081	0.1786	0.1753	0.1644	0.1678
2650	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8616	0.8428	0.8220	0.8410	0.8200	0.8356	0.8019	0.8284	0.8213	0.8203
2670	0.2472	0.2381	0.1981	0.2072	0.2081	0.2223	0.2162	0.2293	0.2288	0.2256	0.2281	0.2307	0.1919	0.2110	0.2352	0.2628	0.2318	0.2321	0.2296	0.2365
2673	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-
2711	0.1710	0.1731	0.1724	0.1791	0.1761	0.1673	0.1671	0.1629	0.1389	0.1380	0.1323	0.1165	0.0973	0.0980	0.1118	0.1129	0.1316	0.1229	0.1176	0.1163
2721	0.3356	0.3226	0.3235	0.3266	0.3255	0.3254	0.3226	0.3425	0.3459	0.3482	0.3505	0.3627	0.3777	0.3868	0.3376	0.2892	0.2737	0.2475	0.2276	0.2753
2731	0.5535	0.5513	0.5498	0.5460	0.5497	0.5585	0.5551	0.5484	0.5347	0.5305	0.5234	0.5162	0.5388	0.5278	0.3420	0.3491	0.3486	0.3507	0.3524	0.4121
2732	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2741	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	0.9792	0.9662	0.9204	0.8724	0.8246	0.8217	0.8967	0.9084	0.9270	0.9407
2750	0.3803	0.3447	0.3514	0.3967	0.4297	0.4095	0.4168	0.4285	0.4314	0.4169	0.4109	0.3848	0.3627	0.3247	0.3023	0.2981	0.3071	0.3071	0.2963	0.3147
2761	0.4229	0.3965	0.3926	0.3613	0.3416	0.3481	0.3365	0.3203	0.2956	0.2872	0.2702	0.2485	0.2309	0.2362	0.2391	0.2430	0.2224	0.2125	0.2004	0.2000
2771	0.5207	0.5167	0.5000	0.5015	0.5185	0.6108	0.6723	0.5960	0.5964	0.6240	0.6110	0.6176	0.5940	0.5473	0.5242	0.5238	0.5359	0.5480	0.5307	0.5856
2780	0.6169	0.5945	0.5996	0.6005	0.5940	0.5926	0.5867	0.5896	0.5734	0.5573	0.5676	0.5949	0.5936	0.6099	0.6178	0.6171	0.5434	0.5064	0.4710	0.5029
2790	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-
2800	0.1727	0.1762	0.1846	0.1784	0.1857	0.1921	0.1917	0.1905	0.1902	0.1642	0.1766	0.1343	0.1408	0.1350	0.1334	0.1397	0.1378	0.1276	0.1351	0.1551
2810	0.3646	0.3557	0.3691	0.3990	0.3670	0.3740	0.3612	0.3369	0.3338	0.3213	0.2606	0.2805	0.2528	0.2495	0.2504	0.2631	0.2010	0.2076	0.2114	0.2081
2820	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9867	0.9831	0.9811	0.9757	0.9600	0.9595	0.9574	0.9511	0.9480
2821	0.4471	0.4474	0.4511	0.4577	0.4411	0.4333	0.4251	0.4064	0.4040	0.3915	0.3747	0.3363	0.2695	0.2520	0.2650	0.2750	0.2768	0.1870	0.1875	0.2058
2833	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-
2834	0.0963	0.0966	0.0976	0.0973	0.0955	0.0943	0.0951	0.0951	0.0943	0.0923	0.0917	0.0769	0.0753	0.0731	0.0756	0.0719	0.0705	0.0643	0.0644	0.0713
2835	1.0000	1.0000	1.0000	1.0000	0.9910	0.9890	0.9730	0.9149	0.8995	0.8824	0.8572	0.7779	0.7746	0.5094	0.3865	0.4010	0.3988	0.3740	0.3866	0.6703
2836	1.0000	1.0000	1.0000	1.0000	1.0000	0.9970	0.9973	0.4908	0.3219	0.3882	0.2218	0.2250	0.2172	0.1838	0.1932	0.2618	0.3090	0.3410	0.3457	0.3540
2840	0.4609	0.4617	0.4710	0.4736	0.4825	0.5000	0.5036	0.5167	0.6310	0.6226	0.6088	0.6285	0.6537	0.6219	0.6302	0.6658	0.7156	0.7239	0.7423	0.7200
2842	0.6537	0.6714	0.6626	0.6836	0.5203	0.5257	0.5437	0.5779	0.5887	0.5900	0.5308	0.5109	0.4881	0.4762	0.4580	0.4781	0.4978	0.4886	0.4715	0.9017
2844	0.4687	0.4912	0.4874	0.4795	0.4626	0.4675	0.4574	0.4262	0.4129	0.4019	0.3951	0.3824	0.3497	0.3364	0.3291	0.3306	0.3135	0.3158	0.3126	0.3905
2851	0.4151	0.4223	0.3910	0.3912	0.3826	0.3696	0.3589	0.3492	0.3534	0.3546	0.3409	0.3636	0.3411	0.3519	0.3373	0.3350	0.3150	0.2949	0.2867	0.3331
2860	0.5275	0.5275	0.5210	0.4824	0.4404	0.4059	0.3892	0.3565	0.3435	0.3558	0.3568	0.2868	0.2296	0.2113	0.2156	0.1860	0.1480	0.1359	0.1273	0.1280
2870	0.8874	0.8668	0.9065	0.8654	0.8688	0.9167	0.9427	0.9173	0.6673	0.7058	0.8902	0.9151	0.7670	0.6146	0.6154	0.6011	0.5249	0.5166	0.4833	0.4742
2890	0.2474	0.2451	0.2309	0.2251	0.2164	0.2009	0.1984	0.1949	0.2028	0.1948	0.1956	0.1994	0.1912	0.1810	0.1815	0.1721	0.1612	0.1604	0.1217	0.1371
2891	0.5410	0.5372	0.5352	0.5290	0.5190	0.5144	0.5181	0.5165	0.5485	0.5398	0.5479	0.5473	0.5320	0.5249	0.5269	0.5194	0.5176	0.5188	0.5240	0.5220
2911	0.0961	0.0936	0.0918	0.0920	0.0908	0.0919	0.0886	0.0838	0.0835	0.0841	0.0825	0.0840	0.0867	0.0824	0.0807	0.0724	0.0727	0.0727	0.0730	0.0818

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2950	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7844	0.6852	0.5705	0.5639	0.5662	0.5898	0.5659	0.5525	0.5577	0.5612	0.5295
2990	0.5150	0.5212	0.5354	0.5440	0.6231	0.6381	0.6578	0.5610	0.5608	0.5589	0.5718	0.5751	0.5824	0.5923	0.5979	0.6277	0.6616	0.6972	0.9673	1.0000
3011	0.8895	0.8711	0.8797	0.8790	0.8750	0.8638	0.8644	0.8565	0.8630	0.8522	0.8469	0.8249	0.8169	0.8105	0.7926	0.7881	0.7711	0.7657	0.7438	0.7247
3021	1.0000	-.-	1.0000	1.0000	0.8417	0.8977	0.9253	0.9217	0.9119	0.8034	0.5969	0.4508	0.4542	0.4328	0.3886	0.3869	0.4189	0.4078	0.3617	0.7564
3050	0.5649	0.5318	0.4650	0.5431	0.5229	0.4708	0.5040	0.4658	0.4532	0.4472	0.4106	0.3893	0.3667	0.4225	0.4214	0.4444	0.4973	0.5071	0.5196	0.5005
3060	0.2713	0.2638	0.2653	0.2633	0.2847	0.2936	0.3023	0.3353	0.3402	0.3836	0.3635	0.3405	0.3487	0.3420	0.3287	0.3504	0.3235	0.3084	0.3303	0.3664
3080	0.8602	0.8440	0.7840	0.6715	0.5946	0.4940	0.4012	0.3540	0.4424	0.4043	0.4031	0.2665	0.4057	0.5243	0.5559	0.5644	0.5752	0.5995	0.6261	0.6545
3081	0.5351	0.5004	0.5001	0.5000	0.5009	0.5007	0.5033	0.5000	0.5913	0.5779	0.3520	0.2697	0.4491	0.3898	0.3455	0.3000	0.2963	0.2732	0.2616	0.2910
3089	0.3750	0.3666	0.3466	0.3430	0.3250	0.3080	0.2919	0.2788	0.2894	0.2956	0.2392	0.2245	0.2132	0.1868	0.1829	0.1865	0.1929	0.1821	0.1779	0.1745
3100	0.6223	0.5805	0.6517	0.6401	0.6426	0.5032	0.5144	0.5005	0.5047	0.5063	0.5027	0.5125	0.5002	0.5204	0.5004	0.5003	0.5121	0.5499	0.4873	0.4609
3140	0.4820	0.4649	0.4362	0.4267	0.4284	0.4052	0.3909	0.3903	0.3897	0.3893	0.3633	0.3776	0.3865	0.3689	0.3440	0.3165	0.2478	0.2400	0.1990	0.1824
3220	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8700	0.8694	0.8777
3221	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5285	0.5032	0.4938	0.4922	1.0000
3231	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	0.7142	0.7151	0.7289	0.7473	0.7597	0.7732	0.7748	0.7922
3241	0.3834	0.4175	0.4605	0.4789	0.4133	0.4503	0.4577	0.4871	0.3473	0.3335	0.3259	0.3192	0.3343	0.3473	0.3802	0.4123	0.4274	0.3792	0.3480	0.3767
3250	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5073	1.0000
3260	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	0.6318	0.4450	0.4681
3270	0.5842	0.6240	0.6414	0.6477	0.6304	0.6023	0.5965	0.5828	0.6390	0.6792	0.6665	0.6779	0.6882	0.5627	0.5327	0.4987	0.4938	0.5201	0.5363	0.4529
3272	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3290	0.4498	0.4371	0.4209	0.4184	0.4013	0.4187	0.4307	0.4533	0.4529	0.4555	0.4465	0.4520	0.4890	0.5171	0.5323	0.5442	0.5749	0.5390	0.5378	0.5335
3310	0.4585	0.4067	0.4143	0.4014	0.3895	0.4093	0.4083	0.4730	0.5198	0.4232	0.4419	0.4454	0.4057	0.4053	0.3360	0.3137	0.3537	0.3205	0.3282	0.2444
3312	0.1977	0.1976	0.1994	0.1958	0.1949	0.1924	0.1917	0.1590	0.1369	0.1402	0.1321	0.1152	0.1084	0.0964	0.1010	0.1067	0.1061	0.0942	0.0876	0.0785
3317	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5184	0.4221	0.7006
3320	0.7049	0.7154	0.7394	0.7347	0.6610	0.6703	0.5923	0.5890	0.5873	0.4897	0.5671	0.5820	0.5762	0.6378	0.7040	0.7264	0.7372	0.7724	0.8003	0.5139
3330	0.2629	0.2721	0.2696	0.2656	0.2588	0.2673	0.1971	0.2024	0.1982	0.2057	0.2008	0.2066	0.1799	0.1813	0.1935	0.1840	0.1810	0.1564	0.1638	0.1440
3334	0.3272	0.3323	0.3340	0.3348	0.3370	0.3355	0.3340	0.3372	0.3394	0.3373	0.3431	0.3414	0.3502	0.3356	0.3003	0.2650	0.2618	0.2266	0.2284	0.2293
3341	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3350	0.4324	0.4306	0.4278	0.4228	0.4090	0.3939	0.4056	0.4115	0.4265	0.4277	0.4204	0.4098	0.3266	0.3199	0.2510	0.2144	0.2231	0.1991	0.1570	0.2215
3357	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9820	0.9523	0.7336	0.5037	0.6117	0.6776	0.6394	0.7102	0.6075	0.8098
3360	0.5579	0.5869	0.5962	0.5217	0.5578	0.5485	0.5325	0.5230	0.5038	0.5005	0.5086	0.5165	0.5071	0.5012	0.5334	0.5439	0.5690	0.3936	0.3515	0.3415
3390	0.8423	0.8337	0.7983	0.7400	0.7352	0.6180	0.5706	0.6066	0.6358	0.5647	0.5779	0.5735	0.5712	0.5629	0.5826	0.5996	0.5981	0.5939	0.5763	0.5234
3411	0.5699	0.5724	0.5732	0.5837	0.5905	0.5586	0.5285	0.5180	0.5126	0.5057	0.5075	0.5022	0.5057	0.5065	0.4875	0.5098	0.4982	0.4127	0.4173	0.4092

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3420	0.3532	0.3526	0.3395	0.3252	0.3159	0.3236	0.3058	0.2997	0.2885	0.2728	0.2440	0.2409	0.2391	0.2431	0.2640	0.2755	0.2977	0.2899	0.2961	0.3294
3430	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	0.8481	0.8468	0.8442	0.8221	0.8154	0.8314
3440	0.7727	0.7440	0.7762	0.8236	0.7846	0.7806	0.7353	0.7585	0.6936	0.7006	0.6384	0.6007	0.5428	0.5007	0.4809	0.5206	0.6529	0.6076	0.4242	0.4386
3442	0.7371	0.6137	0.5830	0.5587	0.5431	0.5069	0.5002	0.5000	0.5000	0.5063	0.5045	0.5181	0.5625	0.5543	0.5434	0.5675	0.6145	0.6347	0.6168	0.6120
3443	0.6431	0.6425	0.5775	0.6068	0.6318	0.6353	0.6646	0.6216	0.5518	0.6352	0.5608	0.4149	0.4436	0.4354	0.4185	0.4145	0.3348	0.2459	0.2408	0.2508
3444	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	-.-
3448	0.5157	0.5006	0.5011	0.5005	0.5003	0.5167	0.5192	0.5184	0.5234	0.5130	0.5055	0.5002	0.5145	0.5240	0.5006	0.5001	0.5147	0.5061	0.5210	0.5731
3452	0.2390	0.2059	0.1940	0.1935	0.2037	0.2231	0.2197	0.2091	0.1976	0.2021	0.2042	0.2141	0.2112	0.2053	0.1855	0.2181	0.2026	0.1924	0.1844	0.1948
3460	0.2013	0.1933	0.1943	0.1993	0.1917	0.2062	0.2134	0.1925	0.1672	0.1617	0.1534	0.1844	0.2224	0.2384	0.2401	0.2390	0.2621	0.3126	0.3049	0.4229
3470	0.5316	0.5316	0.5254	0.5078	0.5136	0.5508	0.5251	0.6236	0.4544	0.5544	0.3896	0.3960	0.4086	0.4133	0.4008	0.3992	0.4126	0.4108	0.4141	0.4191
3480	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9825	0.9809	0.9774	0.5275	0.6422	0.7767	0.7668	0.6494	0.5693	0.5297	0.6130
3490	0.2005	0.1945	0.1904	0.1839	0.1859	0.1872	0.1874	0.1891	0.1895	0.1933	0.1844	0.1867	0.1833	0.1831	0.1979	0.1937	0.1947	0.1921	0.1965	0.1961
3510	0.2261	0.2094	0.2130	0.2256	0.2199	0.2299	0.2480	0.2367	0.2199	0.2096	0.2147	0.2034	0.1845	0.1839	0.1833	0.1899	0.1975	0.1632	0.1624	0.2019
3523	0.2195	0.2237	0.2278	0.2322	0.2435	0.2517	0.2720	0.2882	0.3031	0.2973	0.3081	0.3111	0.2907	0.2522	0.2440	0.2330	0.2372	0.2337	0.2032	0.1882
3524	0.6104	0.5311	0.5789	0.8433	0.8766	0.8764	0.8027	0.7456	0.7724	0.6766	0.7446	0.8975	0.9244	0.9020	0.8872	0.9205	0.9378	0.9448	0.9549	0.9676
3530	0.7144	0.7205	0.6857	0.6878	0.6891	0.5400	0.5698	0.9100	0.9096	0.9360	0.9514	0.9602	0.9508	0.9548	0.9520	0.9547	0.9549	0.9467	0.9799	0.9853
3531	0.5959	0.6077	0.6221	0.6338	0.6073	0.6511	0.6765	0.6525	0.6744	0.6518	0.6892	0.6893	0.6881	0.7281	0.7229	0.7255	0.7343	0.7709	0.7746	0.7898
3533	0.8301	0.8509	0.8815	0.8701	0.8603	0.8469	0.8177	0.8967	0.9130	0.9094	0.9227	0.9284	0.9252	0.9010	0.8531	0.8066	0.7597	0.7521	0.7288	0.6805
3537	0.5680	0.5829	0.5109	0.4613	0.4722	0.5232	0.5560	0.6124	0.5911	0.5502	0.5746	0.5598	0.4843	0.4970	0.6407	0.6807	0.6946	0.4358	0.4279	0.6884
3540	0.5849	0.6312	0.6256	0.6161	0.6361	0.6499	0.6763	0.6843	0.7262	0.7308	0.7566	0.7488	0.7507	0.6682	0.7089	0.7770	0.7626	0.6564	0.6823	0.6650
3541	0.4126	0.4223	0.4360	0.4237	0.3900	0.3697	0.3818	0.3806	0.3760	0.3697	0.3729	0.3956	0.3940	0.3873	0.3930	0.3700	0.3624	0.3879	0.4383	0.4320
3550	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9675	0.9621	0.9709	0.9865	0.9850	0.9858	0.9865	0.9892	0.8560	0.8379	0.8062	0.7679
3555	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9952	0.9792	1.0000	0.7997	0.7881	0.6632	0.6026	0.5695	0.5688	0.4926	0.4483	0.4359
3559	0.4684	0.4133	0.3863	0.3398	0.3121	0.3073	0.2830	0.2785	0.2595	0.2139	0.1911	0.1932	0.1630	0.1588	0.1640	0.1685	0.1820	0.2062	0.2381	0.3771
3560	0.4958	0.5001	0.5034	0.4801	0.4710	0.4869	0.5087	0.4592	0.4392	0.3941	0.3980	0.3438	0.3056	0.2886	0.2788	0.2798	0.2818	0.2931	0.3325	0.3856
3561	0.1836	0.1888	0.1889	0.1899	0.2035	0.2275	0.2244	0.2068	0.1969	0.2166	0.2290	0.2222	0.2109	0.1523	0.1519	0.1550	0.1598	0.1392	0.1450	0.1400
3562	0.9021	0.9116	0.9035	0.8991	0.8960	0.8841	0.9332	0.9474	0.8413	0.8382	0.8332	0.7923	0.7855	0.8053	0.7725	0.7750	0.7712	0.7506	0.7472	0.7451
3564	0.8427	0.8269	0.8164	0.8253	0.8264	0.8284	0.8178	0.7870	0.7294	0.7364	0.6029	0.5866	0.5624	0.5670	0.4746	0.4267	0.4590	0.4670	0.3896	0.5432
3567	0.6006	0.6451	0.4995	0.5282	0.5122	0.4680	0.4370	0.4089	0.3474	0.3546	0.3459	0.3759	0.3952	0.3912	0.4260	0.4880	0.4542	0.4012	0.5239	0.6827
3569	0.5299	0.4819	0.4798	0.4755	0.4355	0.3868	0.3379	0.2933	0.3074	0.2977	0.2948	0.2998	0.3321	0.3457	0.3392	0.2736	0.4017	0.3855	0.3808	0.3929
3570	0.4410	0.4217	0.3988	0.3920	0.3762	0.3690	0.3651	0.3685	0.3776	0.3728	0.3559	0.3342	0.3182	0.3151	0.3081	0.3158	0.3101	0.3109	0.3083	0.4028
3571	0.9286	0.7973	0.6993	0.6296	0.6280	0.5373	0.4588	0.4601	0.3697	0.3166	0.2109	0.1746	0.1409	0.1349	0.1311	0.1265	0.1300	0.1294	0.1429	0.1573

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3572	0.7935	0.7381	0.7443	0.7853	0.8263	0.8050	0.8183	0.7237	0.5458	0.3232	0.2404	0.1881	0.1799	0.1766	0.1528	0.1589	0.1561	0.1517	0.1460	0.1959
3575	0.6823	0.5998	0.5003	0.5029	0.5172	0.5612	0.6961	0.6445	0.4514	0.4339	0.4054	0.4029	0.3695	0.3604	0.3553	0.3360	0.3447	0.3441	0.3851	1.0000
3576	0.7599	0.6840	0.6399	0.6348	0.5226	0.4263	0.2355	0.1829	0.1828	0.1489	0.1279	0.1121	0.1296	0.1417	0.1183	0.1020	0.0919	0.1002	0.1125	0.5028
3577	0.3560	0.3480	0.4000	0.3952	0.2490	0.2234	0.1976	0.1587	0.1763	0.1620	0.1648	0.1523	0.1183	0.1116	0.1028	0.1009	0.1041	0.0952	0.0966	0.1375
3578	0.5140	0.5030	0.5017	0.5008	0.5085	0.5090	0.5031	0.4307	0.4141	0.3876	0.3452	0.3375	0.4789	0.4364	0.4228	0.3862	0.4058	0.4224	0.3913	0.5754
3579	0.7474	0.7637	0.7602	0.7459	0.7749	0.7930	0.8004	0.7863	0.7983	0.8004	0.7785	0.7546	0.7397	0.5881	0.5807	0.6144	0.6426	0.6268	0.6569	0.6515
3580	0.4595	0.4380	0.4352	0.4379	0.4375	0.4345	0.4335	0.4510	0.4350	0.4070	0.3784	0.3503	0.3336	0.3261	0.2961	0.2859	0.2934	0.2683	0.2529	0.2986
3585	0.4873	0.4081	0.4016	0.3106	0.2990	0.3238	0.2724	0.2708	0.2572	0.2769	0.2156	0.2062	0.1965	0.1815	0.1752	0.1886	0.1930	0.1903	0.1902	0.1918
3590	0.5840	0.6314	0.6389	0.6345	0.6357	0.6307	0.6378	0.5573	0.5941	0.5921	0.5357	0.4900	0.4828	0.4509	0.4076	0.3555	0.3426	0.3536	0.3527	0.3285
3600	0.2802	0.2766	0.2697	0.2614	0.2711	0.2650	0.2653	0.2685	0.2658	0.2648	0.2526	0.2548	0.2528	0.2594	0.2612	0.2593	0.2616	0.2662	0.2721	0.3511
3612	0.8587	0.8914	0.9055	0.8994	0.8883	0.8741	0.8638	0.8326	0.8391	0.8554	0.4782	0.5158	0.6391	0.7161	0.7331	0.8044	0.8198	0.8229	0.8530	0.6965
3613	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3620	0.7404	0.7585	0.7282	0.6986	0.7091	0.6173	0.6144	0.5776	0.6110	0.5796	0.5651	0.5665	0.4960	0.4857	0.2480	0.2381	0.2313	0.1882	0.1912	0.2558
3621	0.3202	0.3018	0.3014	0.2829	0.2885	0.2693	0.2676	0.2656	0.2665	0.2624	0.2668	0.2917	0.2766	0.2405	0.2575	0.2653	0.2857	0.2887	0.2728	0.2674
3630	0.4335	0.4300	0.4360	0.4355	0.4331	0.4356	0.4316	0.4233	0.4146	0.4201	0.4225	0.3700	0.3659	0.3698	0.3605	0.3339	0.3254	0.3230	0.3270	0.3261
3634	0.7639	0.7680	0.7677	0.7901	0.8072	0.6898	0.8069	0.8610	0.8136	0.7891	0.7807	0.6882	0.4783	0.5205	0.5074	0.5101	0.4286	0.4265	0.4611	0.5444
3640	0.1932	0.1895	0.1872	0.1711	0.1995	0.2283	0.2972	0.2753	0.2268	0.2154	0.2696	0.2759	0.2508	0.2382	0.2614	0.2889	0.2759	0.2488	0.2394	0.2057
3651	0.3803	0.3659	0.3837	0.4022	0.4000	0.4475	0.4648	0.4768	0.4529	0.4309	0.4612	0.4298	0.4795	0.5285	0.5859	0.6464	0.6582	0.6809	0.7036	0.5009
3652	0.9939	0.9925	0.9932	0.9937	0.9942	0.9890	0.9881	0.9883	0.9808	0.9803	0.9798	0.9765	0.9734	0.5905	0.6486	0.6593	0.6314	0.6493	0.5167	0.9389
3661	0.4315	0.4363	0.4155	0.4134	0.3813	0.3821	0.3553	0.3344	0.3173	0.2979	0.3317	0.3390	0.3530	0.3413	0.3518	0.3605	0.3415	0.3164	0.2948	0.4838
3663	0.3327	0.3199	0.3403	0.3452	0.3396	0.3277	0.3080	0.3139	0.3346	0.3575	0.3495	0.3611	0.3713	0.4050	0.4218	0.4260	0.4587	0.4763	0.3952	0.4033
3669	0.9279	0.9169	0.9101	0.8537	0.8158	0.8089	0.8026	0.7549	0.7125	0.6451	0.5335	0.4847	0.4609	0.4421	0.4337	0.3870	0.3657	0.4700	0.2895	0.2556
3670	0.4359	0.5199	0.4875	0.4801	0.4529	0.4099	0.4091	0.3759	0.3993	0.3992	0.4357	0.4215	0.4420	0.4594	0.4052	0.4404	0.3467	0.3116	0.3679	0.4480
3672	0.3291	0.3204	0.3003	0.2917	0.2891	0.3050	0.2891	0.2674	0.2371	0.2225	0.2105	0.1886	0.1891	0.1735	0.1371	0.1466	0.1574	0.1800	0.2588	0.3953
3674	0.4629	0.4056	0.4000	0.3739	0.3370	0.3313	0.3457	0.3198	0.2670	0.2533	0.2387	0.2223	0.1988	0.1920	0.1820	0.1728	0.1670	0.1704	0.1600	0.2604
3677	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5597	0.5290	0.5041	0.5279	0.5674	0.6576	0.6863	0.6426	0.4472	0.4734	0.4421	0.4227	0.5154
3678	0.5564	0.5481	0.5616	0.5621	0.5248	0.4981	0.4695	0.4491	0.5080	0.5368	0.5272	0.6084	0.4868	0.4802	0.4895	0.5076	0.4859	0.4924	0.4486	0.4914
3679	0.3397	0.3266	0.3017	0.3238	0.3353	0.4940	0.5893	0.5746	0.4938	0.4313	0.4402	0.3248	0.2296	0.2002	0.1935	0.1656	0.1647	0.1473	0.1456	0.1558
3690	0.4133	0.3958	0.3737	0.3544	0.3644	0.3924	0.3577	0.3247	0.3194	0.3323	0.3322	0.2185	0.1870	0.2173	0.1992	0.1935	0.2078	0.2117	0.2109	0.2985
3695	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9838	0.9694	0.9535	0.9470	0.9275	0.8786	0.8747	0.8530	1.0000
3711	0.1565	0.1609	0.1618	0.1710	0.1720	0.1728	0.1720	0.1776	0.1702	0.1634	0.1568	0.1531	0.1387	0.1261	0.1262	0.1244	0.1243	0.1255	0.1252	0.1731
3713	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3714	0.1519	0.1444	0.1412	0.1409	0.1467	0.1587	0.1590	0.1606	0.1877	0.1673	0.1479	0.1599	0.1424	0.1363	0.1336	0.1350	0.1314	0.1192	0.1103	0.1077
3715	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7549	0.4132	0.3522	0.3876	0.3613
3716	0.4772	0.4134	0.4233	0.4415	0.4068	0.4978	0.4634	0.5146	0.4755	0.3918	0.4097	0.4160	0.4190	0.4380	0.4477	0.4613	0.5552	0.5114	0.4944	0.3360
3720	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5118	0.5143	0.5166	0.5198	0.5190	0.5166	0.5168
3721	0.2849	0.2783	0.2701	0.2795	0.3099	0.3085	0.3043	0.2879	0.2871	0.2758	0.2747	0.2797	0.2722	0.2815	0.2994	0.3283	0.3317	0.3366	0.3122	0.3995
3724	0.5027	0.5291	0.5102	0.5117	0.5675	0.6197	0.6203	0.6272	0.6408	0.6294	0.6165	0.6436	0.6265	0.5687	0.6092	0.6292	0.6455	0.6707	0.6823	0.6960
3728	0.3695	0.3777	0.3801	0.3883	0.3677	0.3573	0.4039	0.3755	0.3441	0.3301	0.3606	0.3623	0.4223	0.4064	0.4012	0.3843	0.3783	0.3682	0.3431	0.3368
3730	0.8168	0.8577	0.8512	0.8067	0.8025	0.7979	0.7829	0.7987	0.8526	0.8678	0.8886	0.9016	0.8268	0.8123	0.8214	0.8234	0.8054	0.6886	0.6917	0.6970
3743	0.4434	0.4208	0.3954	0.3796	0.4037	0.4341	0.4224	0.4129	0.3970	0.3943	0.4017	0.4135	0.4027	0.4178	0.4289	0.4233	0.4232	0.4299	0.4321	0.5004
3751	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5009	0.5000	0.5565	0.4831	0.4225	0.4340	0.4145	0.4269	0.4117	0.4203
3760	0.4858	0.4745	0.4872	0.4685	0.4787	0.4996	0.5032	0.5400	0.5045	0.4776	0.5179	0.5263	0.6001	0.5566	0.6230	0.6350	0.6045	0.5793	0.5861	0.6124
3790	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5218	0.5792	0.4082	0.4341	0.4499	0.4739	0.3404	0.5538
3812	0.3453	0.3424	0.3295	0.3268	0.3216	0.3210	0.3146	0.3126	0.3007	0.3055	0.2367	0.2331	0.2233	0.2277	0.2106	0.2046	0.1988	0.1891	0.2023	0.2474
3821	0.6367	0.5727	0.5527	0.4499	0.4249	0.4125	0.4064	0.3849	0.3750	0.3637	0.3443	0.3410	0.3440	0.3369	0.3372	0.3363	0.3372	0.3374	0.3377	0.5013
3822	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3823	0.7490	0.7220	0.7456	0.7252	0.7147	0.6873	0.6953	0.7059	0.7195	0.7218	0.7297	0.7388	0.7560	0.7332	0.7217	0.7162	0.7038	0.6419	0.6506	0.7445
3824	0.6128	0.6084	0.5846	0.5905	0.5768	0.5792	0.5645	0.5258	0.5277	0.5055	0.5414	0.7038	0.5656	0.7196	0.4864	0.5168	0.4018	0.3803	0.4089	0.4799
3825	0.3503	0.3840	0.3887	0.3968	0.3784	0.3378	0.3385	0.3076	0.2911	0.2531	0.2285	0.2350	0.2177	0.2009	0.1908	0.1823	0.1748	0.1720	0.1666	0.1798
3826	0.3787	0.3744	0.3715	0.3728	0.3674	0.3627	0.3718	0.5317	0.3414	0.3480	0.3458	0.3174	0.2955	0.2594	0.2280	0.2248	0.2209	0.2148	0.2201	0.2192
3827	1.0000	1.0000	1.0000	1.0000	1.0000	0.7704	0.6809	0.5122	0.4611	0.4264	0.4026	0.3885	0.3694	0.3918	0.4326	0.4216	0.4106	0.4184	0.4203	0.4719
3829	0.3022	0.3185	0.2934	0.2692	0.2601	0.2640	0.2829	0.3015	0.2819	0.2755	0.2548	0.2455	0.2382	0.2353	0.2252	0.2166	0.2168	0.2295	0.2643	0.3118
3841	0.3718	0.3754	0.3781	0.3643	0.3670	0.3559	0.3381	0.3270	0.3174	0.3095	0.3385	0.5059	0.5030	0.4960	0.4969	0.4653	0.4215	0.3639	0.3270	0.3375
3842	0.4307	0.4232	0.4273	0.4143	0.3853	0.3770	0.3724	0.3464	0.2724	0.2331	0.2191	0.1842	0.1493	0.1362	0.1261	0.1075	0.1070	0.1024	0.0952	0.1218
3843	0.5376	0.5603	0.6025	0.5953	0.5737	0.5427	0.5164	0.5123	0.5183	0.5225	0.5179	0.8159	0.5860	0.6226	0.7470	0.7499	0.6269	0.6387	0.6057	0.7523
3844	1.0000	1.0000	1.0000	1.0000	0.5470	0.5100	0.5192	0.5372	0.4997	0.4816	0.5030	0.6171	0.6279	0.5777	0.4937	0.5448	0.5216	0.4980	0.3627	0.3668
3845	0.7664	0.7628	0.7330	0.7548	0.7384	0.6810	0.5818	0.4202	0.3811	0.3248	0.3004	0.2078	0.2128	0.2012	0.1933	0.1850	0.1847	0.1933	0.1868	0.1531
3851	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6698	0.6160	0.5620	0.5409	0.5212	0.5105	0.5266	0.6728	0.6499	0.6455	0.5396	0.5328	0.9065
3861	0.2853	0.2808	0.2740	0.2671	0.2710	0.2668	0.2683	0.2679	0.2603	0.2578	0.2460	0.2420	0.2359	0.2455	0.2452	0.2378	0.2363	0.2361	0.2311	0.2344
3910	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6543	0.6087	0.5681	0.5583
3911	0.9069	0.8957	0.8828	0.8860	0.8889	0.9025	0.9215	0.9424	0.9399	0.7392	0.7402	0.5292	0.4564	0.3498	0.3498	0.3722	0.3877	0.3678	0.4165	0.7009
3931	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7011	0.7086	0.7029	0.7649	0.7461	0.7188	0.6985	0.7047	0.7189	0.7046
3942	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7874	0.7371	0.7271	0.7074	0.6601	0.6579	0.7230	0.7512	0.7567	0.6874	0.8304	0.8531

Appendix B
The Herfindahl Index by Industry for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3944	0.5541	0.5561	0.5170	0.5355	0.5832	0.3432	0.3385	0.4152	0.4526	0.6942	0.7356	0.6772	0.6408	0.5397	0.4460	0.4462	0.4994	0.5482	0.5875	0.5512
3949	0.6281	0.6551	0.6818	0.8279	0.8492	0.7385	0.5396	0.5309	0.4524	0.4448	0.4305	0.2917	0.2780	0.2863	0.2873	0.2831	0.2385	0.2306	0.2201	0.1660
3950	0.4245	0.4281	0.4122	0.4024	0.4015	0.3927	0.3828	0.3897	0.3783	0.3080	0.3081	0.3054	0.3014	0.2903	0.2896	0.2922	0.3069	0.3162	0.3294	0.3270
3960	0.8073	0.8354	0.7816	0.8448	0.8942	0.9053	0.9643	0.9588	0.9832	0.9844	0.8763	0.8415	0.7537	0.7827	0.7123	0.6285	0.5572	0.6081	0.6896	0.6157
3990	0.5343	0.5286	0.5218	0.5228	0.5363	0.3163	0.3800	0.3516	0.2214	0.2285	0.2315	0.2592	0.2475	0.2536	0.2474	0.2030	0.2053	0.2267	0.1963	0.2544
4011	0.1931	0.1895	0.1903	0.2033	0.2077	0.1981	0.1719	0.1663	0.1638	0.1585	0.1564	0.1502	0.1502	0.1572	0.1330	0.1366	0.1368	0.1318	0.1296	0.1360
4100	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	0.7983	0.7664	0.6558	0.5539
4210	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9296	1.0000
4213	0.2641	0.2713	0.2712	0.2743	0.2858	0.2822	0.2487	0.2112	0.2070	0.2070	0.2023	0.1985	0.1944	0.1895	0.2324	0.2316	0.2238	0.2137	0.2110	0.2080
4400	0.3383	0.3154	0.2786	0.2349	0.2309	0.2409	0.2370	0.2348	0.2501	0.2372	0.2746	0.2122	0.2299	0.2158	0.2255	0.2416	0.2162	0.1811	0.1752	0.2042
4412	1.0000	1.0000	1.0000	1.0000	0.5406	0.5624	0.6568	0.6584	0.4141	0.3443	0.4878	0.4697	0.5027	0.3956	0.3671	0.3248	0.3245	0.3093	0.3122	0.5516
4512	0.2422	0.2448	0.2396	0.2411	0.2275	0.2319	0.2151	0.1654	0.1711	0.1723	0.1357	0.1390	0.1288	0.1245	0.1233	0.1247	0.1275	0.1302	0.1328	0.1707
4513	1.0000	1.0000	0.5005	0.5125	0.5326	0.5598	0.6170	0.6496	0.6934	0.7169	0.7427	0.7512	0.7591	0.7747	0.7899	0.7690	0.7404	0.7316	0.7196	1.0000
4522	0.6184	0.5268	0.5333	0.5611	0.5480	0.5714	0.5730	0.5244	0.5423	0.6220	0.6432	0.5064	0.6041	0.5898	0.6090	0.6359	0.6215	0.5846	0.5938	0.5725
4581	0.9575	0.9529	0.9439	0.9456	0.9545	0.9579	0.9575	0.9538	0.7231	0.7081	0.8857	0.8335	0.8135	0.4515	0.4626	0.4657	0.4664	0.4803	0.5295	0.5354
4610	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6086	0.6950	0.4846	0.3845	0.4024	0.2355	0.1825	0.1743	0.1871
4700	0.9925	0.9923	0.9933	0.9986	1.0000	0.9950	0.9771	0.9630	0.9425	0.8183	0.7485	0.6282	0.6045	0.8514	0.6026	0.6367	0.6664	0.9162	0.9164	1.0000
4731	0.4730	0.4697	0.4439	0.4299	0.4234	0.4193	0.4166	0.4227	0.3687	0.3476	0.3338	0.3115	0.3025	0.2943	0.2755	0.2730	0.2603	0.2401	0.2471	0.2415
4812	1.0000	1.0000	1.0000	0.9987	0.9973	0.9930	0.9833	0.9713	0.9105	0.8750	0.8537	0.8892	0.4252	0.4181	0.4773	0.3949	0.3713	0.2327	0.1996	0.2397
4813	0.5540	0.4153	0.3835	0.3807	0.3892	0.3883	0.4048	0.4049	0.3500	0.1401	0.1322	0.1208	0.1171	0.1060	0.0949	0.0933	0.0935	0.0967	0.0977	0.1382
4822	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	-.-
4832	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6189	0.3861	0.4296	1.0000
4833	0.7653	0.7533	0.7361	0.7348	0.7279	0.7211	0.6720	0.6008	0.5838	0.5512	0.4985	0.3468	0.3283	0.3052	0.2929	0.2628	0.2270	0.2045	0.1945	0.2100
4841	0.4411	0.4587	0.4601	0.4496	0.4007	0.3943	0.3759	0.3573	0.3444	0.3468	0.2870	0.2757	0.3709	0.3715	0.4118	0.4239	0.4118	0.3766	0.3153	0.3443
4899	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9250	0.8650	0.7625	0.6214	0.4987	0.5093	0.5168	0.5504	0.5997
4911	0.0307	0.0302	0.0297	0.0298	0.0294	0.0311	0.0305	0.0309	0.0309	0.0314	0.0311	0.0312	0.0312	0.0300	0.0303	0.0302	0.0302	0.0295	0.0287	0.0319
4922	0.1356	0.1356	0.1463	0.1423	0.1313	0.1289	0.1287	0.1292	0.1292	0.1277	0.1360	0.1539	0.1758	0.1901	0.1750	0.1983	0.2070	0.1936	0.1777	0.1762
4923	0.1528	0.1491	0.1426	0.1460	0.1416	0.1431	0.1430	0.1493	0.1530	0.1686	0.2079	0.1908	0.1708	0.1546	0.2047	0.2478	0.1368	0.1441	0.1449	0.1565
4924	0.0838	0.0833	0.0819	0.0847	0.0881	0.0938	0.0881	0.0835	0.0818	0.0812	0.0845	0.1708	0.2097	0.1908	0.1859	0.2208	0.2531	0.2163	0.1875	0.1854
4931	0.0526	0.0519	0.0516	0.0470	0.0482	0.0486	0.0497	0.0482	0.0458	0.0469	0.0481	0.0464	0.0448	0.0444	0.0466	0.0479	0.0470	0.0471	0.0452	0.0454
4932	0.5432	0.5503	0.3821	0.3754	0.3882	0.4137	0.4595	0.4188	0.4070	0.3981	0.3783	0.3592	0.3693	0.3725	0.3535	0.3750	0.4233	0.4223	0.4061	0.4006
4941	0.2120	0.2086	0.2108	0.2160	0.2152	0.2209	0.2012	0.1975	0.1965	0.1877	0.1878	0.1845	0.1830	0.1858	0.1876	0.1950	0.1995	0.1957	0.1942	0.1874

Appendix B
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SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
4950	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4953	0.5277	0.5235	0.5147	0.5035	0.5041	0.5000	0.5031	0.4927	0.4862	0.3866	0.3863	0.3864	0.3723	0.3687	0.3619	0.3730	0.3433	0.3557	0.3525	0.4222
4955	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6132	0.4226	0.4516	0.3718	0.3082	0.2028	0.1640	0.1426	0.1375	0.1443	0.1412	0.1281	0.1280	0.1977
4961	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000
4991	0.7980	0.7681	0.7906	0.8061	0.7529	0.7145	0.7171	0.6563	0.5320	0.4913	0.4943	0.4873	0.4912	0.4032	0.4467	0.2591	0.2467	0.2364	0.1836	0.2625
5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5010	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	0.7034	0.7119	0.7291	0.7005	0.7094	0.6049	0.6308	0.5918	0.5509
5013	0.8789	0.8897	0.8879	0.8865	0.8913	0.9016	0.8956	0.9072	0.8984	0.9009	0.8654	0.8521	0.8655	0.8684	0.8778	0.8845	0.8968	0.8979	0.9034	0.8835
5020	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5030	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5031	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5683	0.6358	0.6421	0.6232	0.6204	0.6196	0.5897	0.5631	0.5212	0.5008
5040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-	-.-	-.-	-.-	-.-	0.9428	0.9503	0.9735	0.9525	0.9666	0.9995	0.9997	0.8572	0.7730
5045	1.0000	1.0000	1.0000	1.0000	0.9526	0.5115	0.4156	0.3674	0.4077	0.4036	0.2959	0.1630	0.1241	0.1345	0.1436	0.1840	0.2021	0.2039	0.2008	0.2305
5047	1.0000	1.0000	1.0000	1.0000	0.7041	0.7000	0.4235	0.4857	0.4658	0.4524	0.4509	0.4659	0.5406	0.5495	0.5741	0.5201	0.4974	0.4860	0.4816	0.9268
5051	0.2559	0.2545	0.2521	0.2552	0.2736	0.2338	0.2317	0.2344	0.2180	0.2222	0.2099	0.1948	0.2128	0.2222	0.2215	0.2123	0.2147	0.2170	0.2140	0.2225
5063	0.3146	0.3344	0.3951	0.4850	0.2837	0.2757	0.2825	0.3436	0.3559	0.3217	0.3353	0.2499	0.3349	0.3673	0.3968	0.3959	0.4358	0.4540	0.4422	0.3592
5065	0.2734	0.2714	0.2652	0.2561	0.2538	0.2687	0.2675	0.2312	0.1944	0.2161	0.2188	0.1760	0.1608	0.1596	0.1571	0.1450	0.1421	0.1432	0.1639	0.3345
5070	0.7637	0.7824	0.7904	0.8070	0.7897	0.7686	0.7653	0.7383	0.7401	0.7506	0.6719	0.6589	0.6314	0.5844	0.4384	0.4029	0.3696	0.3616	0.3496	0.3635
5072	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9193	0.5002	0.6102	0.3744	0.3749	0.4779	0.4095	0.4808	0.4799	0.4872	0.4265	0.3734	0.3521
5080	0.2583	0.2547	0.2578	0.2586	0.2713	0.2868	0.2815	0.2911	0.3000	0.2988	0.2935	0.2891	0.2948	0.2943	0.2571	0.2450	0.2527	0.2593	0.2600	0.3915
5082	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5084	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6255	0.6926
5090	0.8646	0.8565	0.8605	0.8302	0.8318	0.6284	0.6429	0.5170	0.6786	0.7795	0.5040	0.4697	0.4674	0.4727	0.4526	0.3921	0.3401	0.3385	0.3459	0.4577
5094	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9521	0.9397	0.7589	0.7791	0.6728	0.6200	0.8307	0.8747	0.8741	1.0000
5099	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9985	0.7336	1.0000
5110	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.4640	0.4617	0.4522	0.4449	0.4400	0.4387	0.4209	0.4030	0.3963	0.3890	0.3828	0.3605	0.3604	0.3533
5122	0.4385	0.4398	0.4443	0.4412	0.4324	0.4197	0.4151	0.3423	0.3246	0.3319	0.3407	0.3008	0.3077	0.2931	0.2919	0.2786	0.2823	0.2593	0.2849	0.3192
5130	-.-	-.-	-.-	-.-	1.0000	1.0000	0.5001	0.5009	0.5207	0.5788	0.5944	0.5997	0.7903	0.8337	0.8398	0.8473	0.8294	0.7956	1.0000	0.9949
5140	0.1993	0.2048	0.2210	0.2269	0.2283	0.2417	0.2445	0.2559	0.2628	0.2880	0.3022	0.3092	0.2892	0.2716	0.2715	0.2614	0.2490	0.2680	0.2992	0.4882
5141	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5150	0.5523	0.7279	0.4602	0.4519	0.4445	0.4181	0.4145	0.4378	0.4146	0.4200	0.4027	0.4084	0.5096	0.4603	0.4793	0.4501	0.4183	0.4129	0.4331	0.6394
5160	0.4806	0.4989	0.4611	0.4636	0.4680	0.4674	0.4578	0.4822	0.4551	0.4309	0.2947	0.3019	0.3650	0.3429	0.3201	0.3355	0.3415	0.3452	0.3118	0.4292

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
4950	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4953	0.5277	0.5235	0.5147	0.5035	0.5041	0.5000	0.5031	0.4927	0.4862	0.3866	0.3863	0.3864	0.3723	0.3687	0.3619	0.3730	0.3433	0.3557	0.3525	0.4222
4955	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6132	0.4226	0.4516	0.3718	0.3082	0.2028	0.1640	0.1426	0.1375	0.1443	0.1412	0.1281	0.1280	0.1977
4961	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000
4991	0.7980	0.7681	0.7906	0.8061	0.7529	0.7145	0.7171	0.6563	0.5320	0.4913	0.4943	0.4873	0.4912	0.4032	0.4467	0.2591	0.2467	0.2364	0.1836	0.2625
5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5010	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	0.7034	0.7119	0.7291	0.7005	0.7094	0.6049	0.6308	0.5918	0.5509
5013	0.8789	0.8897	0.8879	0.8865	0.8913	0.9016	0.8956	0.9072	0.8984	0.9009	0.8654	0.8521	0.8655	0.8684	0.8778	0.8845	0.8968	0.8979	0.9034	0.8835
5020	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5030	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5031	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5683	0.6358	0.6421	0.6232	0.6204	0.6196	0.5897	0.5631	0.5212	0.5008
5040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-	-.-	-.-	-.-	-.-	0.9428	0.9503	0.9735	0.9525	0.9666	0.9995	0.9997	0.8572	0.7730
5045	1.0000	1.0000	1.0000	1.0000	0.9526	0.5115	0.4156	0.3674	0.4077	0.4036	0.2959	0.1630	0.1241	0.1345	0.1436	0.1840	0.2021	0.2039	0.2008	0.2305
5047	1.0000	1.0000	1.0000	1.0000	0.7041	0.7000	0.4235	0.4857	0.4658	0.4524	0.4509	0.4659	0.5406	0.5495	0.5741	0.5201	0.4974	0.4860	0.4816	0.9268
5051	0.2559	0.2545	0.2521	0.2552	0.2736	0.2338	0.2317	0.2344	0.2180	0.2222	0.2099	0.1948	0.2128	0.2222	0.2215	0.2123	0.2147	0.2170	0.2140	0.2225
5063	0.3146	0.3344	0.3951	0.4850	0.2837	0.2757	0.2825	0.3436	0.3559	0.3217	0.3353	0.2499	0.3349	0.3673	0.3968	0.3959	0.4358	0.4540	0.4422	0.3592
5065	0.2734	0.2714	0.2652	0.2561	0.2538	0.2687	0.2675	0.2312	0.1944	0.2161	0.2188	0.1760	0.1608	0.1596	0.1571	0.1450	0.1421	0.1432	0.1639	0.3345
5070	0.7637	0.7824	0.7904	0.8070	0.7897	0.7686	0.7653	0.7383	0.7401	0.7506	0.6719	0.6589	0.6314	0.5844	0.4384	0.4029	0.3696	0.3616	0.3496	0.3635
5072	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9193	0.5002	0.6102	0.3744	0.3749	0.4779	0.4095	0.4808	0.4799	0.4872	0.4265	0.3734	0.3521
5080	0.2583	0.2547	0.2578	0.2586	0.2713	0.2868	0.2815	0.2911	0.3000	0.2988	0.2935	0.2891	0.2948	0.2943	0.2571	0.2450	0.2527	0.2593	0.2600	0.3915
5082	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5084	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6255	0.6926
5090	0.8646	0.8565	0.8605	0.8302	0.8318	0.6284	0.6429	0.5170	0.6786	0.7795	0.5040	0.4697	0.4674	0.4727	0.4526	0.3921	0.3401	0.3385	0.3459	0.4577
5094	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9521	0.9397	0.7589	0.7791	0.6728	0.6200	0.8307	0.8747	0.8741	1.0000
5099	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9985	0.7336	1.0000
5110	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.4640	0.4617	0.4522	0.4449	0.4400	0.4387	0.4209	0.4030	0.3963	0.3890	0.3828	0.3605	0.3604	0.3533
5122	0.4385	0.4398	0.4443	0.4412	0.4324	0.4197	0.4151	0.3423	0.3246	0.3319	0.3407	0.3008	0.3077	0.2931	0.2919	0.2786	0.2823	0.2593	0.2849	0.3192
5130	-.-	-.-	-.-	-.-	1.0000	1.0000	0.5001	0.5009	0.5207	0.5788	0.5944	0.5997	0.7903	0.8337	0.8398	0.8473	0.8294	0.7956	1.0000	0.9949
5140	0.1993	0.2048	0.2210	0.2269	0.2283	0.2417	0.2445	0.2559	0.2628	0.2880	0.3022	0.3092	0.2892	0.2716	0.2715	0.2614	0.2490	0.2680	0.2992	0.4882
5141	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5150	0.5523	0.7279	0.4602	0.4519	0.4445	0.4181	0.4145	0.4378	0.4146	0.4200	0.4027	0.4084	0.5096	0.4603	0.4793	0.4501	0.4183	0.4129	0.4331	0.6394
5160	0.4806	0.4989	0.4611	0.4636	0.4680	0.4674	0.4578	0.4822	0.4551	0.4309	0.2947	0.3019	0.3650	0.3429	0.3201	0.3355	0.3415	0.3452	0.3118	0.4292

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
5171	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8068	0.8005
5172	0.3281	0.3385	0.3488	0.3658	0.2759	0.2793	0.2590	0.2715	0.2900	0.3152	0.3380	0.4394	0.2413	0.1646	0.1594	0.1563	0.1430	0.1339	0.1267	0.1355
5190	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6376	0.6089	0.6063	0.6384	0.5651	0.5470	0.5292	0.4870	0.4604	0.4084	0.3915	0.4028	0.5627
5200	0.7481	0.7161	0.6982	0.6803	0.6855	0.5631	0.5748	0.5630	0.5705	0.5400	0.4282	0.4444	0.3648	0.3654	0.3661	0.3569	0.3762	0.3646	0.3586	0.6048
5211	0.3993	0.4154	0.4204	0.4357	0.4237	0.3979	0.3636	0.3480	0.3358	0.3121	0.3034	0.2280	0.2186	0.2095	0.2149	0.2251	0.2452	0.2496	0.2710	0.2968
5311	0.2851	0.2822	0.2869	0.2443	0.2301	0.2639	0.2645	0.2689	0.2814	0.2796	0.2648	0.2462	0.2660	0.2544	0.2740	0.2667	0.2370	0.2094	0.2005	0.2534
5331	0.5953	0.6024	0.5973	0.5672	0.5419	0.5206	0.4968	0.4539	0.4216	0.4026	0.3729	0.3335	0.3187	0.2409	0.2317	0.2210	0.2336	0.2149	0.2320	0.2513
5399	1.0000	1.0000	1.0000	1.0000	0.8708	0.8509	0.8510	0.8469	0.8557	0.8518	0.8953	0.8805	0.8695	0.8780	0.8826	0.8897	0.8915	0.8878	0.8877	0.9060
5411	0.1855	0.1820	0.1760	0.1685	0.1549	0.1497	0.1506	0.1524	0.1512	0.1466	0.1418	0.1342	0.1237	0.0980	0.0907	0.0884	0.0858	0.0842	0.0824	0.1124
5412	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5783	0.5386	0.5670	0.4679	0.3832	0.3321	0.3336	0.3262	0.3110	0.3105	0.2859	0.2760	0.6067
5500	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9130	0.8822	0.8684	0.4293	0.4133	0.3802	0.3766	0.4002	0.2789	0.2843	0.3184	0.3840
5531	0.5036	0.5012	0.5000	0.5001	0.5022	0.5054	0.5119	0.4441	0.4376	0.4348	0.4313	0.4199	0.4261	0.4321	0.4531	0.2833	0.2667	0.2725	0.2758	0.3201
5600	0.4715	0.5219	0.5291	0.5312	0.5452	0.5571	0.5703	0.6007	0.6123	0.6244	0.6768	0.6754	0.6927	0.7153	0.7019	0.7021	0.7166	0.7114	0.7106	0.7321
5621	0.3845	0.3806	0.3564	0.3294	0.3319	0.3372	0.3219	0.2733	0.2673	0.2531	0.2574	0.2658	0.2636	0.2724	0.2556	0.2628	0.2750	0.2594	0.2568	0.3808
5651	0.7593	0.6515	0.5754	0.5513	0.5392	0.5056	0.4909	0.4126	0.4037	0.3705	0.3723	0.3823	0.3740	0.2147	0.2361	0.1919	0.1820	0.1797	0.1770	0.1836
5661	0.6913	0.6858	0.7215	0.7498	0.7773	0.8142	0.8461	0.7967	0.8121	0.8271	0.8480	0.8252	0.8528	0.8482	0.8291	0.8426	0.8344	0.8014	0.7383	0.7664
5700	1.0000	1.0000	1.0000	1.0000	1.0000	0.6808	0.6934	0.4988	0.4953	0.5681	0.4524	0.4875	0.5105	0.5229	0.5289	0.5174	0.3813	0.3702	0.3520	0.4793
5712	0.6128	0.5264	0.5335	0.5333	0.4253	0.3935	0.3550	0.3414	0.3713	0.3709	0.3447	0.3318	0.3257	0.3196	0.3041	0.2884	0.2788	0.2701	0.2642	0.4592
5731	0.7931	0.7755	0.7792	0.7613	0.7619	0.7613	0.7588	0.7910	0.7130	0.6559	0.5562	0.4139	0.3844	0.3720	0.3715	0.3555	0.3274	0.2979	0.2695	0.3865
5734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000
5735	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5812	0.2582	0.2611	0.2565	0.2478	0.2395	0.2424	0.2213	0.2188	0.2114	0.1999	0.1960	0.1968	0.2145	0.2000	0.1879	0.1818	0.1803	0.1527	0.1232	0.1794
5900	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	0.9126	0.8641	0.6985	0.6821	0.6776	0.6057	0.5856	0.5562
5912	0.2147	0.2085	0.1999	0.1941	0.1907	0.1812	0.1800	0.1805	0.1845	0.1834	0.1806	0.1833	0.1748	0.1756	0.1754	0.1805	0.1809	0.1851	0.1883	0.4204
5940	0.3575	0.3490	0.3467	0.3375	0.3354	0.3338	0.3367	0.2893	0.2799	0.2749	0.2691	0.2112	0.2090	0.1807	0.1710	0.1832	0.2239	0.2018	0.1732	0.2835
5944	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	0.8113	0.8178	0.7960	0.8169	1.0000
5945	-.-	1.0000	0.5193	0.5322	0.7284	0.7860	0.8282	0.8956	0.9154	0.9274	0.9316	0.9421	0.9480	0.9519	0.9565	0.9605	0.9633	0.9648	0.9605	0.9532
5960	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000
5961	0.4487	0.4338	0.4321	0.3956	0.4055	0.3903	0.3748	0.3681	0.3647	0.3722	0.2985	0.2330	0.1946	0.1935	0.1552	0.1574	0.1518	0.1420	0.1422	0.1647
5990	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-	0.9282	0.9301	0.9275	0.8425	0.8047	0.5143	0.5683	0.3236	0.2471	0.2532
6021	0.1009	0.0999	0.0991	0.0959	0.0999	0.0998	0.0970	0.0898	0.0843	0.0805	0.0762	0.0705	0.0688	0.0688	0.0680	0.0650	0.0552	0.0566	0.0499	0.0475
6022	0.1746	0.1567	0.1505	0.1466	0.1609	0.1715	0.1721	0.1557	0.1321	0.1284	0.1208	0.1120	0.1036	0.0878	0.0921	0.0842	0.0754	0.0731	0.0587	0.0603

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6029	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	0.4440	0.4441	0.4375	0.4417	0.3700	0.2054	0.1814	0.1766	0.1691	0.1616	0.1408	0.1216	0.3330
6035	0.4147	0.3884	0.3924	0.3894	0.3056	0.2942	0.2261	0.2247	0.2213	0.1709	0.1375	0.1091	0.0995	0.1021	0.0967	0.1052	0.1043	0.1063	0.0447	0.0432
6036	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	1.0000	0.8450	0.7959	0.5407	0.3119	0.2457	0.2836	0.2512	0.0580	0.0666
6099	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5010	0.5224	0.5205	0.6101	0.5231	0.8479	0.8439	0.8498	0.8063	0.7533	0.5200	1.0000
6111	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8222	0.8245	0.8290	0.7992	0.8117	0.6096	0.5613	0.5089	0.4587	0.4624	0.4654	0.4924	0.4940	0.4810
6141	0.5022	0.5007	0.5000	0.5002	0.5033	0.5127	0.7209	0.7361	0.7223	0.7021	0.5168	0.5454	0.5579	0.4991	0.5158	0.5307	0.4779	0.3283	0.3078	0.2939
6153	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6497	0.6176	0.4794	0.4633	0.6892
6159	-,-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6429	0.6285	0.6266
6162	0.8897	0.8544	0.8420	0.7933	0.7545	0.8395	0.8523	0.5594	0.5549	0.7985	0.7562	0.7021	0.6776	0.5659	0.6440	0.2584	0.2168	0.2013	0.2155	0.2189
6163	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5165	0.5521	0.5727	1.0000
6172	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	1.0000	1.0000	1.0000	0.9426	0.4509	0.3454	0.3628	0.3499	0.3518	0.9059	0.9228	0.9374
6199	0.6810	0.6529	0.6416	0.6246	0.5692	0.5271	0.4349	0.4240	0.3943	0.3822	0.3805	0.3915	0.4065	0.4035	0.4056	0.3915	0.3970	0.4090	0.3826	0.3781
6200	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7091	0.7211	0.7302
6211	0.6756	0.6729	0.6922	0.6119	0.6927	0.7036	0.6358	0.6092	0.5888	0.5245	0.4343	0.3445	0.3385	0.3879	0.3432	0.3216	0.2864	0.1842	0.1534	0.1611
6282	0.5645	0.4465	0.5315	0.4783	0.4197	0.4305	0.2736	0.2600	0.2712	0.2974	0.1996	0.1949	0.1806	0.2081	0.1713	0.1920	0.1464	0.1463	0.1466	0.1525
6311	0.1825	0.2282	0.2324	0.2424	0.3743	0.3271	0.2935	0.2851	0.1646	0.1559	0.1502	0.1464	0.1341	0.1349	0.1478	0.1701	0.1326	0.1180	0.1226	0.1135
6321	0.5376	0.5389	0.5401	0.5336	0.5477	0.5733	0.5464	0.5236	0.4986	0.4867	0.4253	0.4075	0.3672	0.3629	0.3331	0.3095	0.2852	0.2275	0.1982	0.1962
6324	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	0.8587	0.7042	0.5278	0.4571	0.4160	0.3850	0.4101	0.2654	0.1968	0.1440	0.1131	0.1121
6331	0.1292	0.1285	0.1259	0.1237	0.1155	0.1137	0.1100	0.1516	0.1412	0.1366	0.1182	0.1050	0.0933	0.0853	0.0825	0.0834	0.0819	0.0785	0.0688	0.0785
6351	1.0000	1.0000	1.0000	1.0000	0.8869	0.5114	0.4922	0.4792	0.4627	0.4628	0.4910	0.5220	0.3000	0.2794	0.2561	0.1691	0.1493	0.1274	0.1039	0.1033
6361	0.7438	0.7450	0.7615	0.7416	0.8538	0.7509	0.7662	0.7577	0.3470	0.3498	0.3812	0.3685	0.4055	0.3841	0.3788	0.4068	0.3915	0.3659	0.3384	0.3483
6399	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6411	0.4412	0.4400	0.4351	0.4210	0.4064	0.4221	0.4279	0.4147	0.3844	0.3780	0.3683	0.3690	0.3698	0.3575	0.3392	0.2594	0.2223	0.2132	0.2149	0.2155
6510	0.5160	0.6597	0.6082	0.5693	0.5096	0.5713	0.5010	0.6656	0.4400	0.3988	0.7343	0.4420	0.5428	0.5192	0.5572	0.4933	0.6163	0.6457	0.6317	0.4058
6512	0.4614	0.5905	0.4436	0.4304	0.4220	0.4344	0.4190	0.4033	0.3979	0.3916	0.3707	0.3647	0.3385	0.2851	0.2705	0.2154	0.2227	0.2825	0.2944	0.2974
6531	-,-	-,-	-,-	-,-	-,-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7599	0.6739	0.6214
6532	0.6729	0.6564	0.5954	0.5440	0.5349	0.5267	0.5302	0.5000	0.5011	0.5158	1.0000	0.6350	0.5307	0.5889	0.5996	0.5183	0.5114	0.6167	0.6290	0.8465
6552	0.9365	0.9080	0.8226	0.8656	0.8402	0.8196	0.4814	0.4253	0.4250	0.3900	0.4006	0.3139	0.3117	0.3077	0.3244	0.3274	0.3145	0.2909	0.2721	0.4257
6726	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-
6792	-,-	1.0000	1.0000	1.0000	1.0000	0.6036	0.3141	0.2855	0.2925	0.1632	0.1765	0.1669	0.1689	0.1714	0.1734	0.2246	0.2178	0.1376	0.1243	0.1055
6794	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9721	0.8559	0.4528	0.4319	0.6927	0.7785	0.7784	0.7680	0.5272	0.4937	0.5185	0.6108	0.6300
6795	0.4122	0.4226	0.5495	0.4300	0.4666	0.5799	0.5125	0.7487	0.6753	0.6679	0.6742	0.7226	0.7740	0.7235	0.6884	0.7023	0.6783	0.5304	0.5852	0.5889

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6798	0.5772	0.5830	0.5589	0.4153	0.3884	0.3008	0.0729	0.0472	0.0443	0.0440	0.0366	0.0300	0.0557	0.0747	0.0550	0.0430	0.0385	0.0330	0.0185	0.0153
6799	0.5560	0.6054	0.6335	0.6310	0.4448	0.3528	0.3473	0.4739	0.4818	0.4838	0.6163	0.5198	0.5900	0.7007	0.8198	0.6771	0.4084	0.2216	0.2238	0.3233
7011	0.5129	0.4808	0.4576	0.4593	0.4505	0.4295	0.4105	0.3990	0.2980	0.2731	0.2372	0.2593	0.2284	0.2262	0.2260	0.2902	0.2504	0.2774	0.2575	0.2805
7200	0.2465	0.2521	0.2060	0.2092	0.2066	0.2137	0.1871	0.1681	0.1748	0.1789	0.2087	0.2115	0.2153	0.2182	0.2238	0.2280	0.1940	0.1977	0.1771	0.2440
7310	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6153	0.5018	0.5076	0.4212	0.4060	0.3790	0.3920
7311	0.3493	0.3421	0.3499	0.3522	0.3543	0.3401	0.3309	0.3455	0.2786	0.2613	0.2395	0.2285	0.2459	0.2482	0.2524	0.2442	0.2443	0.2468	0.2431	0.3235
7320	0.5138	0.5319	0.5334	0.5274	0.4928	0.4928	0.4993	0.4808	0.5166	0.5173	0.5368	0.5199	0.4675	0.3990	0.4244	0.4373	0.4387	0.4251	0.4247	0.4420
7331	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9725	0.9730	0.9808	0.9774	0.9740	0.9754	0.9750	0.8555	0.8313
7340	0.5251	0.5249	0.5248	0.5283	0.5285	0.5280	0.5312	0.5360	0.5005	0.4952	0.4921	0.4892	0.4877	0.4845	0.4765	0.4700	0.4628	0.4498	0.4082	0.4414
7350	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7359	1.0000	1.0000	1.0000	0.8359	0.7828	0.7382	0.3632	0.3436	0.3105	0.2649	0.2537	0.6527	0.6978	0.6297	0.6357	0.5975	0.5589	0.4813	0.4447	0.2432
7361	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7363	0.2455	0.2534	0.3044	0.3039	0.3062	0.2997	0.2907	0.2776	0.2616	0.2709	0.2696	0.2551	0.2056	0.2613	0.2503	0.2566	0.2433	0.2433	0.2138	0.2407
7370	1.0000	1.0000	0.7153	0.5445	0.4338	0.4857	0.4998	0.4970	0.5460	0.5269	0.7996	0.8974	0.8803	0.8689	0.8861	0.8101	0.8097	0.7905	0.7652	0.8833
7371	0.5098	0.4287	0.3705	0.3491	0.3141	0.2184	0.2051	0.2233	0.2348	0.2348	0.2366	0.2283	0.2248	0.2250	0.2223	0.2146	0.2208	0.2250	0.2056	0.3423
7372	0.3898	0.4022	0.4045	0.4215	0.4792	0.4090	0.3583	0.1763	0.1217	0.1237	0.0988	0.0887	0.1069	0.1050	0.0977	0.0880	0.0886	0.0955	0.1031	0.1567
7373	0.2522	0.2297	0.2181	0.2138	0.2174	0.2124	0.1975	0.2024	0.1951	0.1609	0.1567	0.1561	0.1484	0.1682	0.1555	0.1678	0.1648	0.1786	0.1772	0.1147
7374	1.0000	1.0000	1.0000	1.0000	1.0000	0.9237	0.9196	0.9225	0.8847	0.8511	0.7908	0.7519	0.7198	0.6780	0.6563	0.6406	0.3807	0.3709	0.3599	0.3779
7377	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7810	0.7412	0.6442	0.6287	0.6387	0.6743	0.6979	0.7087	0.8535
7380	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	0.5010	0.5010	0.5097	0.5001	0.5551	0.5771	0.4891	0.4868	0.5392	0.5872
7381	0.8893	0.8943	0.8963	0.8985	0.9019	0.8833	0.8697	0.8755	0.8816	0.8757	0.8480	0.8416	0.7974	0.7346	0.5092	0.5130	0.4960	0.4031	0.4052	0.3911
7384	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7385	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5409	0.5296	1.0000
7389	0.6124	0.5509	0.4576	0.4493	0.3351	0.3772	0.3482	0.2948	0.2981	0.2712	0.2470	0.2352	0.2054	0.2136	0.2138	0.2187	0.2129	0.2215	0.2199	0.3126
7500	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	-.-
7510	0.6084	0.6168	0.5564	0.5529	0.5433	0.5288	0.5363	0.5247	0.5611	0.5123	0.5124	0.4985	0.5122	0.5384	0.5158	0.5085	0.5109	0.4983	0.4529	0.7742
7600	1.0000	1.0000	1.0000	1.0000	0.6958	0.6559	0.6768	0.6993	0.5963	0.7122	0.5196	0.5088	0.6341	0.6700	0.6829	0.4243	0.3547	0.2987	0.2557	0.5920
7812	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9868	0.9721	0.9751	1.0000
7819	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	0.8205	0.8149	0.7448	0.6247	0.6319	0.6815	0.8284	0.8498	0.7900	0.7550	0.7954	0.8882
7822	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9779	0.8793	0.7553	0.6544	0.5085	0.5137	0.4941	0.6510	0.5270	0.5086	0.5061
7830	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9016	0.9317	0.8295	0.3749	0.4017	0.4162	0.4516	0.4399	0.4120	0.3961	0.2770	0.2697	0.3408
7900	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Appendix B
The Herfindahl Index by Industry for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
7948	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8411	0.8172	0.5317	0.4260	0.3711	0.3615	0.3600	0.3568	0.3491	0.3508	0.3875	0.4130	0.3854
7990	0.4664	0.4959	0.4850	0.4002	0.3711	0.4228	0.3868	0.3572	0.2941	0.2885	0.2620	0.2265	0.2810	0.2032	0.1711	0.1557	0.1289	0.1253	0.1077	0.0986
7997	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	-.-
8000	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	0.9831	0.9787	0.9696	0.9757
8011	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5258	0.5659	0.3368	0.6486	0.6388	0.6255	0.6451	0.4350	0.4787	0.4784	0.5013	0.5631
8051	0.5280	0.4438	0.4276	0.4876	0.4945	0.5278	0.4791	0.4780	0.5196	0.5358	0.5536	0.5718	0.5203	0.3324	0.3204	0.2395	0.1979	0.1889	0.1687	0.2104
8060	0.4860	0.4902	0.4603	0.4426	0.4463	0.4356	0.4333	0.4357	0.4358	0.4145	0.4243	0.4498	0.4267	0.4026	0.4429	0.4190	0.3358	0.2981	0.2587	0.2489
8062	1.0000	1.0000	1.0000	1.0000	1.0000	0.8708	0.8614	0.8377	0.7922	0.7867	0.7837	0.7353	0.5858	0.6030	0.6107	0.5015	0.4683	0.4045	0.5002	0.6372
8071	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	0.5630	0.5620	0.4812	0.3480	0.3512	0.4975	0.5164	0.5056	0.5300	0.5407	0.5446	0.5955
8082	-.-	-.-	1.0000	1.0000	1.0000	0.5483	0.6669	0.5209	0.5407	0.4824	0.3951	0.3145	0.2751	0.3172	0.2487	0.2121	0.1673	0.1632	0.1666	0.1730
8090	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8236	0.5346	0.4684	0.3561	0.3487	0.3481	0.3430	0.4367	0.4724	0.5139
8093	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	0.5227	0.4265	0.3288	0.3364	0.4130	0.4618	0.5145	0.5666	0.5659	0.5624	0.7384
8200	0.3683	0.3677	0.3371	0.3231	0.2952	0.3460	0.2995	0.2308	0.2344	0.2279	0.2178	0.2263	0.3079	0.2559	0.1894	0.1836	0.1914	0.1932	0.1647	0.1569
8300	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9209	0.9199
8700	0.9491	0.9486	0.9422	0.9395	0.9515	0.9526	0.9531	0.8837	0.8642	0.8799	0.8385	0.8398	0.8367	0.8489	0.8369	0.8332	0.8082	0.7842	0.7596	0.8105
8711	0.2132	0.2213	0.2384	0.2427	0.2553	0.2512	0.2464	0.2357	0.2600	0.2779	0.2663	0.2326	0.2352	0.2349	0.2358	0.2662	0.2677	0.2334	0.2027	0.1836
8731	0.7630	0.6823	0.5799	0.5403	0.5218	0.5188	0.3553	0.4306	0.3863	0.3774	0.4498	0.4759	0.4771	0.2899	0.2956	0.3088	0.2871	0.3897	0.4586	0.7423
8734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	0.5027	0.3563	0.3690	0.3639	0.4195	0.5109	0.5380	0.4297	0.7404
8741	0.7052	0.7399	0.7991	0.8742	0.8807	0.8830	0.8918	0.9037	0.9232	0.8953	0.8867	0.8827	0.8903	0.8791	0.8668	0.8492	0.8193	0.7646	0.7425	0.7514
8742	0.5255	0.6199	0.6338	0.5867	0.5539	0.5288	0.5000	0.5304	0.5712	0.6069	0.7649	0.9091	0.7058	0.9723	0.5512	0.5168	0.5008	0.5241	0.5483	0.5371
8744	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.4893	0.4295	0.3672	0.3403	0.3435	0.2796	0.3071	0.3770	0.4152	0.3649
9995	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6436	0.6768	0.7020	1.0000	-.-
MED	0.5478	0.5381	0.5315	0.5283	0.5222	0.5206	0.5087	0.5040	0.5000	0.4897	0.4612	0.4521	0.4553	0.4359	0.4260	0.4203	0.4084	0.3868	0.3851	0.4257
AVG	0.6058	0.6043	0.5988	0.5966	0.5891	0.5854	0.5778	0.5699	0.5564	0.5455	0.5327	0.5227	0.5103	0.5014	0.4928	0.4834	0.4748	0.4610	0.4551	0.4957

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
0100	1.0151	1.2072	0.7913	0.8164	0.7678	0.9078	1.0447	0.8092	1.2436	1.0946	1.3650	1.1403	0.7442	0.9635	1.1919	0.9976	1.0568	0.8689	0.8674	0.9182
0200	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3691	1.3889	1.3832	0.9483	1.1066	0.9687	0.7343	0.6881	0.7302
0700	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	2.8933	7.3201	5.0909	4.3395	-.-
0800	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0660	1.4749	1.0314	1.1021	1.0372	0.8863	1.0547	1.2300	1.1694	1.1620
1000	0.6939	0.7327	0.4220	0.6630	0.7338	0.5792	0.5435	0.3669	0.5217	0.5419	0.5163	0.4839	0.5966	0.7814	0.9049	0.4756	0.6778	0.7062	0.6590	0.8071
1040	0.8747	0.7515	0.7538	0.6129	1.1964	1.4339	0.7951	0.7710	1.4883	1.1017	1.3713	1.4353	1.7675	1.1309	1.4184	1.1522	0.9223	0.9657	1.7248	1.3529
1090	1.7777	3.0317	6.5104	3.4179	8.4088	2.4867	1.2743	0.8967	1.0020	1.6010	1.1380	2.0096	1.6582	1.8801	2.0347	0.7774	0.5874	0.7501	0.4403	0.7809
1220	1.0289	1.4077	0.9901	0.5950	0.6193	0.5422	0.5301	0.3158	0.4445	0.3937	0.4691	0.4250	0.5053	0.5081	0.6592	0.6968	0.8192	0.5756	0.4300	0.5736
1221	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4470	1.3205	0.8388	1.0407	0.7968	0.7635	0.9538	0.9452	0.8768
1311	0.8498	1.1042	1.0154	0.9303	1.5093	1.6605	1.1044	0.8226	0.9822	0.8484	0.7499	0.7938	0.8476	0.8810	0.9983	0.9215	0.9456	0.9904	1.1232	1.0983
1381	0.7302	0.7550	0.7366	0.8764	1.0783	1.6388	1.1457	0.6958	0.6984	0.6487	0.4914	0.4509	1.0030	0.7623	1.2868	0.9866	0.7572	0.6730	1.0600	0.8994
1382	0.8349	0.6272	0.6304	0.6213	0.5583	1.0041	1.2747	0.5002	0.8083	0.5505	0.6096	0.3506	0.7016	0.5097	0.8598	0.5943	0.9977	0.9997	1.1899	1.2667
1389	0.7748	0.7265	0.6396	0.7430	0.9504	2.0128	1.5120	0.8209	0.8848	0.7713	0.7387	0.8632	0.8651	0.8581	1.7925	1.6113	1.2037	1.3680	1.4431	1.0877
1400	0.4012	0.4736	0.5827	0.5500	0.5405	0.6560	0.4704	0.4379	0.4259	0.5320	0.5835	0.7674	0.9142	1.0355	1.0203	0.7356	0.7429	0.8663	0.9224	1.0468
1531	0.5468	0.6279	0.6166	0.5667	0.5422	0.6118	0.6934	0.6992	0.9625	0.6891	0.6026	0.7914	0.7579	0.8611	0.7951	0.7324	0.7969	0.6990	0.8441	0.7264
1540	0.1677	0.1192	0.1095	0.0780	0.1441	0.1952	0.2688	0.1969	0.2171	0.2548	0.3267	0.2923	0.2825	0.4577	0.5330	0.2290	0.4005	0.4288	0.6742	0.5853
1600	0.7672	0.5859	0.6647	0.5772	0.6271	1.2549	0.6961	0.5555	0.4927	0.3745	0.3662	0.4110	0.4160	0.6978	0.6069	0.6525	0.8193	0.7103	0.9196	0.8254
1623	0.4526	0.2851	0.5256	0.5004	0.5990	0.6941	0.4709	0.4720	0.3638	0.4222	0.7718	0.7346	1.2704	0.9358	0.9546	0.9623	0.7639	0.3852	0.6106	0.4971
1700	0.3034	0.2130	0.4333	0.5225	0.6276	0.9522	0.9494	0.9275	1.1958	0.8721	1.0890	1.0597	0.7440	0.8124	0.7657	0.9018	1.0136	0.8511	0.7018	0.5241
1731	-.-	-.-	-.-	-.-	-.-	1.6760	0.3961	0.2278	0.3196	0.2232	0.6332	0.0805	-.-	0.0961	-.-	-.-	0.1193	1.9463	2.6235	-.-
2000	0.3190	0.2927	0.3674	0.2791	0.2505	0.2277	0.2353	0.2523	0.2756	0.3070	0.4041	0.6470	0.7574	0.6039	1.0651	0.8759	1.2910	1.3576	1.2342	1.2159
2011	0.2115	0.2714	0.2633	0.2999	0.2865	0.4565	0.4181	0.5075	0.5037	0.4610	0.5784	0.7584	0.7056	0.6695	0.7813	0.9240	0.7520	0.8109	0.8736	0.9894
2013	0.4292	0.4010	0.4029	0.3234	0.3677	0.3472	0.4352	0.4429	0.3688	0.3059	0.7247	0.7021	0.8152	0.8028	0.8496	0.6724	0.8052	0.7599	0.9685	0.7835
2015	0.2368	0.1817	0.2257	0.4360	0.3668	0.3513	0.3346	0.3797	0.4970	0.4251	0.7811	0.8344	0.8489	0.6536	0.7701	0.4573	0.4981	0.6566	0.7375	0.7259
2020	0.1741	0.4706	0.4407	0.4656	0.3383	0.6578	0.5889	0.9621	1.1237	1.2193	1.6866	1.6410	1.2351	1.0225	1.0130	1.2272	0.8605	1.1983	0.9555	0.9241
2024	-.-	-.-	-.-	-.-	-.-	-.-	4.2096	6.6770	2.5389	2.2346	4.1039	3.6648	2.5783	2.2571	3.0493	1.0355	1.7585	2.1304	1.5981	1.2334
2030	0.3059	0.2905	0.4028	0.4751	0.4191	0.4328	0.4750	0.5282	0.6094	0.7359	0.8838	1.1683	0.9405	0.8450	0.8048	0.8301	0.6378	1.2688	1.5020	1.4136
2033	0.2011	0.1942	0.1444	0.1355	0.0982	0.2071	0.3042	0.6858	0.5151	0.7517	1.1206	1.1054	1.0586	1.0592	1.1699	1.3306	1.5532	1.1735	0.8810	0.2402
2040	1.0068	0.8855	0.9024	0.6845	0.6123	0.5915	0.5330	0.7732	0.8332	1.0841	1.6274	1.4860	1.6877	1.5870	1.6569	1.7604	1.6069	1.3883	1.3919	1.3745
2050	0.5952	0.7007	0.7479	0.6808	0.6122	0.5532	0.5255	0.6878	0.4407	0.6937	0.9439	0.8761	0.9855	1.1508	0.9472	0.6863	0.9549	0.8303	0.8084	0.8689
2052	1.3947	1.2132	1.1830	1.1443	1.2876	1.1152	1.0865	1.6486	1.4971	1.4707	1.1165	1.6891	1.6651	1.7366	1.9890	1.2911	1.5005	1.3524	1.0075	1.0600
2060	0.4898	0.5313	0.3834	0.3687	0.4878	0.2847	0.4338	0.5176	0.7611	0.9367	1.5066	1.1936	1.1385	1.3057	1.4623	1.2051	0.7431	1.1663	0.9181	1.4530

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2070	0.9506	0.9368	0.4121	0.4032	0.6351	0.7816	0.5882	0.4222	0.6958	0.4273	1.8741	0.9919	1.1264	0.9391	0.9220	1.1513	1.1769	1.6198	2.1678	2.3381
2080	0.3838	0.5898	0.6209	0.9718	0.6795	0.8534	0.9225	0.9428	0.6673	0.7345	1.0037	0.9835	0.9110	1.3045	1.4726	1.5078	1.5120	1.2502	1.2715	1.0491
2082	1.4156	0.9483	0.6002	0.5661	0.5260	0.5884	0.5563	0.6824	0.7000	0.6467	0.8628	0.9385	0.9832	0.9112	0.3496	0.8258	0.8145	1.3379	0.8456	0.8723
2086	0.6016	0.4194	0.4545	0.4697	0.3942	0.4098	0.6191	0.8351	0.4735	0.6316	0.6543	0.9007	0.9674	1.0273	1.2919	1.0620	0.9997	0.9410	1.2293	1.1036
2090	0.2719	0.2641	0.5508	0.5383	0.5264	0.4740	0.7754	1.1922	1.2504	0.8496	0.7907	0.9859	0.6590	0.6798	0.9053	0.8204	0.7148	1.2634	0.9270	0.6640
2100	0.5848	0.7211	0.7559	0.6593	0.6182	0.6746	1.3377	0.9445	1.4436	1.2382	1.0776	1.2244	1.3355	1.9508	2.7449	3.0990	5.2794	4.9575	4.0324	3.7697
2111	0.5102	0.5142	0.4504	0.4185	0.5086	0.5587	0.5142	0.5865	0.7098	0.7645	0.7524	0.9322	0.7868	0.9465	0.7910	0.6027	0.7904	0.7104	0.6105	0.7676
2200	0.3138	0.3598	0.3007	0.2343	0.2870	0.2847	0.5881	0.3334	0.5495	0.3250	0.4121	0.6433	0.5854	0.6526	0.5786	0.6857	1.0494	0.9366	1.2385	0.7245
2211	0.2359	0.2230	0.2442	0.1232	0.1647	0.2215	0.0845	0.1752	0.2163	0.2637	0.3116	0.4375	0.3759	0.3483	0.3798	0.3092	0.4417	0.7163	0.7365	0.5735
2221	0.6113	0.3157	0.3481	0.7504	0.2696	0.4721	0.7147	0.6741	0.7429	0.5725	0.5698	0.6281	0.7817	0.5597	0.7477	0.4953	0.6967	0.7431	0.8041	0.8449
2250	0.1277	0.0578	0.1765	0.2309	0.0631	0.2225	0.6353	0.2513	0.2827	0.2157	0.2110	0.4977	0.4413	0.2952	0.4697	0.2313	0.8458	0.7352	0.6769	0.6397
2253	0.0440	0.0198	0.1176	0.0733	0.1371	0.1686	0.1775	0.4723	0.4444	0.4382	0.4162	0.9310	0.4157	0.2539	0.4112	0.6265	1.5253	0.5654	0.8519	1.0311
2273	0.3427	0.3491	0.5491	0.4078	0.2788	0.2173	0.2321	0.1322	0.6405	0.3456	0.7720	0.8782	0.7645	0.6898	0.7930	0.4567	0.4570	0.7273	0.9990	0.5844
2300	0.1504	0.3011	0.3262	0.2744	0.0444	0.0873	0.0923	0.1589	0.3931	0.2410	0.3793	0.5226	0.3115	0.4918	0.4828	0.7449	0.4306	0.8697	0.8966	0.4811
2320	0.2286	0.3779	0.3114	0.3502	0.1859	0.3824	0.3493	0.7667	0.3196	0.2818	0.4756	0.4030	0.2485	0.3407	0.4022	0.5813	0.7775	0.5490	0.4667	0.3804
2330	0.3095	0.4516	0.3417	0.5625	0.6086	0.5324	0.2967	0.3065	0.7336	0.6634	0.6268	0.8066	0.7734	0.4483	0.4892	0.4429	0.5173	0.4173	0.4217	0.4584
2340	0.0122	0.0441	0.0449	-.-	-.-	0.0044	0.3026	0.3365	0.6456	0.3614	0.5065	0.8098	0.5549	0.5199	0.6265	0.5268	0.6844	0.8636	0.6477	0.6303
2390	0.2087	0.3072	0.0473	0.1712	0.1992	0.0691	0.0012	-.-	0.3087	0.2288	0.2261	0.2408	0.3805	0.1822	0.3139	0.1100	0.0119	0.5733	0.9831	0.4943
2400	0.7413	0.8820	0.6503	0.5437	0.5097	0.4934	0.4516	0.5176	0.4617	0.4664	0.4738	0.5478	0.4472	0.4080	0.4016	0.4064	0.4314	0.3927	1.0224	0.9454
2421	0.6062	0.6837	0.4962	0.4494	0.4821	0.5896	0.5058	0.7001	0.6818	0.6480	0.6455	1.0307	0.8683	0.5840	0.7731	0.6477	0.8366	1.1222	0.8387	1.0721
2430	0.1930	0.2883	0.6353	0.1037	0.1483	0.7093	0.6561	0.9317	0.8365	0.7287	0.7099	0.8704	0.4520	1.0021	0.4500	0.2305	0.3389	0.4958	0.6541	0.4743
2451	1.1595	0.7366	0.7690	0.2371	0.4393	0.8088	0.5292	1.6420	0.9942	0.5595	0.5750	0.4204	0.4466	0.4658	0.4299	0.4840	0.6877	0.9448	1.1729	1.2219
2452	0.4868	0.5495	0.3312	0.2367	0.2197	0.2720	0.4119	0.7023	0.5463	0.2840	0.3547	0.3087	0.2713	0.4083	0.3966	0.5610	0.6355	0.4361	0.4580	0.1786
2510	0.3093	0.2945	0.2535	0.2667	0.1431	0.1718	0.2212	0.2856	0.7886	0.5444	0.9495	0.9901	0.5798	0.7618	0.6728	0.5935	0.6560	0.7228	1.1572	0.7056
2511	0.2422	0.2235	0.1049	0.1327	0.1041	0.1567	0.1308	0.1216	0.4323	0.5225	0.5759	0.7680	0.4396	0.5810	0.3959	0.2902	0.3268	0.6511	0.9108	0.7474
2520	0.1164	0.3250	0.4803	0.5804	0.4132	0.5273	0.6072	0.6876	0.9350	1.2955	1.4297	1.0922	1.1676	0.8893	0.8624	0.9014	0.8354	0.9890	1.0064	0.6507
2522	0.5418	0.7090	0.7780	0.8819	0.8891	1.1447	0.7523	1.3088	0.9402	0.8445	1.1433	1.2732	1.0960	0.7926	1.4958	1.0461	1.2452	1.3981	1.4336	2.1408
2531	0.0481	0.0348	0.3279	0.3007	0.2897	0.2974	0.2181	0.2365	0.2468	0.3050	0.3768	0.3154	0.1938	0.3380	0.4394	0.3465	0.4355	0.6272	0.5241	0.6822
2540	0.4359	0.4949	0.4619	0.3774	0.1410	0.1423	0.1158	0.0682	0.5439	0.3987	0.5770	1.0783	0.8602	0.5524	0.5210	0.4074	0.4907	0.7318	0.6530	0.7312
2590	0.5548	0.4043	0.3063	0.4922	0.5094	0.4431	0.6056	0.8927	1.0333	1.0406	1.5993	1.5289	1.2952	1.0542	1.1707	0.7517	0.9460	1.2322	1.2817	0.7493
2600	0.4066	0.4998	0.5145	0.5293	0.5292	0.5593	0.5184	0.5288	0.7792	0.6523	0.8173	0.8555	0.8776	0.8758	0.7977	0.6347	0.4349	0.5968	0.7881	0.6334
2611	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5320	0.6343	0.9278	0.7626

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2621	0.5529	0.6055	0.4706	0.5313	0.5300	0.5502	0.4794	0.5730	0.6438	0.5926	0.7031	0.8822	0.8183	0.7457	0.8111	0.6465	0.7453	0.7656	0.8627	0.8326
2631	0.5038	0.6422	0.6012	0.6149	0.6964	0.6319	0.7030	0.6988	0.9146	0.7223	0.8193	0.9549	0.9406	0.8633	0.7380	0.6414	0.7542	0.7705	0.7987	0.9277
2650	0.6794	0.8959	0.8576	1.2849	1.1032	1.2927	0.9960	0.8518	0.9331	0.8454	0.4805	0.8174	0.6992	0.8451	0.7403	0.5989	0.6490	0.7232	0.6718	0.6019
2670	0.3447	0.4170	0.3146	0.2671	0.2888	0.3180	0.3568	0.3543	0.5467	0.4735	0.5064	0.5607	0.6547	0.9039	1.0559	0.7513	0.8469	0.9079	1.1993	1.1705
2673	-.-	-.-	-.-	-.-	-.-	0.0065	-.-	-.-	-.-	-.-	-.-	0.0572	0.3097	0.3756	0.3302	0.2679	0.3225	0.4691	0.8014	-.-
2711	0.8131	0.9270	0.9420	1.0368	1.0274	0.9771	0.9692	1.4548	1.4931	1.4746	1.7428	1.6507	1.6340	1.3828	1.4254	1.1027	1.1973	1.3448	1.4456	1.4360
2721	0.2533	0.1168	0.3059	0.6780	0.7155	0.5619	0.6861	0.8815	1.0970	0.8366	1.5333	1.2158	0.9566	0.8644	0.8882	0.7113	0.6597	0.8552	1.0763	0.9466
2731	0.0908	0.1257	0.2683	0.3437	0.2047	0.3747	0.4177	1.0170	0.7215	0.6935	0.7720	1.0944	0.7063	1.2247	1.0587	0.8477	0.9908	1.1039	1.3298	1.2542
2732	-.-	-.-	0.0595	0.3468	0.2108	0.2168	0.2206	0.0893	0.2228	0.3350	0.4900	0.4972	0.5097	0.5906	0.4726	0.3749	0.3297	0.2751	0.4070	0.4095
2741	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.1847	0.7506	1.1151	0.9228	1.1897	0.6978	0.7168	0.7422	0.6850	1.3390	1.2398
2750	0.2020	0.1820	0.2711	0.3622	0.3602	0.3898	0.3241	0.6307	0.8290	0.7890	0.9401	0.9900	0.7243	0.7305	0.7434	0.6161	0.8358	0.8858	0.8391	0.7271
2761	0.5983	0.5641	0.3613	0.2939	0.4715	0.4943	0.3880	0.6135	0.9124	0.8388	1.3508	1.0323	0.9772	0.7950	0.9906	0.5649	0.6834	0.8971	0.8310	0.7005
2771	0.3775	0.1240	0.1923	0.2107	0.1447	0.2346	0.3585	0.3025	0.9038	0.9499	0.9346	0.6521	0.4314	0.5902	0.7437	0.6628	0.7264	0.7435	0.9454	0.6272
2780	1.2907	0.7363	0.7753	0.7898	0.9620	1.3474	1.2087	1.5112	1.4653	1.6317	2.0889	2.5189	1.8084	1.8649	1.7068	1.1923	1.7110	1.8757	1.4472	1.6558
2790	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1320	1.5413	0.7796	0.8907	0.7247	0.4640	0.5490	1.1950	0.9619	-.-
2800	0.3699	0.3913	0.3304	0.3247	0.3439	0.3422	0.3540	0.3526	0.4845	0.4509	0.5880	0.7725	0.7701	0.6883	0.8333	0.6191	0.7645	0.7597	0.7001	0.8098
2810	0.9696	0.8792	0.6989	0.6561	0.7826	1.1801	0.7394	0.6085	0.7037	0.6284	0.5860	0.6991	1.0851	0.8367	1.0770	0.8226	0.8265	1.0932	0.9778	0.9710
2820	0.9265	0.9026	0.7196	0.6250	0.5007	0.5159	0.4374	0.4156	0.5480	0.5042	0.6479	0.5406	1.0789	1.3247	1.2628	0.8216	0.9865	0.9068	0.8837	1.0470
2821	0.2616	0.3354	0.2681	0.3022	0.4065	0.3139	0.4045	0.5090	0.6873	0.6016	0.6270	0.7214	0.8091	0.9324	0.6961	0.6584	0.7849	0.5942	1.0508	1.1241
2833	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.5515	2.7024	1.5251	1.6428	0.5615	-.-
2834	1.2914	1.1227	0.9659	1.0613	0.9229	1.1377	1.4091	1.4527	1.4779	1.4679	1.9437	2.2276	1.8955	1.9564	2.3398	1.9526	2.8572	2.2142	2.2609	1.7189
2835	0.7685	0.6202	0.6642	0.5536	0.6423	2.1262	0.9801	2.0992	2.1532	1.4093	2.1530	1.8865	1.3069	1.4750	1.7183	2.0177	2.8342	2.2436	1.7310	2.3716
2836	0.1871	0.6911	0.4520	2.4644	0.9697	1.9168	1.0582	1.2442	1.0532	1.0932	2.1550	1.2565	1.3682	1.6091	2.0812	3.0222	3.1285	2.7161	2.4897	1.8166
2840	0.5068	0.7682	0.6201	0.4758	0.5318	0.5538	0.5488	0.5453	0.7950	0.6954	0.8323	0.9560	0.8325	0.9432	0.9372	0.8841	1.0409	1.2363	1.3106	1.1315
2842	0.9651	0.8920	0.8252	0.7232	0.6657	0.5445	0.5024	0.8717	1.1774	0.8838	1.1130	1.1547	1.2943	0.9406	1.3820	1.3891	1.1213	1.2643	1.7331	1.3751
2844	0.6214	0.5544	0.3369	0.2917	0.2138	0.2242	0.3317	0.3478	0.6030	0.7515	1.0759	1.0430	0.9008	0.9243	0.8642	0.9482	0.9465	1.1032	0.9752	1.6204
2851	0.3276	0.2594	0.3629	0.2995	0.2786	0.3795	0.3763	0.4161	0.6950	0.5661	0.7513	0.9339	0.8050	0.9053	0.8545	0.8012	0.8869	1.0988	1.2707	0.9552
2860	0.5874	0.5639	0.3819	0.3407	0.4143	0.3936	0.4275	0.6868	0.6724	0.5718	0.8436	0.7894	0.6345	0.8613	0.9852	1.0065	1.1805	1.0851	1.1191	1.2122
2870	0.3860	0.3445	0.3803	0.4333	0.3419	0.7016	0.6432	0.3442	0.1504	0.5451	0.3797	0.6022	0.7840	0.9196	0.8043	0.7490	0.7016	0.6836	0.8717	0.8220
2890	1.5212	1.5072	1.0814	1.0701	1.2553	1.5969	1.1696	1.2246	1.3823	1.5721	1.3743	1.3989	0.8517	0.9979	0.9663	1.0157	1.0615	1.0724	1.2981	1.6234
2891	1.2852	1.1576	1.0590	1.1549	0.2954	0.6103	0.8435	0.6097	1.1449	0.4310	0.4872	0.7505	0.6491	1.3713	1.7912	1.0070	0.8258	0.8111	1.0167	0.6013
2911	0.5596	0.6107	0.5915	0.5779	0.6829	0.6816	0.5642	0.4780	0.5718	0.5338	0.5310	0.6165	0.6286	0.6853	0.8185	0.6901	0.7151	0.7159	0.8406	0.8205

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2950	0.6263	0.6477	0.3989	0.5590	0.5068	0.5426	0.6376	0.5686	0.8475	0.3575	1.0587	0.8748	0.7535	0.5219	0.5731	0.5163	0.5300	0.5905	1.2044	1.0762
2990	0.1973	0.4250	0.2398	0.4597	0.4099	0.3405	0.5278	0.4740	0.6398	0.5713	0.5663	0.5915	0.5952	0.5020	0.4790	0.5342	0.5641	0.5906	0.3928	0.8085
3011	1.4134	0.3594	0.3855	0.3094	0.1584	0.2091	0.1868	0.5278	0.4142	0.4198	0.4926	0.6569	0.6595	0.9391	1.1180	1.0224	3.0194	3.0265	1.5086	1.1028
3021	-.-	-.-	-.-	-.-	-.-	1.4462	1.1211	0.9066	0.2898	0.4088	0.4671	0.7336	0.6214	0.9874	1.9847	0.4887	1.8040	1.3474	1.0886	1.0364
3050	0.6541	0.2633	0.3229	0.3315	0.2043	0.3862	0.2053	0.5565	0.6802	0.6417	0.7964	0.6546	0.4104	0.4884	0.5089	0.4719	0.6416	0.6694	0.6660	0.6510
3060	0.1961	0.2600	0.3806	0.3085	0.3607	0.6886	0.9987	1.0274	0.5702	0.5626	0.6600	0.6185	0.4491	0.5863	0.5511	0.4028	0.6742	0.6846	1.0090	0.9375
3080	0.6186	0.6679	0.3620	0.3095	0.4468	0.3511	0.3211	0.3977	0.4744	0.2947	0.4653	0.6612	0.5464	0.6251	0.7283	0.4879	0.5539	0.7049	0.6769	0.6374
3081	0.1540	0.4080	0.3978	0.2456	0.2285	0.3030	0.4911	0.8046	1.1997	1.1955	0.6342	0.9881	0.8599	0.6144	0.7082	0.7141	0.9147	0.7128	0.7942	0.8665
3089	0.7713	0.8234	0.4459	0.4219	0.4424	0.3099	0.2997	0.4715	1.1205	1.0462	1.3065	1.0363	0.9303	0.7562	0.8350	0.7159	1.0192	1.3229	1.3234	1.0845
3100	0.1129	0.1925	-.-	-.-	0.0251	-.-	-.-	-.-	0.1515	0.3280	0.2924	0.2485	0.3540	0.3360	0.2968	0.1342	0.4356	0.3076	0.6598	0.5736
3140	0.1077	0.1645	0.1308	0.1464	0.1682	0.1926	0.2442	0.4646	0.4241	0.2585	0.3822	0.4389	0.6166	0.4596	0.4131	0.3081	0.2856	0.4828	0.7983	0.5355
3220	0.7561	1.0987	0.6837	0.5974	0.5763	0.6290	0.5244	0.7665	0.8044	0.7774	1.3121	1.0210	0.7715	1.0905	1.2557	1.2259	1.9818	1.6408	1.5460	1.4807
3221	0.5459	0.4630	0.4052	0.3196	0.3240	0.3283	0.3074	0.3158	0.3779	0.4441	0.5995	1.0003	1.1378	0.6257	0.6902	0.4211	0.8203	0.6931	0.6855	0.7134
3231	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2666	0.1457	0.0775	0.1356	0.0188	0.4506	0.5450	0.3445	0.3985	0.6911	0.7126	0.5152
3241	0.3718	0.5052	0.5082	0.5594	0.6208	0.6159	0.5491	0.6566	0.6262	0.5534	0.5634	0.5276	0.4853	0.7155	0.6270	0.4959	0.5630	0.6438	0.8627	0.6653
3250	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2034	0.3324	0.0341	0.0308	0.0494	0.1516	0.0890
3260	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1257	0.1090	0.5495	2.9710	2.3903
3270	0.3599	0.3777	0.3727	0.3897	0.3794	0.3940	0.4281	0.3506	0.5059	0.4120	0.5762	1.2391	0.8303	0.8552	1.0774	0.6851	0.6451	0.6168	0.6482	0.4449
3272	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9142	0.5246	0.4425	0.3008	0.2807	0.2823	0.4150	0.4819	0.4807
3290	0.8327	1.0951	0.9187	0.6533	0.6024	0.5892	0.4739	0.7160	0.6468	0.8715	0.9178	1.0257	1.2728	1.0414	0.9454	0.8972	0.8839	0.5768	0.7100	0.6340
3310	0.2246	0.2950	0.1753	0.1789	0.1547	0.4203	0.4006	0.3806	0.4376	0.2440	0.5781	0.5375	0.5089	0.4482	0.5035	0.3432	0.3885	0.2781	0.5310	0.5216
3312	0.3499	0.3874	0.3655	0.2947	0.3130	0.3621	0.2984	0.3709	0.5068	0.4476	0.4681	0.4795	0.4574	0.5358	0.4611	0.4138	0.5131	0.4788	0.5924	0.5728
3317	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2270	0.1044	0.4348	0.4681	0.4178	0.2866	0.0964	0.2064	0.3724	0.8355
3320	0.2046	0.7262	0.6674	0.6435	0.6910	0.7962	0.7055	0.6945	0.7005	0.5946	0.7296	1.2257	1.2370	0.9316	1.0401	0.8303	0.7247	0.6082	0.8933	0.5212
3330	0.6485	0.7349	0.4523	0.4943	0.6548	0.7202	0.6627	0.6735	0.8003	0.6464	0.6823	0.6114	0.8300	0.7032	0.7502	0.7090	0.8027	0.7293	0.9348	0.9545
3334	0.4640	0.5284	0.4680	0.4060	0.3830	0.4389	0.3726	0.4861	0.5896	0.4705	0.5089	0.4288	0.5435	0.4943	0.5439	0.4435	0.4909	0.4935	0.4996	0.5600
3341	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5507	0.5985	0.7473	1.5901	1.5459	1.3809	1.2808	2.4353	1.6905	1.7427
3350	0.2417	0.2850	0.2687	0.5527	0.6273	0.9092	0.6238	0.6804	0.6402	0.5149	0.5870	0.3299	0.2788	0.1272	0.3597	0.3467	0.2307	0.2090	0.5546	0.6265
3357	-.-	0.4800	0.6366	2.0832	0.4800	1.8461	0.9996	1.0928	0.6516	0.6459	1.0516	0.7705	0.5702	0.9070	0.9851	1.1483	1.4312	0.3939	1.1660	1.8346
3360	0.2834	0.2361	0.2830	0.1929	0.0933	0.2159	0.1127	0.4602	0.4301	0.2040	0.3554	0.3768	0.1138	0.3244	0.5069	0.5534	0.7965	0.7083	0.5584	0.5348
3390	0.5474	0.5650	0.7994	0.5213	0.6232	0.9337	0.7030	0.7945	0.8635	0.5481	0.5014	0.5985	0.5325	0.5626	0.4090	0.4644	0.4234	0.3522	0.4536	0.4441
3411	0.3141	0.3076	0.4103	0.3089	0.3215	0.3513	0.2244	0.5319	0.3345	0.7901	0.8508	0.8829	0.7359	0.8022	0.9422	0.6880	0.8538	0.7062	0.8307	0.7910

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3420	0.2620	0.4014	0.3463	0.3388	0.5197	0.4594	0.4540	0.6801	0.7926	0.6006	0.6698	0.7589	0.6919	0.6153	0.5443	0.5255	0.4797	0.6125	0.7190	0.7429
3430	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5324	0.2977	0.3908	0.4788	0.5582	0.4080
3440	0.3630	0.4685	0.2910	0.2897	0.2811	0.2904	0.3683	0.3163	0.4625	0.3656	0.5398	0.4002	0.4067	0.3574	0.5402	0.2755	0.4622	0.7503	0.7575	0.8483
3442	0.1191	0.2560	0.3682	0.4681	0.4010	0.3526	0.4597	0.4205	0.9346	0.4371	0.4470	0.4860	0.4658	0.3381	0.4239	0.3122	0.4290	0.3784	0.5832	0.4572
3443	0.0482	0.2580	0.2231	0.3769	0.3292	0.3808	0.1489	0.0709	0.3084	0.7248	0.1762	0.3267	0.3936	0.4628	0.5717	0.6279	0.2947	0.7653	0.9646	0.8408
3444	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.2284	1.6119	0.9645	0.5608	-.-
3448	0.0931	0.2293	0.1999	0.2471	0.1356	0.2108	0.2403	0.2173	0.3764	0.3367	0.3114	0.2763	0.2872	0.2504	0.3369	0.2987	0.2919	0.4529	0.5862	0.5890
3452	0.2214	0.2418	0.4519	0.3658	0.4579	0.4385	0.2803	0.1559	0.4392	0.3342	0.4452	0.5450	0.3174	0.5247	0.4204	0.2745	0.3012	0.4340	0.5820	0.3836
3460	0.3499	0.3566	0.4453	0.4940	0.5630	0.8824	0.6150	0.6290	0.8533	0.7028	0.5934	0.4889	0.5604	0.5377	0.4460	0.6231	0.3872	0.4922	0.5954	0.7956
3470	0.4847	0.4124	0.3215	0.2755	0.2238	0.3957	0.6907	0.5336	0.5913	0.8670	0.8478	0.7775	0.5548	0.7454	0.8742	0.9417	1.1895	0.8884	0.8235	0.9828
3480	0.0269	0.2010	0.0731	0.0193	0.5673	0.1110	0.1710	0.1407	0.5006	0.7373	1.1123	0.9167	0.3604	0.6367	0.9917	0.3979	0.3555	0.3877	0.4629	0.9406
3490	0.2614	0.4424	0.3144	0.2553	0.2958	0.4388	0.5105	0.4424	0.5697	0.6134	0.6037	0.6020	0.5722	0.7209	0.7145	0.6246	0.7386	0.6701	0.8667	0.7085
3510	0.4297	0.3670	0.3096	0.1912	0.2245	0.3348	0.2868	0.2530	0.4060	0.3744	0.3425	0.4325	0.4184	0.5245	0.7003	0.6037	0.6782	0.7485	0.8451	0.7936
3523	0.2567	0.2210	0.1962	0.2934	0.3277	0.2563	0.2433	0.3669	0.3240	0.3090	0.2924	0.3499	0.3712	0.5705	0.4336	0.4253	0.3741	0.3746	0.7013	0.7759
3524	0.1144	0.1391	0.1383	0.4119	0.3400	0.2764	0.3478	0.1928	0.5019	0.4126	0.4330	0.6784	0.6964	0.4801	0.3709	0.2738	0.2057	0.2460	0.3018	0.2515
3530	0.5912	0.7818	0.7680	0.6014	0.7449	1.2860	1.1204	0.9688	0.8570	0.7104	0.6219	0.6539	0.8140	0.6560	0.7556	1.4969	1.6126	1.6958	0.9790	0.6952
3531	0.3014	0.4704	0.4049	0.5969	0.4935	0.3764	0.4650	0.3966	0.6304	0.4244	0.5566	0.3559	0.4177	0.4646	0.4975	0.3883	0.3906	0.5901	0.8595	0.8251
3533	1.2266	0.8424	0.5898	0.7271	0.8602	1.2874	0.9194	0.4737	0.6130	0.4957	0.6260	0.6475	1.1048	0.6613	1.2463	1.1788	1.0131	0.7901	0.8375	0.6980
3537	0.4170	0.0936	0.3003	0.2356	0.4083	0.4575	0.3400	0.1852	0.7267	0.5849	0.6867	0.6405	0.4887	0.5376	0.5811	0.6164	0.8496	0.8921	0.9771	0.8104
3540	0.2421	0.3090	0.2845	0.1377	0.2704	0.2035	0.0916	0.1187	0.2716	0.1388	0.2583	0.2704	0.2011	0.1420	0.2233	0.1295	0.4240	0.4416	0.4980	0.2519
3541	0.2127	0.2803	0.3114	0.3665	0.5186	0.5917	0.3921	0.4356	0.6256	0.4686	0.4492	0.5246	0.4529	0.4865	0.4205	0.3032	0.4939	0.6130	0.6348	0.6416
3550	0.0886	0.0869	0.0998	0.0745	0.2202	0.1809	0.0491	0.1102	0.5640	0.6795	0.8500	0.8276	1.1838	0.7111	0.7607	0.4076	0.3719	1.2324	1.0564	1.9034
3555	-.-	-.-	0.1039	0.1944	0.0790	0.1086	0.3481	-.-	5.8566	4.8259	1.9936	0.5578	0.7018	0.8050	0.9854	0.2595	0.3557	0.4037	0.3071	0.5932
3559	0.3676	0.3824	0.3361	0.3383	0.5546	0.8738	0.4266	0.7502	0.8162	0.7808	0.5250	0.4593	0.6046	0.5358	0.3885	0.3102	0.4872	0.6319	1.0521	1.4262
3560	0.1951	0.2479	0.3154	0.3655	0.2494	0.3841	0.2509	0.2571	0.3029	0.2821	0.3541	0.3562	0.4072	0.5366	0.5250	0.3381	0.6287	0.5147	0.6739	0.7597
3561	0.1020	0.3380	0.2816	0.4286	0.3862	0.6176	0.5426	0.3608	0.5769	0.3466	0.5500	0.5642	0.4828	0.7160	0.6017	0.5820	0.9507	1.0602	1.0384	0.9691
3562	0.8559	1.0809	1.2613	1.3178	1.5052	1.5380	0.7908	0.8362	0.5677	0.5778	0.5528	0.8538	0.6108	1.2093	1.1133	0.6024	0.7620	0.6472	1.3255	1.2394
3564	0.2318	0.5523	0.4960	0.6761	0.6553	0.6765	0.8204	1.0126	0.9949	1.0220	0.8499	0.7178	0.8598	0.9198	0.6000	1.4711	1.2893	0.6556	1.0253	0.8586
3567	0.0244	0.1139	0.2679	0.2004	0.2980	0.1264	0.2111	0.0301	0.2371	0.1086	0.0703	0.1113	0.2251	0.2317	0.2905	0.0856	0.2048	0.3500	0.6047	0.2421
3569	0.3610	0.5255	0.5538	0.1669	0.3947	0.5770	0.5717	0.5808	0.7123	0.6736	0.5874	0.6504	0.5169	0.8361	0.9331	1.2179	1.1192	0.9252	0.9003	0.9694
3570	1.7758	2.1007	1.2771	1.0253	0.9584	0.7630	0.6636	0.4514	0.8320	0.6410	0.4959	0.8246	0.7965	0.7128	0.5723	0.3794	0.4629	0.3317	0.4346	0.5519
3571	0.6700	1.3524	0.8418	1.9135	1.3840	2.1112	2.7019	1.7632	1.9253	1.1309	0.7445	1.0190	1.2967	0.8635	0.9784	0.6534	0.6904	0.6049	0.8202	1.0005

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3572	0.5792	0.3414	0.7273	0.7170	1.6743	1.1156	0.6855	1.7155	1.5254	1.1251	1.1070	1.3237	0.7579	0.6059	0.4756	0.6751	0.9188	0.5095	0.4938	0.3865
3575	-.-	-.-	-.-	0.6409	0.3738	0.6908	1.2050	0.8758	0.9493	1.2182	0.7088	0.3073	0.3461	0.2452	0.2267	0.4540	0.8581	0.9310	0.5589	0.1968
3576	1.2061	2.1981	1.2270	1.5403	2.4283	1.2483	1.3941	1.5354	1.8726	1.5851	0.9381	0.9180	0.6600	0.5333	0.6307	0.6512	0.8577	1.2611	1.1986	1.0450
3577	0.2919	0.3338	0.3031	1.6389	1.4418	1.8777	1.1425	1.3574	2.2388	1.2235	1.2942	1.3975	0.9124	0.9942	0.6765	0.7583	1.1297	0.7377	0.8683	0.9239
3578	0.0201	0.0240	0.0158	0.2161	0.2698	0.4667	1.2172	1.9440	1.2792	1.5377	1.4551	1.0596	0.7236	0.6333	0.4190	0.5953	0.8188	1.1356	1.7089	0.6528
3579	0.9396	0.7250	0.5101	0.5534	0.5473	0.6339	0.3731	0.5629	0.5883	0.5933	0.7737	0.9565	0.8318	0.9987	0.9462	0.6514	1.0702	1.0949	0.8212	0.9236
3580	0.1152	0.2190	0.2704	0.3618	0.4007	0.9479	0.4592	0.7632	0.9409	0.5849	0.5625	0.6598	1.0047	0.9096	0.8323	0.6368	0.6294	0.7705	0.8930	0.7963
3585	0.1181	0.2644	0.4288	0.3208	0.2795	0.4345	0.3290	0.4464	0.5962	0.4257	0.5304	0.5373	0.4774	0.4980	0.5059	0.2894	0.4230	0.5246	0.6902	0.6914
3590	0.1564	0.0955	0.2158	0.3484	0.3354	0.4417	0.2817	0.2750	0.6263	0.4787	0.4066	0.5150	0.5569	0.6298	0.7114	0.5260	0.6175	0.7421	0.7207	0.6992
3600	0.3113	0.1648	0.1748	0.6092	0.5989	0.6839	0.5004	0.7363	0.4918	0.3333	0.2613	0.3772	0.1433	0.3979	0.3704	0.2132	0.3044	0.2836	0.3581	0.3368
3612	0.0500	0.1629	0.2043	0.1992	0.1447	0.0848	0.1346	0.1952	0.3402	0.4486	0.3402	0.6094	0.3616	0.3748	0.6069	0.3794	0.6340	0.5986	0.5974	0.6649
3613	-.-	-.-	0.7720	0.6035	1.0230	1.8098	0.6733	0.4985	0.5128	0.3546	0.2383	0.2120	0.1571	-.-	0.4835	0.9139	0.8707	0.7039	0.5398	0.2775
3620	0.0082	0.0379	0.1460	0.3943	0.3663	0.1916	0.4083	0.4113	0.7288	0.5353	0.5159	0.4777	0.4140	0.7104	0.5925	0.3833	0.5354	0.6759	0.7330	0.8871
3621	0.4048	0.5403	0.6164	0.6347	0.9434	1.1796	1.1695	1.0027	0.8700	0.5173	0.5577	0.5424	0.5592	0.6934	0.8027	0.5444	0.8156	1.2030	1.2481	1.4050
3630	1.8671	1.8671	1.2155	0.8164	0.7286	0.6367	0.7522	1.2220	1.3717	1.1568	1.6617	1.4569	1.2369	0.8914	0.4921	0.2367	0.7635	0.7685	0.9100	0.6699
3634	0.3167	0.2416	0.3906	0.4059	0.2791	0.6461	0.3679	0.5873	0.7062	0.3992	0.3322	0.5137	0.4715	0.8028	0.3429	0.0299	0.1359	0.5084	0.2798	0.3500
3640	0.5067	0.5584	0.4881	0.5189	0.5282	0.7254	0.5159	0.5880	0.8384	0.6792	0.8023	1.1399	0.9667	0.7774	0.9681	0.7702	0.6561	0.7555	0.9224	0.8661
3651	0.6200	0.8095	0.3484	0.3679	0.1957	0.6119	0.6674	0.4760	0.7651	0.5395	0.4818	0.6690	0.5418	0.7648	0.5257	0.4161	0.4089	0.5496	0.6844	0.8438
3652	0.7157	0.6987	0.3658	0.6522	0.6181	0.7157	0.8661	0.8400	1.2873	0.9212	1.0114	1.3067	1.3269	1.0497	0.9190	0.8639	0.9145	1.0740	1.3472	1.4574
3661	0.2426	0.1438	0.5057	0.6362	0.8537	1.2363	1.2047	1.5953	1.2200	0.8299	0.7500	0.5808	0.4303	0.4644	0.7968	0.6432	0.9045	0.9283	1.2696	1.3141
3663	0.4273	0.4384	0.5595	0.4936	0.7459	0.8382	0.9859	0.7668	1.1522	0.5767	0.4943	0.5151	0.6329	0.4284	0.4537	0.4163	0.4734	0.7018	0.9510	1.0029
3669	1.3192	0.6593	0.4322	0.4406	0.6387	0.8095	0.5315	0.6651	0.8444	0.7667	1.1412	1.0496	0.7029	1.1978	1.4024	0.6370	0.8347	0.9955	1.0162	1.2986
3670	0.1829	0.3107	0.2148	0.5203	0.3783	0.4373	0.5362	0.4849	0.8230	0.5661	0.6110	0.7494	0.4270	0.4620	0.3169	0.3363	0.3214	0.2914	0.4940	0.4518
3672	0.1631	0.1820	0.0746	0.2414	0.3365	0.5990	0.6007	0.5827	1.2967	0.9660	0.8935	0.7916	0.7575	0.6064	0.3908	0.4767	0.7485	0.7103	1.1564	1.3615
3674	0.4951	0.6862	0.5755	0.7205	0.9233	1.0277	0.9718	1.0752	1.5334	0.9453	1.0745	0.8214	0.7830	0.6929	0.6014	0.5652	0.8104	0.8521	1.3627	1.6090
3677	-.-	1.1626	0.8595	1.0035	0.8714	1.0687	0.7694	1.1212	1.2645	1.3024	1.0042	1.1209	0.7205	0.4148	0.3688	0.2017	0.5839	0.3580	0.1654	0.2126
3678	1.1651	0.7458	0.5907	0.7305	1.0761	0.9510	1.4368	1.0227	2.8445	2.1539	1.7223	1.5914	1.2562	0.6507	0.5566	0.5954	0.8845	1.2481	1.5399	1.7943
3679	0.1992	0.2612	1.1017	0.9587	0.5694	0.8643	0.7913	1.1378	1.2155	0.8398	0.8450	0.6290	0.4729	0.5160	0.4025	0.3324	0.4133	0.6346	0.7383	0.8757
3690	0.0834	0.0868	0.2175	0.2699	0.2195	0.3641	0.5648	0.9392	1.1626	0.8254	0.9006	0.7824	0.6266	0.5662	0.4814	0.4442	0.5250	0.3760	0.6593	0.5451
3695	-.-	-.-	-.-	-.-	-.-	1.5611	1.1047	1.7746	1.3608	1.1752	0.9890	1.0116	1.0414	0.8549	0.9045	0.8735	0.7075	0.7174	0.7933	1.1703
3711	0.1561	0.2081	0.1738	0.1698	0.1693	0.2397	0.2964	0.5209	0.5214	0.4623	0.4191	0.4998	0.4036	0.3969	0.3701	0.3336	0.3985	0.3763	0.4512	0.4006
3713	-.-	-.-	-.-	-.-	-.-	0.3892	0.8757	0.2284	0.4183	0.4086	0.8422	0.6232	0.4647	0.3398	0.2512	0.1910	0.2031	0.6937	0.8825	0.7673

Appendix C
Industry Median Values for Tobin's *q* for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3714	0.3241	0.3370	0.3221	0.3185	0.2678	0.3148	0.4259	0.4846	0.6878	0.5538	0.7399	0.7103	0.6582	0.6157	0.6548	0.4973	0.5622	0.8171	1.0812	0.8484
3715	0.0226	-.-	0.0173	-.-	-.-	-.-	-.-	0.0855	-.-	-.-	0.6813	-.-	0.2481	0.1983	0.2652	0.1166	0.5367	0.5620	1.6460	1.4208
3716	0.8398	0.6518	0.5061	0.2005	0.0758	0.4035	0.6025	1.5110	1.4066	0.6974	0.7924	0.8221	0.8338	0.6549	0.4750	0.1764	0.4849	0.8741	0.9288	0.9863
3720	0.3359	0.4121	0.3236	0.4008	0.3658	0.3403	0.2443	0.1745	0.2875	0.2680	0.3433	0.4502	0.3076	0.4601	0.4477	0.4523	0.4445	0.4550	0.4454	0.3898
3721	0.0671	0.2256	0.2301	0.3422	0.3750	0.5659	0.5550	0.6858	0.9380	0.5072	0.7004	0.4855	0.4015	0.5260	0.4005	0.3312	0.3922	0.6123	0.5606	0.6642
3724	0.2691	0.3261	0.2568	0.3840	0.4265	0.4209	0.3809	0.3778	0.4912	0.4040	0.5239	0.4906	0.3516	0.4024	0.4913	0.4000	0.3351	0.3855	0.5145	0.3723
3728	0.1565	0.2804	0.3759	0.4730	0.7830	1.0661	0.6223	0.7053	0.7690	0.6475	0.8436	0.6590	0.6299	0.8414	0.9079	0.7973	0.9360	0.8744	0.8508	0.8206
3730	0.3148	0.3664	0.2780	0.4109	0.4768	0.5922	0.3096	0.4569	0.6332	0.3302	0.3093	0.4014	0.8799	0.7832	0.5629	0.2379	0.5557	0.3636	0.8224	0.6265
3743	0.4896	0.5205	0.3717	0.4556	0.6186	0.8683	0.3989	0.5893	0.7304	0.4274	0.3543	0.6423	0.5605	0.6422	0.5650	0.4465	0.5253	0.6970	0.8229	0.8282
3751	-.-	0.0567	0.1009	0.2104	0.3372	0.3351	0.4108	0.3225	0.4174	0.2156	0.2742	0.4203	0.3732	0.5857	0.5980	0.4285	0.8482	0.5608	0.6923	0.5328
3760	0.3005	0.3238	0.2627	0.2670	0.2443	0.3330	0.3080	0.2580	0.5447	0.4999	0.6594	0.7518	0.9610	0.7359	0.6171	0.5447	0.5585	0.5766	0.7414	0.6507
3790	0.3427	0.2810	0.3103	0.1237	0.0478	0.0837	0.2331	0.2515	0.3564	0.3218	0.2934	0.2447	0.5526	0.4912	1.0447	0.8296	1.4365	2.0785	1.4935	0.2926
3812	0.1936	0.2352	0.2276	0.3433	0.4817	0.8734	0.7976	1.0717	1.0147	0.7708	0.9057	0.8127	0.6394	0.5821	0.3720	0.3565	0.3739	0.3772	0.2830	0.4810
3821	0.6697	0.9605	1.0746	1.0916	0.8968	0.8477	1.9114	0.5895	1.1815	0.6878	0.7710	0.8220	0.7120	0.5415	0.4553	0.2244	0.2839	0.3298	0.3711	0.8461
3822	0.2529	0.3400	0.2533	0.4229	0.4384	0.5160	0.2854	0.3267	0.5492	0.5165	0.5809	0.6846	0.4652	0.5911	0.7184	0.7077	0.9536	0.8867	0.9386	0.8049
3823	0.3874	0.3608	0.5085	0.5670	0.5685	1.0150	0.7360	0.6103	0.7234	0.5140	0.5251	0.6638	0.6862	0.7038	0.8003	0.4192	0.5469	0.4774	0.7243	0.5562
3824	0.1221	0.1232	0.1965	0.1588	0.2531	0.1755	0.1055	0.1787	0.2665	0.6109	0.7655	0.4967	0.3882	0.5737	0.3053	0.1979	0.3464	0.3908	0.5882	0.8080
3825	0.5552	0.7528	0.8748	0.9459	1.0449	1.1616	0.9727	1.4292	1.8501	0.9689	0.8437	0.7437	0.7315	0.5011	0.4314	0.2791	0.4334	0.3356	0.5713	0.5181
3826	0.8365	0.8214	0.6716	0.8095	0.8983	1.1795	0.7673	0.5997	1.0777	1.2068	1.1846	1.1710	1.4832	1.0954	1.1215	1.0565	1.1307	1.1495	1.1594	1.2986
3827	0.3415	0.3315	0.3462	0.1577	0.1430	0.2551	2.1241	0.6359	1.2399	1.2290	1.2206	1.6348	1.2405	0.5588	0.7678	0.4764	0.7131	0.5473	0.7021	0.5335
3829	0.3907	0.2382	0.2243	0.5159	0.7184	0.4554	0.3207	0.3725	0.7436	0.6029	0.8371	0.6549	0.5794	0.6036	0.5232	0.5058	0.8288	0.8581	0.7450	0.5636
3841	1.7301	1.2665	1.1772	1.0850	1.1026	1.1663	1.4889	1.6219	1.7621	0.9118	1.0321	1.3556	1.3985	1.4702	1.7432	1.9628	2.4799	2.1245	1.4126	1.1905
3842	0.2286	0.1919	0.3611	0.4371	0.5692	0.7221	0.5131	2.7119	1.6570	0.5839	1.4022	1.2285	1.1202	1.0066	0.8504	0.8246	1.1974	1.3074	1.2687	1.4549
3843	0.6969	0.5062	0.3675	0.3718	0.3449	0.4535	0.6430	0.6133	0.6020	0.4412	0.5165	0.6994	1.7603	0.8255	0.5331	0.5455	0.5108	0.8328	1.0838	1.6858
3844	1.3150	1.2348	0.8828	0.6808	0.8044	1.5537	1.0101	1.4756	0.9709	0.4564	1.2563	0.9441	0.3958	0.7210	1.5327	0.1876	1.0095	1.6484	1.3002	0.7060
3845	1.5462	0.8773	0.5421	0.9144	1.1703	1.5395	1.9953	1.9847	1.3858	0.5804	0.8304	0.9759	1.2370	1.0300	1.0408	1.3500	1.6571	1.7017	1.3150	0.8560
3851	0.4899	0.3868	0.5982	0.4014	0.9245	1.4000	1.1182	0.4745	1.2283	1.0775	1.1102	1.0613	0.6642	0.6903	0.7397	1.1630	1.8588	1.6025	0.7787	1.1132
3861	0.8363	0.8865	0.6723	0.7820	0.4054	0.6022	0.4700	0.6726	0.7054	0.5832	0.6109	0.7117	0.5019	0.6872	0.6929	0.4256	0.5017	0.5793	0.5634	0.5068
3910	-.-	0.1766	0.1548	0.1426	0.1945	0.4899	0.3138	0.3316	0.6688	0.4739	0.4049	0.3979	0.3516	0.5652	0.4093	0.2582	0.3953	0.7045	0.6131	0.4869
3911	0.5189	0.3345	0.7787	0.4108	0.6376	0.6137	0.8576	0.7130	1.1871	0.8228	0.3296	0.5042	0.5122	0.4641	0.3049	0.3521	0.8250	0.4088	0.3718	0.3258
3931	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5379	0.4426	0.5313	0.5248	0.2441	0.2877	0.3699	0.0884	0.1073	0.1835	0.2187	0.0359
3942	-.-	0.3250	0.3801	0.2617	0.2637	0.3096	0.2943	0.2442	0.5924	1.4479	1.4148	1.4540	0.6703	0.6323	0.6744	0.6323	1.1995	1.2348	1.1444	1.1362

Appendix C
Industry Median Values for Tobin's *q* for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3944	0.0926	0.1040	0.1874	0.0727	0.0873	0.1617	0.1323	0.3406	0.3517	0.4486	0.8709	0.7145	0.2918	0.3983	0.5763	0.3429	0.7646	0.6675	0.4723	0.5507
3949	0.1755	0.0863	0.1699	0.3227	0.3611	0.2237	0.2994	0.3276	0.4464	0.4033	0.4830	0.6205	0.3883	0.6285	0.5999	0.1794	0.4568	0.4645	0.5975	0.6566
3950	0.5069	0.5451	0.5288	0.5001	0.5845	0.9541	0.8857	0.9001	0.7866	0.9656	1.5179	1.6130	1.3582	1.5812	1.7377	0.8053	1.1334	1.2151	1.1281	0.8827
3960	0.3262	0.2577	0.8294	0.3464	0.3720	0.2973	1.4161	3.6946	4.8044	3.2346	0.8943	0.6036	0.4712	0.5345	0.6024	0.7430	0.4776	0.7358	1.0738	1.4208
3990	0.4065	0.4119	0.3661	0.5516	0.5866	0.6699	1.0505	0.7435	0.8359	0.7922	0.5196	0.6689	0.8320	1.2754	1.1783	0.8707	1.2185	1.1091	1.2628	1.2008
4011	0.4427	0.4985	0.5126	0.4536	0.4558	0.5960	0.5407	0.5603	0.6425	0.5558	0.6458	0.6579	0.5908	0.7492	0.6900	0.6626	0.8441	0.9241	1.0342	0.8855
4100	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7653	0.7233	0.6610	0.1335	0.8076	1.8743	1.4820	1.2704
4210	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0624	0.2073	0.2113	0.1610	0.0806	0.7760	1.3204	1.6146	0.8234	2.3609
4213	0.7444	0.6732	0.5320	0.4812	0.4896	0.4728	0.5426	0.5833	1.1311	0.8309	0.8540	0.9105	0.8474	0.7533	0.7068	0.6024	0.6311	0.7084	0.8933	0.6760
4400	0.5592	0.6180	0.6596	0.4459	0.7046	0.8264	0.7265	0.5587	0.7754	0.7078	0.6291	0.5271	0.7301	0.8003	0.9442	0.7650	0.7732	0.7823	0.9389	0.9589
4412	0.6385	0.8694	0.7933	0.7439	0.6877	0.8868	0.6860	0.6458	0.7264	0.6109	0.6180	0.5904	0.5481	0.6932	0.8887	0.6533	0.6598	0.6284	0.7334	0.6710
4512	0.7513	0.6638	0.6298	0.5826	0.4946	0.5024	0.6531	0.7654	0.8049	0.6852	0.6141	0.7745	0.6774	0.7168	0.7269	0.7047	0.7672	0.7824	0.7802	0.6555
4513	0.9421	1.2689	1.4793	1.2175	1.5198	1.8962	1.0349	1.3437	1.2780	1.0405	1.1333	1.2795	0.7760	0.7743	0.8228	0.7441	0.8476	0.7971	0.9961	0.7103
4522	0.4587	0.4754	0.7487	0.6792	0.6852	0.7992	0.7842	0.7816	0.8617	0.8853	0.9846	1.2788	1.0685	0.9979	1.4943	1.4636	1.3513	1.4293	1.7136	1.7808
4581	0.6264	0.6461	0.5585	0.5036	0.4687	0.4530	0.5518	0.4694	0.5663	0.5143	0.7655	0.7779	0.8271	0.9385	1.0138	0.8825	0.8884	0.8310	0.7043	0.6406
4610	0.9382	0.9597	0.8951	0.9234	0.9700	0.8742	0.8230	1.0233	1.0291	1.1030	1.2428	0.9155	0.9223	0.7253	0.8467	0.7680	0.8306	0.9169	1.0004	0.9889
4700	0.5055	0.5840	0.5724	0.6244	0.6800	1.7861	0.7634	0.6701	0.8619	0.5193	0.6110	0.5541	0.4534	0.6964	0.5199	0.5230	0.4598	0.9034	0.7927	0.7814
4731	0.6357	0.6974	0.4340	0.5030	0.7231	0.6174	0.6739	0.4117	0.4819	0.5557	0.6486	0.8689	0.4562	0.7058	0.6384	0.4732	0.6906	0.9076	0.7666	0.8232
4812	0.6946	0.8545	0.8805	1.0199	1.2594	2.0698	1.8827	5.3611	2.3239	1.7756	2.1752	1.3408	1.3329	4.9275	5.5317	2.0935	1.9656	1.7668	1.7002	1.7228
4813	0.7999	0.7924	0.7978	0.7701	0.7243	0.7105	0.7135	0.7598	0.7549	0.7172	0.7918	0.8402	0.8384	0.8829	1.2050	1.0715	1.1060	1.1467	1.2851	1.0936
4822	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.8275	0.9730	-.-
4832	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0301	1.8786	2.0718	1.3567	1.3576	1.3773	1.2999	1.2860	1.3061	1.1933	3.0782	2.6388
4833	0.6341	0.6450	0.6020	0.5313	0.6404	0.9856	0.8322	0.7940	1.3081	1.3389	1.0010	1.1081	1.2398	1.2013	1.5592	1.2547	1.5757	1.7261	1.5659	1.3518
4841	0.9007	0.9406	1.1603	1.0992	1.9358	2.7486	1.5900	1.8891	1.5798	1.4945	1.5943	1.4889	1.7112	1.3522	1.5181	1.3331	1.6107	1.5366	2.0384	2.1902
4899	0.5135	0.4935	0.3718	0.4928	0.4622	0.5429	0.8167	0.8124	0.6818	0.5583	0.7433	0.4466	0.3912	0.6777	0.8092	0.8160	1.2119	0.9249	1.0278	0.7117
4911	0.8405	0.8596	0.8170	0.7856	0.7444	0.7106	0.7249	0.7668	0.7522	0.7531	0.8003	0.8709	0.7868	0.7961	0.8386	0.8076	0.9002	0.9077	0.8523	0.7713
4922	0.6701	0.6611	0.6169	0.5503	0.6370	0.7240	0.5914	0.4607	0.5320	0.4564	0.5580	0.6486	0.6254	0.6621	0.8387	0.7169	0.7115	0.7016	0.8436	0.8784
4923	0.7426	0.7915	0.7562	0.6641	0.7053	0.7861	0.7496	0.6246	0.7100	0.7356	0.7878	0.8183	0.8118	0.7829	0.8582	0.8434	0.8416	0.8876	0.9000	0.8336
4924	0.7308	0.7594	0.7005	0.6589	0.6360	0.6259	0.5877	0.5636	0.6100	0.6314	0.7026	0.8085	0.7694	0.7662	0.8079	0.7853	0.8274	0.8750	0.9403	0.8450
4931	0.8215	0.8492	0.8151	0.7589	0.7291	0.6924	0.6991	0.7532	0.7246	0.7264	0.7867	0.8560	0.7862	0.7999	0.8414	0.8129	0.8857	0.8754	0.8604	0.7708
4932	0.6728	0.7168	0.6965	0.6852	0.6916	0.7189	0.5770	0.5871	0.5709	0.6123	0.6630	0.7485	0.7555	0.8166	0.7957	0.7436	0.6994	0.7981	0.7838	0.7341
4941	0.6713	0.6880	0.6769	0.6500	0.6678	0.6576	0.6751	0.6893	0.7213	0.7191	0.8203	0.8450	0.7700	0.7543	0.7569	0.7194	0.7861	0.8037	0.7922	0.7253

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
4950	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.6491	5.8670	2.7620	2.7729	2.2078	1.4844	1.2218	0.9769	1.0606
4953	0.5776	0.7505	0.7559	0.9860	1.1514	1.6641	1.3960	1.7808	1.8365	0.9677	1.5942	2.2254	2.1091	1.8877	0.9783	1.6865	1.3187	1.1450	1.0453	1.1036
4955	-,-	-,-	-,-	-,-	0.0995	0.0924	0.4156	1.3612	2.1569	1.1792	2.2256	1.7732	1.1998	1.1409	0.9566	1.0291	0.9126	0.8564	0.6988	0.8036
4961	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.6033	1.0230
4991	0.4102	0.3422	0.3795	0.3236	0.1455	0.2901	0.5116	0.9012	1.1950	0.8197	0.8127	0.6316	0.5679	1.1639	1.2494	0.9552	1.3987	1.1615	1.2776	0.9389
5000	1.4824	1.5298	1.3382	1.1225	1.1115	0.8927	0.8579	1.2409	1.1821	0.9106	1.1348	1.0676	1.5164	1.1725	1.1891	1.0754	1.8970	2.0379	1.8001	1.5815
5010	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.2640	0.2676	0.2303	1.2219	0.6329	0.5681	0.6436	0.4343	0.8428	0.9435	1.5356	0.8948
5013	0.9702	0.9046	0.7001	0.6110	0.8364	0.8236	0.4998	0.7628	0.7716	0.3288	0.6711	0.3800	0.2028	0.3282	0.2820	0.8372	0.1979	0.3135	0.3187	0.3389
5020	-,-	0.0252	0.0837	0.0799	0.0994	0.0638	0.1138	0.0269	0.7269	0.7836	0.5271	0.5948	0.3033	0.1972	0.0782	0.1264	0.2637	0.1389	0.0701	0.1156
5030	0.6950	0.5654	0.2531	0.1486	0.1088	0.0916	0.0485	0.4881	0.2792	0.2189	0.3591	0.3551	0.2555	0.4794	0.4025	0.5172	0.5723	0.4268	0.5268	0.6873
5031	0.0292	0.0278	-,-	0.1450	0.0549	0.1926	0.2220	0.2653	0.2920	0.1923	0.7712	0.6048	0.5780	0.4508	0.2965	0.1595	0.2093	0.3000	0.6314	0.2820
5040	-,-	0.0971	0.1256	0.0568	0.1906	0.5858	-,-	-,-	-,-	-,-	-,-	-,-	0.5541	0.4341	0.3111	0.0233	0.4598	3.8297	1.1382	0.7223
5045	0.1630	0.3203	0.4391	0.5872	2.0609	1.1953	1.0619	0.8164	0.9220	0.6273	0.6475	0.5654	0.5722	0.4742	0.3929	0.2654	0.3543	0.2329	0.3692	0.3293
5047	0.0606	0.0189	0.0121	-,-	0.8404	1.0967	0.3953	1.2442	0.5560	0.4032	0.4970	0.4912	0.3865	0.4373	0.3525	0.4199	1.5077	0.8681	1.1313	0.5987
5051	0.1042	0.1405	0.1020	0.1552	0.1918	0.1142	0.3199	0.2222	0.2963	0.2851	0.3162	0.4540	0.3964	0.3824	0.3326	0.2707	0.3018	0.3189	0.5189	0.4609
5063	0.4745	0.6317	0.7216	0.3195	0.3855	0.6275	0.5782	0.9462	0.3523	0.2764	0.7302	0.6415	0.4487	0.5128	0.5770	0.3458	0.6280	0.5757	0.5061	0.8507
5065	0.2203	0.2095	0.1975	0.1272	0.2856	0.4139	0.3915	0.5150	0.5700	0.4236	0.4550	0.4817	0.3840	0.3141	0.2505	0.3339	0.4098	0.4349	0.5994	0.2990
5070	0.6254	0.3208	0.1911	0.2185	0.2426	0.2528	0.2918	0.1050	0.4823	0.3441	0.3128	0.2833	0.3431	0.3396	0.2761	0.2778	0.3207	0.2622	0.1897	0.2907
5072	0.1504	0.1626	0.2385	0.2150	0.3230	0.3992	0.5083	0.6414	0.8782	0.4655	0.1451	0.4278	0.4474	0.3744	0.3934	0.5428	0.6923	0.9397	0.8729	0.5185
5080	0.3377	0.3333	0.0998	0.1515	0.2539	0.2097	0.1345	0.1688	0.3631	0.3177	0.7122	0.6657	0.7978	0.8543	0.4870	0.2743	0.1960	0.2458	0.3145	0.6392
5082	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.4357	0.4826	0.7546	0.8655	0.3817	0.2574	0.5722	0.8311	0.0876	1.2629	1.1035
5084	-,-	-,-	-,-	-,-	-,-	0.3635	0.3131	0.3073	0.1724	0.7252	0.7670	0.5251	0.5632	0.4588	0.4989	0.5137	1.0365	1.6622	1.6852	0.8904
5090	0.1417	0.1140	0.0914	0.0790	0.0304	-,-	-,-	0.0660	0.7687	1.9580	0.9846	0.6601	0.8938	0.5689	0.9258	0.7298	0.7146	0.9345	0.7146	0.7819
5094	-,-	-,-	-,-	-,-	-,-	0.2837	0.2038	0.6687	0.3411	0.3581	0.5540	2.0112	1.5244	1.0211	0.5881	0.3373	2.5127	2.2010	2.4689	3.7340
5099	-,-	-,-	0.1738	0.1875	-,-	0.2232	0.1211	0.6620	0.8895	1.3937	1.9936	1.0994	1.0354	1.6794	0.8551	0.7956	0.5419	0.5704	0.8612	0.5367
5110	0.1912	0.2432	0.2527	0.3118	0.2805	0.2608	0.2510	0.5689	1.0381	1.1924	0.8624	0.6939	0.7810	0.7035	1.3939	0.8428	1.2816	1.2721	0.7859	1.5330
5122	0.3566	0.3686	0.3176	0.2709	0.2259	0.3173	0.2954	0.4051	0.4491	0.4391	0.5872	0.4762	0.3512	0.3173	0.5584	0.3976	0.3445	0.3664	0.3255	0.6072
5130	-,-	-,-	-,-	-,-	0.1695	0.1829	0.1648	0.0287	0.2891	0.4196	0.4703	0.3314	0.4704	0.3252	0.4739	0.2963	2.7666	3.7697	2.7103	1.2487
5140	0.2134	0.1968	0.1894	0.2500	0.2173	0.2167	0.2594	0.3262	0.4111	0.5061	0.6015	0.6865	0.6671	0.6487	0.7040	0.6276	0.7318	0.6180	0.4662	0.8575
5141	0.2525	0.3383	0.3108	0.3441	0.3409	0.4554	0.4505	0.6497	0.7263	0.7017	0.7071	0.5740	0.4741	0.6507	0.5896	0.6254	0.5893	0.5343	0.4757	0.5142
5150	0.0948	0.2331	0.2060	0.3122	0.2594	0.2246	0.2219	0.1957	0.2849	0.0762	0.2620	0.3553	0.4571	0.3705	0.4634	0.3066	0.4369	0.6147	0.5497	0.4429
5160	0.6697	0.7334	0.7556	0.6271	0.6260	0.7411	1.3758	1.8234	1.1061	0.7803	0.7860	0.8773	0.8297	0.8083	0.6540	0.6660	0.7591	0.7699	0.8817	0.7531

Appendix C
Industry Median Values for Tobin's *q* for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
5171	0.5810	0.7387	0.7269	0.7254	0.6909	0.8176	0.6580	0.6236	1.2413	2.2522	1.5202	1.1259	0.7484	0.8405	1.0199	0.8167	0.9191	0.7703	0.9917	0.5245
5172	0.3783	0.5272	0.6506	0.5716	0.8388	0.7887	0.7478	0.5562	0.6245	0.6940	0.7051	0.7900	0.7987	0.7196	0.9489	0.7095	0.6340	0.5976	0.6208	0.7416
5190	0.0826	0.2385	0.0620	0.1006	0.0649	0.2374	0.1603	0.2903	0.4963	0.4157	0.5626	0.7361	1.0102	0.7160	0.4437	0.8790	0.8752	0.8782	0.8696	0.8105
5200	1.5368	1.3905	1.0292	0.9314	0.5313	0.6580	0.5409	0.6534	0.8194	0.6719	0.7733	0.8169	0.6472	0.6929	0.7741	0.6502	0.7639	0.6829	0.8468	0.5772
5211	0.5320	1.0281	0.6860	0.6065	0.6384	0.6040	0.8701	1.9355	1.3953	1.3139	1.0728	0.9617	0.6024	0.7596	0.7128	0.4886	0.6718	0.6078	0.7364	0.5194
5311	0.6013	0.4884	0.3689	0.4195	0.3374	0.3022	0.3584	0.4938	0.4507	0.5137	0.5898	0.7007	0.6955	0.5806	0.5293	0.4459	0.4795	0.5952	0.4448	0.4441
5331	0.5891	0.5888	0.4836	0.7752	0.6481	0.4740	0.5113	0.8649	1.0364	1.1531	1.3434	0.7974	0.5967	0.5700	0.6460	0.4158	0.9181	0.7921	0.6258	0.5513
5399	0.5080	0.8586	0.7905	0.8241	0.5237	0.3597	0.5322	0.6174	0.7401	0.5222	0.3899	0.2663	0.1645	0.2605	0.3563	0.5405	0.7615	0.5465	0.4141	0.4150
5411	0.2665	0.3281	0.2791	0.4339	0.4272	0.4337	0.4413	0.5626	0.6609	0.6235	0.6647	0.7398	0.8017	0.8501	0.8367	0.8021	0.8557	0.8511	0.8371	0.7496
5412	0.3408	0.4799	0.4209	0.6101	0.8910	0.8467	1.0082	0.5123	1.2352	1.1290	1.1725	1.0006	1.0173	1.0552	0.9040	0.7844	0.7201	0.6119	0.7148	0.6146
5500	0.4642	0.3292	0.2415	0.1823	0.4100	0.3236	0.3347	0.3678	0.3879	0.8739	0.7877	0.8458	0.6326	0.7811	0.6280	0.5320	0.5009	0.4248	0.6454	0.4932
5531	0.2382	0.2046	0.0991	0.2367	0.3402	0.1796	0.6056	0.6483	0.5482	0.5289	0.3783	0.5008	0.9212	0.2068	0.1422	0.1402	0.6999	1.4906	1.0910	0.4074
5600	0.5034	0.6383	0.7111	0.6127	0.5753	0.5449	0.5581	0.7170	0.8489	0.7397	0.7272	0.6659	0.6589	0.6096	1.2670	1.1375	1.0620	1.1596	0.7742	0.3930
5621	1.1615	1.4057	1.9231	1.7700	0.8794	0.8922	1.4039	1.5901	2.2261	1.7401	2.0483	2.8158	1.0084	1.2711	0.7494	0.6366	1.5129	1.1681	1.0269	0.7691
5651	0.3330	1.0363	0.7084	0.4428	0.2786	0.3851	0.3342	0.6910	1.6698	0.8696	1.4397	1.1495	0.9341	0.9603	1.0548	0.6476	1.3160	1.5414	1.1191	0.6629
5661	0.1846	0.1691	0.2766	0.3618	0.3631	0.3726	0.3797	0.2823	0.4479	0.3985	0.5017	0.8301	0.5249	0.6816	0.6656	0.4461	0.3548	0.5199	0.5802	0.2773
5700	-.-	-.-	-.-	-.-	-.-	0.3929	0.1917	0.3155	1.1438	0.7937	1.3553	1.6599	1.1150	1.1293	0.8786	0.3957	0.8136	0.7898	2.3733	1.5913
5712	0.5035	0.3327	0.2407	0.0578	0.1087	0.1688	0.1077	0.4530	0.4042	0.4475	0.6219	0.7381	0.3526	0.3801	0.3905	0.4371	0.7890	1.0088	1.3396	0.7968
5731	0.1229	0.6555	0.0484	0.0953	0.3041	0.4187	0.2068	0.5434	0.6066	1.2770	1.3972	0.7737	0.2594	0.5227	0.6987	0.5005	0.3956	0.4006	0.8355	0.6064
5734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3053	1.7651	0.9979	0.2438
5735	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6227	0.9004	0.5568	0.5481	0.4876	0.7159	0.8818	0.4130
5812	0.7212	1.0344	1.0885	1.0649	0.9819	1.0892	0.8740	1.2068	1.3544	1.3497	1.3118	1.2742	1.2023	1.2283	1.4730	1.1463	1.3276	1.3835	1.4197	1.2839
5900	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0078	0.6833	1.1407	0.9826	1.0460	0.9387	0.7957	0.6036
5912	0.9585	0.5782	0.7476	0.6586	0.6341	0.8689	0.7861	1.0519	1.2947	1.1608	1.1371	0.9549	0.6740	0.9028	0.6114	0.5925	0.6260	0.6191	0.7517	0.6354
5940	0.7079	0.2880	0.2177	0.1283	0.2889	0.1307	0.2326	0.8253	0.5910	0.4838	0.3325	0.3382	0.2162	0.3273	0.2475	0.5466	0.8274	0.2976	0.4146	0.7596
5944	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0774	2.0290	2.2724	1.5960	1.8052	1.0227	0.6033	0.5879
5945	-.-	0.6020	0.2656	0.5925	0.8128	0.4607	0.7744	2.3278	1.1868	1.0974	1.1694	1.5761	1.1788	1.1364	1.3131	1.3612	1.1907	1.2448	1.7567	1.1015
5960	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5240	1.7952	1.8353	2.1017
5961	0.5873	0.5967	0.6507	0.5477	0.4947	0.8374	0.7499	1.0825	1.3049	0.8063	0.5901	1.7002	0.9845	1.2608	0.9946	0.9092	1.1514	0.9392	1.3817	0.7145
5990	0.2261	0.3433	0.5191	0.5484	0.5108	0.5423	0.5157	0.7382	0.6922	-.-	0.2996	0.4943	0.6218	0.5992	0.7231	1.2090	2.8736	0.3556	1.0521	0.6927
6021	0.0592	0.0726	0.0677	0.0637	0.0599	0.0581	0.0596	0.0604	0.0775	0.0832	0.1010	0.1033	0.0948	0.0980	0.0994	0.0760	0.1004	0.1302	0.1405	0.1371
6022	0.0651	0.0704	0.0681	0.0661	0.0545	0.0540	0.0585	0.0590	0.0702	0.0689	0.0976	0.1000	0.0893	0.0952	0.0992	0.0755	0.0953	0.1242	0.1227	0.1269

Appendix C
Industry Median Values for Tobin's *q* for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6029	-.-	-.-	-.-	-.-	-.-	-.-	0.0154	0.0176	0.0249	0.0397	0.0452	0.0787	0.0736	0.0983	0.1309	0.0996	0.1073	0.0964	0.1687	0.1478
6035	0.1359	0.1289	0.1408	0.1885	0.1327	0.1335	0.1368	0.1815	0.1687	0.1214	0.1844	0.1663	0.1643	0.1438	0.1367	0.1025	0.1011	0.1215	0.1659	0.1963
6036	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1216	0.1620	0.2037	0.2022	0.1568	0.1763	0.1517	0.1360	0.1259	0.1479	0.1697
6099	-.-	0.3298	0.0803	-.-	0.2876	0.6546	0.0772	0.3566	0.3170	0.6757	0.3213	0.4611	0.8601	1.5604	1.3714	1.0068	5.9074	2.8604	2.0066	0.8694
6111	0.9845	0.9922	0.9856	0.9867	0.9861	0.9818	0.9834	0.8957	1.0094	0.9106	0.9205	0.8440	0.6741	0.6490	0.6641	0.7005	0.6308	0.5803	0.7037	0.6504
6141	0.5427	0.9760	0.9140	0.7891	0.7958	0.7740	0.5837	0.6559	0.6759	0.5829	0.5477	0.5225	0.4558	0.3715	0.4962	0.4649	0.3626	0.5968	0.5527	0.5993
6153	0.4559	0.4118	0.4682	0.4121	0.4561	0.5325	1.0907	1.0707	1.0669	1.0607	1.0328	1.0187	0.9935	1.0070	1.0005	0.3806	0.6693	0.7557	0.9579	0.8602
6159	-.-	0.4292	0.4914	0.1239	0.1491	0.1618	0.2868	0.4037	0.3868	0.3562	0.3296	0.2835	0.2656	0.3017	0.2974	0.6243	0.6276	0.7051	0.8874	0.7105
6162	0.9468	0.9357	0.9563	0.9606	1.0474	0.7390	0.7093	0.5672	1.1843	0.8019	0.7505	0.9075	0.6442	0.3975	0.4595	0.2362	0.3951	0.7988	0.4624	0.6897
6163	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6762	1.8327	1.8744	1.4401	0.8835	0.9647	0.9475	0.6573	1.5007	1.7268	0.9390
6172	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9017	1.1287	0.9509	1.1407	1.0174	0.9639	1.0048	1.0588	0.7943	0.7732	0.7359	0.7102	0.7102
6199	0.4513	0.6274	0.5820	0.6656	0.4279	0.5164	0.5599	0.5080	0.6190	0.6538	0.6177	0.7363	0.3819	0.3802	0.4830	0.4316	0.3885	0.3855	0.3688	0.3837
6200	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9639	5.9433	4.3010	3.6879	3.4706	1.9515	1.3353	0.8060	0.7640	0.3963	1.1512	0.7201
6211	0.3445	0.3807	0.4102	0.2601	0.3157	0.3950	0.3781	0.5253	0.4843	0.3565	0.3795	0.3686	0.3763	0.3484	0.2657	0.2787	0.2789	0.2697	0.2453	0.1528
6282	0.3981	0.6118	1.0877	0.5492	0.5555	0.7409	0.8060	0.8767	2.5157	2.0728	2.1296	1.8299	1.0051	1.1908	1.1812	1.0868	1.6309	2.4992	2.1629	1.4483
6311	0.1287	0.1759	0.1924	0.2024	0.2219	0.1827	0.1997	0.2033	0.2087	0.2623	0.2789	0.2444	0.1956	0.1804	0.1974	0.1218	0.1383	0.1458	0.1600	0.1501
6321	0.1800	0.2247	0.2383	0.2311	0.2095	0.1823	0.1933	0.2250	0.2790	0.3033	0.3418	0.3008	0.2161	0.2009	0.2471	0.2048	0.1990	0.2919	0.3077	0.3240
6324	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0816	1.4914	2.6270	2.9134	0.8594	0.5382	0.6125	1.1604	1.6998	1.4071	2.2227	1.8702	1.7517
6331	0.3045	0.3199	0.2971	0.2980	0.3507	0.3318	0.3442	0.3711	0.2753	0.2587	0.3550	0.4733	0.2987	0.2741	0.3298	0.2956	0.3401	0.3346	0.3766	0.3308
6351	0.5957	0.3935	0.6042	0.3669	0.3229	0.2143	0.2297	0.2845	0.3753	0.2797	0.3121	0.4348	0.3414	0.4301	0.4322	0.3386	0.3780	0.6020	0.4155	0.3607
6361	0.4017	0.5291	0.5427	0.6208	0.6223	0.5906	0.5510	0.5951	0.8058	0.6135	0.6186	0.4135	0.4613	0.4240	0.4214	0.2918	0.2765	0.4349	0.4976	0.3515
6399	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1592	0.0217	2.1617	2.6167	1.6138	0.4303	0.4622	0.3513	0.2984	0.4588	0.4993	1.8196	1.3634
6411	0.6846	1.8626	1.7972	1.6569	1.9517	1.3035	1.3075	1.4122	0.7912	1.2301	1.4782	1.2555	0.8140	1.0080	1.1661	0.8809	1.1322	1.3244	1.1611	1.1542
6510	0.7678	0.8068	0.8173	0.7685	0.8737	0.6707	0.7903	0.7570	0.7359	0.7520	0.8365	0.8495	0.9334	0.9351	0.8446	0.8385	0.9018	0.9311	0.9580	0.9021
6512	0.3895	0.3561	0.3601	0.3419	0.4086	0.3992	0.7002	0.4716	0.6081	1.1333	0.9093	1.0625	0.9322	1.0151	0.9535	0.7888	0.7938	0.8508	0.9149	0.9639
6531	-.-	-.-	-.-	-.-	-.-	-.-	1.2043	1.0199	1.2095	0.7912	0.9513	0.5323	0.4880	0.5286	0.5560	0.3821	0.7369	1.2000	1.1836	1.0893
6532	2.0994	3.2698	3.5626	3.4816	5.3752	7.8705	4.4801	2.7730	4.2400	3.5150	3.2606	2.8851	3.0108	3.6053	3.9246	2.8704	2.5394	2.4654	2.6276	2.2570
6552	0.7902	0.8664	0.9091	0.8062	1.2649	1.5634	0.6267	0.7601	0.6700	0.6268	0.9161	0.9341	0.7554	0.7788	0.7008	0.4952	0.6505	0.8580	0.9210	1.0557
6726	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-
6792	-.-	31.2390	39.9401	36.2936	53.3174	28.9803	18.8007	15.0909	17.0646	4.4556	3.8886	5.0744	3.6631	4.1445	3.6002	3.6607	3.1914	5.1904	3.1981	3.7625
6794	-.-	0.2552	2.4719	3.1371	2.8031	3.6874	3.0221	10.6975	7.7237	2.5432	4.7431	3.2306	3.2266	2.1875	2.8825	1.8796	1.4776	1.6386	1.4871	1.4279
6795	16.9192	2.4393	3.2071	2.1867	2.6441	2.5720	2.3910	1.7406	1.7272	1.2280	1.3274	2.0549	2.2680	2.5672	6.1202	3.7637	5.5848	5.8724	3.8269	3.8601

Appendix C
Industry Median Values for Tobin's *q* for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6798	0.7252	0.6939	0.7071	0.7310	0.8457	1.0013	1.0123	1.0878	1.1530	1.1138	1.1519	1.0704	0.9370	0.9351	0.8336	0.6782	0.7836	0.8658	0.9811	1.0268
6799	1.5213	1.2903	1.0895	0.5647	0.5672	0.6100	0.6211	0.6007	0.6670	0.5763	0.8855	0.5721	0.8437	0.8285	0.7987	0.8341	0.8657	0.9150	1.0009	0.9413
7011	0.7914	0.8869	0.8867	1.0887	1.0745	1.4794	1.2534	1.3574	0.9439	1.0756	1.2352	1.0604	0.8939	0.9841	1.0350	0.8782	0.9156	1.0357	1.0010	1.0589
7200	0.3349	0.4072	0.6343	0.5142	0.3984	0.4565	0.7446	1.0949	0.9793	0.9759	1.2711	1.4608	1.1704	0.8748	0.9496	1.3779	0.9566	1.1483	1.3591	0.9853
7310	-.-	-.-	-.-	-.-	-.-	0.7315	0.7642	0.7724	0.8318	0.8634	0.9351	0.9686	0.9629	1.2932	1.3058	1.1634	1.2208	3.1860	2.7690	1.8118
7311	0.0611	0.2012	0.2176	0.2119	0.2430	0.2231	0.2154	0.3517	0.3368	0.3878	0.4238	0.5146	0.3893	0.4183	0.5615	0.4613	0.6011	0.7344	0.8779	0.7620
7320	0.5551	0.6874	0.5043	0.3737	0.1855	0.1199	0.2228	0.2870	1.0671	1.0454	1.8122	1.6432	0.9726	0.9254	1.0020	1.5557	1.1628	1.2600	0.8934	1.0499
7331	-.-	-.-	-.-	0.2964	0.1012	0.3260	0.6205	1.8869	2.8766	3.0111	5.4781	2.1345	2.2569	1.2938	2.4378	2.6425	2.2765	2.3542	1.2915	1.5503
7340	1.0696	0.9576	0.8298	0.6353	0.6171	0.7546	0.8197	0.7521	1.2511	3.7809	2.1217	1.9084	0.8172	1.0053	1.9395	1.5451	1.3085	0.7311	0.5491	0.8044
7350	-.-	-.-	-.-	-.-	-.-	-.-	0.6959	0.7901	1.8306	1.0197	1.0463	0.5041	0.7322	0.5004	0.4828	0.4792	0.5867	0.7791	0.8536	0.9058
7359	0.5670	0.5990	0.7271	0.7446	0.8440	1.0026	0.9426	1.2714	0.9986	1.1828	1.2925	0.7801	0.8869	0.6859	0.8819	0.8649	0.9092	0.9179	1.2082	1.0312
7361	0.3871	1.0421	0.9901	0.9803	0.7078	1.3024	0.8538	0.9966	1.4574	0.5575	0.6490	0.3840	0.6283	0.3171	0.6480	0.3389	0.8916	0.5639	1.2241	1.8631
7363	0.2019	0.4208	0.7565	0.5507	0.6810	0.6841	0.8709	0.6257	0.5612	0.5822	1.2792	1.4760	1.1908	1.3289	1.0883	0.7179	0.7908	0.9144	1.1566	1.3485
7370	-.-	-.-	0.3958	0.4345	0.8786	0.8793	0.3218	0.4686	0.5568	0.4766	0.6046	0.4106	0.8143	0.3695	0.4149	0.2378	0.6490	1.6201	1.3073	1.2104
7371	-.-	0.3569	0.3600	0.4709	0.2684	0.8036	0.5839	0.7319	0.9786	1.0532	1.0541	0.7445	0.5561	0.6833	1.1212	0.2907	1.2144	1.5456	1.8688	1.7083
7372	0.7759	1.0809	0.7018	0.9796	0.7433	0.5410	0.6910	2.3814	2.2280	1.2006	1.1706	2.6642	2.2833	1.7206	1.5262	1.9557	2.0325	1.9755	1.8682	1.7023
7373	0.5121	0.5750	0.4356	0.4935	0.2772	0.6063	0.8287	0.7217	0.9220	0.9016	1.0375	0.8695	0.7763	0.5914	0.6138	0.5278	0.8059	0.7530	1.0895	1.5495
7374	3.5399	3.3453	2.3428	2.0463	1.7345	1.1008	1.3976	1.4483	1.6178	1.5733	1.2899	1.8417	1.5936	1.1413	1.0520	0.8787	0.8284	1.0554	1.2087	1.2025
7377	0.6745	0.6973	0.1991	0.5933	1.0997	0.8849	1.0309	1.1035	1.7425	1.0088	1.0360	0.6645	1.1612	0.8497	0.7782	0.5569	0.5897	0.5304	0.6122	0.6017
7380	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0359	4.1242	2.1137	4.5787	1.8778	1.9102	2.6279	2.0539	1.0017	1.1457	0.7729	0.8135
7381	0.2511	0.2600	0.2605	0.1949	0.2666	0.4030	0.4403	0.8191	0.7825	0.6510	0.8081	0.8605	0.5970	0.4628	0.4282	0.5621	0.6249	0.5694	0.4990	0.4286
7384	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2328	0.5720	1.4209	0.8425	0.8393	0.8239	1.6707	1.2226	1.9432	3.9009
7385	-.-	0.9038	1.2607	1.2934	1.0232	1.8313	0.6679	1.4140	0.5034	0.3570	0.4101	0.4685	0.3937	0.4687	0.6240	0.3673	0.4494	0.5047	1.0903	1.4935
7389	0.2324	0.5267	1.0881	0.9799	1.3520	1.5541	2.0167	1.4591	1.5888	1.2420	1.5251	1.5067	1.5400	0.9875	0.9366	0.5661	0.7257	1.1808	1.2264	1.0373
7500	0.5219	0.4717	0.5734	0.4158	0.1104	0.6081	0.7981	2.3266	1.2934	1.2253	2.0278	2.1278	1.4652	1.9610	1.4438	1.3916	1.3099	0.7503	0.4722	-.-
7510	0.7417	0.7570	0.7848	0.9580	0.8152	0.9010	0.7132	0.8221	0.9513	0.8755	0.8751	0.9280	0.8258	0.8791	0.7541	0.5433	0.8091	0.7685	0.9151	0.7701
7600	0.2065	0.0248	0.0178	0.1898	0.1440	1.1760	0.3999	0.5172	0.5380	0.3871	0.8987	0.6328	0.7148	0.5900	0.9206	0.5713	0.9432	0.5225	0.6732	0.7242
7812	1.6122	1.5528	1.0875	1.0098	0.7846	0.8667	0.8417	1.0360	1.0041	1.0395	1.2204	1.8295	2.9894	1.9534	2.5129	1.6547	1.2746	1.5050	1.4793	1.7477
7819	-.-	-.-	-.-	-.-	-.-	0.1084	1.1705	1.1076	1.1217	0.5701	0.9354	1.2205	3.4340	2.4246	2.6051	1.9441	1.9957	1.6165	1.3162	1.2615
7822	0.4850	0.4736	0.3654	0.3596	0.5984	0.4494	0.3077	0.3851	0.3392	0.0609	1.1824	0.7709	3.8336	2.6390	1.6756	1.0320	1.5322	0.9347	1.4640	1.5090
7830	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2886	0.8489	1.2051	0.6392	0.9356	0.9451	0.9085	0.8166	0.8122	1.0180	0.9327	0.9372	0.9349
7900	0.7602	0.8314	0.8733	0.8287	0.8068	0.7621	0.8104	0.6532	1.0532	0.9485	0.9818	1.2295	1.6272	1.6218	2.0003	2.2916	1.6424	1.7698	1.7165	1.4242

Appendix C
Industry Median Values for Tobin's *q* for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
7948	0.7981	0.9176	0.8143	0.9210	1.0995	1.9566	1.5679	1.6254	2.2339	1.7057	1.5957	1.8667	1.9803	2.3051	1.9832	1.4516	1.3540	1.3483	1.0580	1.2158
7990	0.6986	1.0044	1.1196	1.7116	1.4134	1.0292	0.9409	0.7867	1.0289	0.8296	0.9288	1.0430	1.1061	0.9793	1.0207	0.9284	0.9591	1.0789	1.1925	1.3077
7997	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.8435	0.7654	-.-
8000	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	10.1276	4.0404	4.5415	2.3439	1.3557	0.8891
8011	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.1867	1.5684	0.7662	0.6776	1.0250	0.8238	1.1432	2.5970	1.4731	0.8705	1.2668	2.3425
8051	0.6622	0.7470	0.7390	0.7571	0.8334	0.9253	0.8195	1.0954	0.9335	1.0191	1.1461	1.0192	0.8029	0.7688	0.8151	0.7581	0.8686	0.8993	0.9772	1.0378
8060	0.6132	0.7110	0.8333	1.1789	2.0469	2.2800	1.1137	3.0326	1.4554	1.6245	1.2769	1.1542	1.4178	0.9096	1.3190	1.3963	1.3123	0.9328	0.7857	0.7301
8062	0.6243	0.6408	0.7821	0.7528	0.9939	1.0994	1.0535	1.4207	0.9689	0.9601	0.9135	0.8458	0.8371	0.8470	0.8753	0.6590	0.8721	0.8382	0.9709	1.2406
8071	-.-	-.-	-.-	-.-	-.-	3.2778	16.5407	2.6406	5.4683	2.6180	1.5866	1.4048	1.2803	1.6938	2.2273	1.5483	2.1765	1.7602	2.3556	1.7888
8082	-.-	-.-	0.4334	0.2536	2.6772	1.2654	1.8693	1.6676	1.1782	0.7119	0.8339	0.9376	0.6212	0.7060	0.8157	1.0412	1.4085	0.8072	0.7987	0.6985
8090	-.-	-.-	-.-	-.-	-.-	-.-	0.4388	0.1053	4.6768	2.5057	0.5998	0.7760	1.1115	0.9539	1.5719	1.6953	1.7457	0.7772	1.0861	1.3123
8093	-.-	-.-	-.-	-.-	-.-	-.-	4.4351	2.9064	2.3521	0.7705	0.6955	1.4439	0.9489	1.1526	1.0876	0.9462	0.9163	1.3861	1.1476	1.2175
8200	2.0487	1.4060	1.8014	2.0123	1.8594	1.8673	1.3575	1.9216	1.8914	1.1392	1.1233	1.1631	1.0103	0.8114	0.9797	0.9500	1.4066	1.4759	0.9004	0.7864
8300	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5480	0.4316	0.4802	0.4962	0.6029	0.6123	0.3604	0.8039	0.7657
8700	0.9410	0.8245	0.7775	0.7324	1.5612	1.2488	1.7988	1.4980	3.4380	2.3573	3.0700	2.3968	1.2474	1.5476	1.5866	1.1658	2.0975	2.0361	2.0144	0.8094
8711	0.4916	0.3684	0.4593	0.2464	0.2315	0.5150	0.3859	0.3591	0.4423	0.4220	0.5114	0.4256	0.7472	0.6469	0.7137	0.5327	0.8648	0.5589	0.6281	0.6409
8731	0.0407	0.0799	0.1668	1.0175	0.7774	1.2161	0.5957	0.6516	1.0042	0.4829	0.5168	0.4547	0.4981	0.4015	0.4944	0.8713	0.5937	0.7009	0.6452	0.4246
8734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4857	0.4872	1.6035	2.9713	1.8209	2.1180	1.3447	0.8793	2.3978
8741	1.3265	1.3565	3.5293	4.1048	4.2586	2.5064	2.5458	0.1801	1.6702	1.8592	0.8809	0.8453	0.7642	0.3780	0.5059	0.7405	1.2658	0.6112	1.3953	0.3871
8742	0.0865	0.1961	0.1294	0.2576	0.7125	1.4381	1.6306	0.3650	0.3841	0.3146	0.3026	0.8390	0.4007	0.7160	0.2938	1.3276	0.5349	0.4124	0.4648	0.5852
8744	-.-	-.-	-.-	0.0369	1.5029	4.5282	3.0370	0.7611	2.6765	1.7481	0.4484	1.1474	1.5291	0.5785	1.6440	0.6990	1.5849	1.4032	1.3779	1.6203
9995	0.2432	0.2579	0.1023	0.0746	0.0908	0.0598	0.3594	0.6659	0.7120	0.4575	0.5704	0.5919	0.5070	0.6569	0.6692	0.3035	0.4883	0.6676	3.9329	1.5695
MEDN	0.4587	0.4745	0.4459	0.4758	0.5068	0.5888	0.5620	0.6299	0.7336	0.6484	0.7345	0.7707	0.7315	0.7120	0.7437	0.6423	0.7702	0.7705	0.8810	0.8076
AVRG	0.5844	0.6646	0.6818	0.6834	0.7827	0.8126	0.7841	0.8373	0.9658	0.8249	0.8781	0.8861	0.8285	0.8154	0.8967	0.7602	0.9162	0.9488	0.9911	0.9239

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
0100	0.6020	0.4828	0.6963	0.7168	0.8268	0.7156	0.8480	0.8662	0.5057	0.4884	0.4193	0.4701	0.6425	0.4855	0.4728	0.5280	0.4847	0.5244	0.5278	0.6368
0200	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3830	0.4872	0.6228	0.4413	0.6090	0.8950	1.0031	0.8711
0700	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0800	0.1295	-.-
0800	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7830	0.6015	0.8757	0.7868	0.7957	0.8811	0.7542	0.6961	0.6443	0.6199
1000	0.9688	0.7621	1.1357	0.8729	0.7687	0.8344	0.9792	1.1286	1.0030	0.6196	0.9783	1.2185	0.9252	0.5458	0.4321	0.9023	0.6754	0.6196	0.6225	0.6956
1040	0.7838	0.8816	0.9307	0.8834	0.4977	0.4168	0.7898	0.8581	0.5278	0.5931	0.5363	0.3865	0.3485	0.4429	0.4157	0.5542	0.6233	0.7032	0.3466	0.4257
1090	0.3177	0.3749	0.0782	0.1245	0.1141	0.1878	0.4483	0.7526	0.7499	0.3076	0.4732	0.2474	0.4486	0.4397	0.3913	0.8820	1.1845	1.0020	1.0982	0.9474
1220	0.5595	0.4966	0.6705	1.0352	0.9488	1.1366	1.0312	1.7572	1.1327	1.1703	1.0589	1.1130	0.9188	0.9759	0.7480	0.7715	0.6780	0.8907	0.5260	0.4691
1221	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3930	0.5167	0.4748	0.8078	0.9708	0.5984	0.4195	0.7778
1311	0.8020	0.5513	0.5673	0.6828	0.3511	0.2588	0.4219	0.6245	0.5830	0.7115	0.8101	0.7073	0.7156	0.7065	0.5360	0.7091	0.7400	0.6524	0.5573	0.5800
1381	1.0985	1.2495	1.0018	0.6367	0.4339	0.2976	0.5598	1.1044	0.9592	1.2244	1.4206	1.2293	0.8917	1.0575	0.4794	0.6528	1.0341	0.8117	0.6086	0.7492
1382	0.5766	1.2143	1.3297	1.1908	1.0744	0.3636	0.4198	1.0939	0.8167	0.6754	0.7767	1.0964	0.8919	1.0066	0.7550	0.5916	0.5994	0.5808	0.5051	0.5578
1389	0.4549	0.6099	0.7253	0.8046	0.5332	0.2534	0.3458	0.6748	0.5109	0.7521	0.7913	0.5415	0.4876	0.3556	0.2875	0.3090	0.4578	0.4675	0.4288	0.5345
1400	1.1857	0.9286	0.9490	0.9262	0.9679	0.8265	1.1618	1.2368	1.1322	1.0896	0.8114	0.7003	0.5313	0.5327	0.5787	0.8755	0.7505	0.6752	0.6251	0.5096
1531	2.3235	1.3754	1.1519	1.3129	1.0943	0.8802	1.1353	0.7612	0.7087	0.7234	0.6025	0.6110	0.9374	0.8632	0.9939	1.4330	0.8619	1.0991	0.7738	1.1924
1540	1.9549	1.9632	1.3301	1.6999	1.0490	0.7489	0.9049	1.1198	0.7129	1.0402	0.7237	0.9037	0.9877	0.6643	0.7783	0.6593	1.4586	1.2407	1.0967	1.5494
1600	0.6471	0.6319	0.6152	0.6936	0.4757	0.2995	0.6084	0.8336	0.7078	1.0019	0.9448	0.8916	0.6532	0.5540	0.4593	0.4335	0.4958	0.4261	0.4743	0.4712
1623	1.1936	1.2208	1.2326	1.0818	0.8353	0.5697	1.0389	0.8810	0.9843	0.8177	0.8412	0.6458	0.4779	0.5806	0.5339	0.5614	0.6591	1.0976	0.7379	0.8089
1700	0.8318	1.0220	0.8731	0.7869	0.5300	0.4031	0.5545	0.5628	0.4257	0.8617	0.8002	0.4863	0.9258	0.5550	0.6108	0.5714	0.7717	0.8748	0.6814	0.5414
1731	-.-	-.-	-.-	-.-	-.-	0.2318	0.5771	0.7782	0.7283	0.8461	0.5284	1.1770	1.5330	1.0918	3.6389	2.8036	1.9123	0.2600	0.1304	-.-
2000	0.9332	0.9301	0.8327	0.9450	1.0765	1.1099	1.0891	0.9296	0.7666	0.6752	0.5468	0.3962	0.3602	0.4477	0.2814	0.3026	0.2516	0.2865	0.2383	0.2387
2011	1.5280	1.4075	1.3141	1.1273	1.1993	0.9338	1.4652	1.0706	0.9722	0.9710	0.7543	0.5897	0.6147	0.5933	0.5527	0.4084	0.5522	0.4772	0.4217	0.4479
2013	0.9605	1.4725	1.0995	1.5560	1.0217	1.2657	1.2035	1.0829	1.4420	1.3220	0.6192	0.5172	0.4787	0.3887	0.5983	0.7384	0.6093	0.6596	0.4729	0.5229
2015	1.5094	1.8939	1.6576	0.9775	1.2956	1.6298	1.5424	0.8759	0.6979	0.8653	0.4110	0.3682	0.4999	0.6116	0.5453	0.9979	1.0726	0.8070	0.6697	0.6089
2020	1.5494	0.7237	0.8350	0.7977	1.0767	0.5986	0.6880	0.4207	0.3629	0.3481	0.2653	0.2932	0.3807	0.4472	0.3855	0.5778	1.2270	0.3984	0.5196	0.6396
2024	-.-	-.-	-.-	-.-	-.-	-.-	0.1127	0.0832	0.1584	0.2909	0.1720	0.2195	0.2389	0.2256	0.1990	0.3541	0.2252	0.3015	0.2929	0.3905
2030	1.0667	0.9907	0.8774	0.7707	0.8945	0.9178	0.9038	0.8404	0.6666	0.6816	0.5531	0.4511	0.4657	0.5852	0.6351	0.6177	0.6307	0.4320	0.3120	0.3326
2033	1.5468	1.7504	1.6898	1.5549	1.9357	1.9663	1.7257	1.0549	1.3843	1.0147	0.8594	0.7157	0.7114	0.7794	0.7343	0.6099	0.7393	0.9397	1.0362	1.4332
2040	0.4741	0.5560	0.5506	0.6978	0.8367	0.9025	0.9419	0.7476	0.5411	0.3838	0.2555	0.2080	0.1874	0.1966	0.1983	0.2077	0.1529	0.1993	0.1447	0.2191
2050	1.0723	0.9377	0.8557	1.1995	1.1768	1.1316	1.2189	0.6896	1.0957	0.7630	0.5321	0.3899	0.2817	0.3606	0.4082	0.5217	0.5394	0.5617	0.4429	0.4092
2052	0.5094	0.5547	0.5329	0.5390	0.5153	0.5678	0.5647	0.3945	0.4226	0.4217	0.3349	0.3854	0.2874	0.3225	0.3530	0.6765	0.4708	0.6442	0.4389	0.4262
2060	1.0966	1.0402	1.0776	1.0133	1.0915	1.1575	0.9212	0.8311	0.6416	0.5457	0.3953	0.5151	0.3304	0.3355	0.3205	0.3677	0.5165	0.4544	0.3725	0.3435

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2070	0.3782	0.4346	0.7913	0.8621	0.6625	0.5895	0.8496	1.2265	0.6919	1.0204	0.4895	0.5853	0.5190	0.6601	0.6063	0.5264	0.4907	0.4454	0.4214	0.4175
2080	0.8463	0.6616	0.6959	0.4926	0.6152	0.5745	0.5286	0.4958	0.6678	0.6238	0.4734	0.4869	0.4409	0.3045	0.3333	0.3196	0.3084	0.3665	0.3673	0.4187
2082	0.4288	0.6454	0.9754	1.0339	1.1617	1.0596	1.3598	1.1783	0.9153	1.0904	0.8116	0.7487	0.9833	0.8978	1.4557	0.9111	0.8309	0.4948	0.8329	0.7903
2086	1.4676	1.4950	1.3773	1.3576	1.5024	1.3906	1.2145	1.1180	1.3210	0.6278	0.5683	0.5590	0.6062	0.6569	0.4526	0.3634	0.3232	0.3232	0.2979	0.3637
2090	0.9916	0.9104	0.7979	0.7824	0.7213	0.8155	0.6285	0.4279	0.4593	0.5553	0.5700	0.4786	0.6415	0.5093	0.5369	0.6226	0.8247	0.5780	0.5754	0.8333
2100	1.4234	0.9340	0.9589	1.4173	1.5747	1.3419	1.2686	0.9589	0.7582	0.8526	0.5934	0.5033	0.6015	0.5134	0.4692	1.2091	0.7965	0.8950	0.8034	0.9703
2111	0.8559	0.7960	0.9370	0.9660	0.8566	0.7893	0.8642	0.8110	0.7107	0.6212	0.6758	0.5023	0.5494	0.2965	0.3510	1.4184	0.5705	0.6746	0.8355	0.9135
2200	1.3482	1.2882	1.5188	1.6847	1.5009	1.6644	1.4165	1.4361	0.8122	0.9776	0.9066	0.9590	0.6479	0.5160	0.4964	0.5287	0.2790	0.4970	0.4582	0.6483
2211	1.7520	1.4734	1.9753	2.2567	2.4763	2.0253	2.4045	1.9040	1.2333	1.5432	1.2347	1.0521	0.9961	1.0270	1.0376	1.1980	1.0282	0.6634	0.5902	0.8835
2221	2.8871	2.4836	2.7408	1.3569	1.0260	0.8511	1.0559	1.1121	1.0489	1.2741	1.0965	0.5747	0.6016	0.8273	0.7614	1.1269	0.6814	0.6648	0.5302	0.5333
2250	2.2550	2.4298	2.1709	1.6373	1.4126	1.5235	1.5538	1.4050	0.8943	1.1649	0.8720	0.7919	0.8052	0.9075	0.7299	1.0934	0.7581	0.5998	0.6477	0.7540
2253	2.6577	2.6047	1.5371	1.8085	1.9681	1.3428	1.3172	1.0651	0.8489	1.0707	0.8857	0.5584	0.9470	1.1200	0.8116	0.6674	0.3502	0.7070	0.6608	0.5202
2273	1.6332	1.5691	0.7855	1.0387	1.4710	1.6961	1.6349	2.1693	0.5383	0.9825	0.5149	0.4258	0.6788	0.5252	0.5152	1.1809	1.3384	0.6326	0.4891	0.7969
2300	2.1339	1.6532	1.7907	1.8773	2.0435	1.7185	1.2413	1.0921	0.7452	0.9324	0.7600	0.6699	0.8509	0.6876	0.6880	0.9358	0.7192	0.5154	0.4899	0.7069
2320	1.6866	1.4038	1.9297	1.9058	2.1620	1.3295	1.1377	1.0300	0.7848	0.8536	0.6822	0.7137	0.9986	0.8056	0.8511	1.1488	0.5173	0.6358	0.5145	1.0227
2330	1.2308	1.4930	1.3092	0.9760	1.4686	0.9930	0.8353	0.6681	0.4988	0.8401	0.5934	0.4529	0.5660	1.0230	0.7498	1.2921	0.7264	0.7557	0.7051	1.0573
2340	2.8846	2.4911	2.1515	1.7572	1.8498	1.8352	0.8085	0.8057	0.5491	0.7839	0.6405	0.3535	0.7325	0.3576	0.3689	0.4869	0.3666	0.4439	0.4820	0.5604
2390	1.4907	1.1229	1.6022	1.2715	1.2192	1.7042	2.4106	1.8355	0.8714	0.9123	1.0852	1.0464	0.7465	1.2219	1.1967	2.0592	2.3191	0.8603	0.4307	0.7387
2400	0.4047	0.3571	0.5909	0.7126	0.6998	0.7787	0.9494	0.7550	0.8065	0.8001	0.7904	0.6257	0.7417	0.7535	0.6905	0.8997	0.6055	0.4702	0.3870	0.5367
2421	1.0816	0.8435	1.1567	1.1679	1.1085	0.9378	1.2711	0.9747	0.9179	0.9678	0.9883	0.8066	0.7811	1.0798	0.7835	1.0299	0.7426	0.5719	0.4702	0.6060
2430	1.9004	1.5015	1.5303	0.9603	1.0248	1.7462	1.4853	0.6801	0.5396	0.5122	0.5345	0.5370	0.7566	0.5933	0.9119	1.0929	0.8479	0.8316	0.5565	0.7636
2451	0.4716	0.6493	0.6091	1.0161	0.8498	0.5961	0.7343	0.3619	0.4530	0.6372	0.6700	0.8058	0.8159	0.7966	0.9793	0.8428	0.8670	0.4688	0.3971	0.5114
2452	1.1435	0.9572	1.2888	1.3811	2.0395	1.1994	1.8648	1.2705	0.9096	1.5192	1.0283	1.0173	1.0336	0.9673	1.2702	1.4516	1.3014	0.9251	0.8524	1.2398
2510	1.1251	1.0026	1.0220	1.0830	1.3355	1.2345	1.2383	0.8604	0.5587	0.6829	0.4848	0.4602	0.6724	0.5703	0.6192	0.7383	0.6808	0.6189	0.4228	0.6597
2511	1.7136	1.3765	1.7716	1.4687	1.6185	1.6580	1.9411	1.4337	0.8599	0.8263	0.7690	0.6128	0.8538	0.8078	0.8826	1.4869	0.9115	0.7198	0.5269	0.6802
2520	1.5478	0.9429	0.7726	0.7155	0.9595	0.8361	0.7096	0.7304	0.5050	0.4534	0.3965	0.4990	0.4652	0.5759	0.6142	0.5928	0.6169	0.5400	0.5150	0.7133
2522	1.1532	0.7535	0.7507	0.6147	0.6241	0.4267	0.6867	0.3812	0.5234	0.5769	0.4382	0.4084	0.4666	0.5930	0.4036	0.5517	0.5387	0.4604	0.5118	0.2372
2531	2.7570	1.7269	2.1072	1.6815	2.6052	2.7134	2.4457	1.1429	1.0145	0.8264	0.9138	0.8000	1.6429	1.0348	1.5435	2.1051	1.2858	0.7873	1.0353	0.5495
2540	0.9999	0.9248	0.9536	1.0007	1.3714	1.2971	1.3652	1.4503	0.8217	0.9485	0.7842	0.5400	0.6009	0.7989	0.8338	0.9665	0.8543	0.6892	0.7620	0.6615
2590	0.7633	0.8714	0.9740	0.7703	0.7520	0.8188	0.7099	0.5124	0.4593	0.5062	0.4031	0.3092	0.3660	0.4732	0.4360	0.6711	0.5735	0.3720	0.3057	0.4865
2600	1.6809	1.1566	1.1914	1.1341	1.1988	1.2493	1.4617	1.5061	0.7386	0.9179	0.7496	0.6192	0.5859	0.6141	0.7225	1.0205	0.7346	1.0592	0.7020	0.8134
2611	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	4.7235	1.6731	0.9072	0.9289

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2621	1.1143	0.9772	1.0357	1.0033	1.0871	1.0575	1.1332	1.0650	0.7517	0.9377	0.7654	0.6492	0.6373	0.7246	0.7366	0.9810	0.7786	0.7373	0.5757	0.6118
2631	1.2481	1.0652	1.2949	1.0800	0.8339	0.8850	0.9406	0.7260	0.5456	0.7155	0.6808	0.5506	0.5392	0.6157	0.6906	0.9762	0.7083	0.6580	0.5851	0.5029
2650	0.9665	0.7316	0.7590	0.5471	0.5990	0.4871	0.6027	0.8102	0.7052	0.8043	0.7775	0.5961	0.7987	0.4377	0.5380	0.7493	0.5305	0.4286	0.4330	0.4656
2670	1.3357	0.9869	1.1132	1.2534	1.2063	1.0183	1.0817	1.1222	0.7040	0.9078	0.8078	0.5929	0.7134	0.5919	0.5531	0.6351	0.6847	0.6544	0.5143	0.6023
2673	-.-	-.-	-.-	3.8013	3.2829	3.0382	4.8035	3.7936	3.1153	3.8844	2.5970	2.1597	3.2827	2.5662	2.2558	3.0044	1.9336	0.9401	0.5198	-.-
2711	0.7762	0.6092	0.5869	0.5284	0.5706	0.5868	0.5859	0.4606	0.4030	0.4190	0.2624	0.2461	0.3153	0.3656	0.3175	0.4498	0.4036	0.3970	0.3793	0.4368
2721	1.6940	1.1272	0.8815	0.4531	0.4804	0.5501	0.5283	0.5134	0.3541	0.4644	0.2968	0.2971	0.2889	0.2964	0.3039	0.3285	0.3657	0.3587	0.3951	0.3437
2731	1.2732	1.1700	0.9636	0.9960	1.1340	0.8777	0.8261	0.4389	0.6464	0.5456	0.4344	0.3387	0.5896	0.3801	0.4971	0.4821	0.4054	0.3404	0.2736	0.3241
2732	3.7019	3.3831	2.1161	1.1196	1.5362	1.7377	2.2521	2.8290	1.4248	1.0419	0.7834	0.8120	0.7089	0.8591	0.8508	1.2074	1.4339	1.8239	1.0314	0.9489
2741	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3363	0.5080	0.3321	0.4975	0.3466	0.6425	2.2254	2.7079	2.9482	1.5800	2.1981
2750	1.1238	1.2904	1.2678	1.0530	1.1810	1.0486	1.1244	0.6936	0.5647	0.6115	0.4318	0.4400	0.5929	0.5549	0.6581	0.8220	0.6217	0.5734	0.5616	0.6469
2761	0.8154	0.9475	1.1094	1.0243	0.8193	0.8518	0.9883	0.6824	0.5330	0.5478	0.3843	0.4784	0.4553	0.5501	0.5289	0.7645	0.7630	0.6520	0.6068	0.6539
2771	0.8818	1.0494	2.2735	2.6534	1.2127	1.2662	0.9166	0.8574	0.4865	0.4078	0.4083	0.5630	0.7955	0.5005	0.5207	0.6066	0.5972	0.6042	0.5284	0.7539
2780	0.8947	0.6573	0.9187	0.7538	0.7369	0.5635	0.5872	0.4986	0.4063	0.3988	0.4071	0.3329	0.3480	0.3353	0.2692	0.4323	0.3400	0.2743	0.3697	0.3341
2790	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	7.2663	0.3611	0.5732	0.5622	0.5971	1.0576	0.8025	0.3951	0.4897	-.-
2800	1.1351	1.0770	1.1837	1.3540	1.3108	1.1921	1.2017	1.1828	0.8510	0.9661	0.7197	0.6386	0.6343	0.6534	0.5363	0.7227	0.5711	0.4882	0.5123	0.4132
2810	0.6133	0.6259	0.6448	0.6747	0.6522	0.4227	0.6478	1.0829	0.8015	1.0905	0.9360	0.8355	0.3745	0.5719	0.4080	0.5637	0.5004	0.4142	0.4995	0.5762
2820	0.6048	0.5971	0.7187	0.7564	0.8736	0.8901	1.1659	1.2439	0.9063	1.0111	0.7640	0.6557	0.5126	0.5056	0.4207	0.6691	0.5641	0.5311	0.5826	0.4720
2821	1.9902	1.5343	1.5914	1.3669	1.2429	1.2971	0.9722	0.8027	0.5769	0.6100	0.6128	0.6796	0.6502	0.5277	0.6062	1.0194	0.8071	0.4668	0.3533	0.3334
2833	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2071	0.2253	0.4441	0.4784	0.9487	-.-
2834	0.3579	0.4301	0.4719	0.4412	0.4831	0.4002	0.4198	0.3056	0.3448	0.3658	0.2709	0.2505	0.2799	0.2917	0.2430	0.2367	0.1958	0.2421	0.2325	0.2957
2835	0.6315	0.8501	0.8357	1.0567	0.9006	0.5692	0.5032	0.3030	0.3099	0.4157	0.2736	0.3349	0.4963	0.3284	0.3730	0.2444	0.2375	0.2899	0.4026	0.3182
2836	-.-	-.-	-.-	0.1070	0.3094	-.-	0.3774	0.3729	0.4785	0.4097	0.2759	0.3217	0.3420	0.3722	0.3007	0.2226	0.2184	0.2563	0.2690	0.2775
2840	1.0776	0.7586	0.7711	1.1215	1.1117	0.9914	0.8251	0.8600	0.6387	0.6994	0.6520	0.5140	0.5784	0.5459	0.5230	0.7221	0.4129	0.2848	0.2811	0.3269
2842	0.2927	0.5510	0.5201	0.6460	0.5868	0.6881	0.9383	0.7247	0.5958	0.6608	0.4882	0.2761	0.3790	0.5021	0.3206	0.3760	0.4507	0.4418	0.3172	0.2994
2844	1.1446	0.9758	1.0970	1.0428	1.2443	1.0522	1.0044	0.8244	0.6993	0.6438	0.4675	0.3614	0.4814	0.4966	0.5849	0.5409	0.4390	0.4357	0.3758	0.2747
2851	1.2600	1.0181	1.0689	1.2035	1.2420	0.9895	0.9014	0.9303	0.6193	0.6409	0.5183	0.4546	0.5064	0.4856	0.4484	0.5214	0.5195	0.3822	0.3397	0.4339
2860	0.7330	0.7991	1.0935	1.1653	0.9600	1.1032	1.2307	0.8741	0.7450	0.7312	0.5840	0.4994	0.5902	0.4923	0.4678	0.4129	0.3976	0.4136	0.3746	0.3762
2870	0.5202	1.0674	0.9492	0.7153	0.7680	0.3771	0.3521	0.8721	0.6453	0.7043	0.7331	0.3179	0.4775	0.5516	0.5479	0.8041	0.5594	0.5225	0.4292	0.5116
2890	0.4324	0.4161	0.5201	0.5187	0.4263	0.3335	0.4541	0.4585	0.3871	0.3606	0.4206	0.3852	0.5047	0.4745	0.4349	0.4578	0.3847	0.4045	0.3593	0.2886
2891	0.7704	0.7261	0.6792	0.7261	0.7683	0.6281	0.6824	0.7747	0.5171	0.8423	0.7621	0.5301	0.6028	0.3442	0.3604	0.5580	0.4791	0.4789	0.5393	0.6158
2911	1.0792	0.8830	0.9063	0.8911	0.7772	0.6590	0.8903	1.1556	1.0025	1.0805	0.9850	0.8674	0.7881	0.7576	0.5800	0.6976	0.6519	0.6642	0.5812	0.5920

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2950	0.6495	0.7042	1.1543	1.0012	1.1037	1.0214	0.6909	0.9913	0.4884	0.9265	0.4786	0.5045	0.7646	0.8747	0.9257	1.1095	1.1264	1.0034	0.7028	0.7256
2990	2.7377	1.7823	1.1829	0.8051	0.8998	1.0716	1.5712	1.0109	0.8404	0.8109	0.6525	0.6146	0.6624	0.7875	0.8806	1.5468	1.2829	1.3540	1.6052	0.5665
3011	1.1654	1.0922	1.6011	1.8276	1.9473	1.1509	1.3219	0.6631	0.8804	0.9231	0.8999	0.7329	0.5365	0.5250	0.4657	0.5223	0.2078	0.2109	0.3044	0.4428
3021	-.-	-.-	-.-	-.-	96.8533	0.2088	2.2773	0.3662	0.7747	1.1347	0.4796	0.4887	0.5752	0.4478	0.3284	0.8353	0.5287	0.3960	0.4032	0.5291
3050	1.3746	1.1252	1.0286	1.0555	1.0408	1.3116	0.9900	0.7005	0.5937	0.6457	0.5827	0.7364	0.8139	0.9228	0.9667	1.2005	0.6115	0.5715	0.5593	0.6206
3060	2.2655	1.4691	1.4079	1.5068	1.2382	1.0175	0.8141	0.9508	0.8354	0.9306	0.6973	0.6983	0.6794	0.7020	0.6738	0.9234	0.6116	0.5743	0.4933	0.4736
3080	1.0013	0.9043	1.1071	1.3383	1.1210	1.4148	1.4089	1.3351	1.3882	1.1690	0.8398	0.6956	1.0311	0.9110	0.7232	1.1076	0.8332	0.6875	0.7371	0.7176
3081	1.5024	0.9727	1.0308	1.3923	1.5822	1.5686	1.4620	0.7427	0.5599	0.6453	0.3688	0.5937	0.5063	0.7156	0.6019	0.7519	0.5145	0.6569	0.5331	0.5940
3089	0.7178	0.6911	1.1977	1.0990	1.0510	1.3637	1.1055	0.9822	0.4588	0.5660	0.4574	0.3762	0.5451	0.4513	0.5343	0.6872	0.4693	0.3882	0.3233	0.3535
3100	2.4757	1.9110	1.7106	1.5520	1.5940	1.7861	1.8498	1.6974	1.1663	1.1577	1.1657	1.1382	1.1944	1.0315	0.7354	0.9293	1.1580	0.8969	0.6343	0.5507
3140	1.9153	1.6733	1.5266	1.3579	1.0507	1.0730	1.1027	0.8109	0.9480	1.0277	0.9377	0.6620	0.5960	0.7747	0.8307	1.1428	1.0576	0.7734	0.4714	0.6380
3220	0.7068	0.4775	0.7222	0.7850	0.8366	0.8359	1.0182	0.7279	0.7027	0.7302	0.4476	0.5540	0.7293	0.5063	0.4269	0.4530	0.2745	0.2508	0.3033	0.3344
3221	1.0574	1.1521	1.4106	1.9070	1.8564	1.6506	1.5606	1.7513	1.2508	1.1816	0.9767	0.5255	0.0570	-.-	-.-	-.-	0.5370	0.6948	0.6461	0.2805
3231	-.-	-.-	-.-	-.-	-.-	-.-	-.-	21.9524	0.8526	1.1952	1.7846	1.2431	24.0395	0.8244	0.6391	0.8936	0.8070	0.5930	0.5776	0.6964
3241	1.8146	1.2424	1.2809	1.1658	1.0706	1.9696	2.7885	2.5688	1.1344	1.2095	1.1795	1.2709	1.1992	0.8228	0.8891	1.2313	1.2114	0.7992	0.5400	0.6952
3250	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.5063	1.1623	2.4640	2.9005	2.2861	1.4177	1.4368
3260	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9909	0.9946	1.7004	1.9030	0.4675
3270	1.6485	2.0301	1.9215	1.1827	1.1766	1.2263	1.3490	1.5970	0.7436	0.8686	0.7632	0.3672	0.6458	0.8759	0.6143	0.8951	1.1143	1.1299	0.8116	0.9757
3272	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6997	1.5474	1.9403	1.5171	2.2906	2.7500	1.7988	1.4710	1.2900
3290	0.6177	0.4551	0.5553	0.8251	0.8510	0.9273	1.1216	0.6313	0.7147	0.6536	0.6176	0.4677	1.3353	0.6936	0.7605	0.7035	0.6220	0.8347	0.7252	0.7891
3310	1.4152	1.2389	1.3013	1.2758	1.1905	0.7867	1.0663	0.8882	0.8553	0.9119	0.7498	0.7476	0.6951	0.8078	0.7211	1.1873	0.9361	1.1374	0.7426	0.9878
3312	1.4852	1.3882	1.6823	1.6241	1.4957	1.4914	2.1055	1.8024	1.1970	1.3628	1.3062	1.5553	0.8710	0.7802	0.8726	1.1644	1.0413	0.8431	0.5627	0.5354
3317	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.7633	2.3201	0.8677	0.8444	0.7977	1.4606	1.2948	1.0915	0.6756	0.5315
3320	1.2864	0.7383	0.7297	0.5884	0.6031	0.5257	0.6633	0.6136	0.6153	0.6071	0.5483	0.3765	0.3921	0.3866	0.5347	0.6880	0.6676	0.5459	0.4242	1.0588
3330	0.7884	0.6884	1.1743	1.2567	0.7569	0.7552	0.7826	0.7694	0.7034	0.8931	0.8303	0.7885	0.7890	0.9031	0.7009	0.8536	0.6973	0.6743	0.5911	0.5416
3334	1.7252	1.0469	1.2207	1.2096	1.1687	1.1115	1.4865	1.1481	0.8626	1.0778	1.1028	1.2140	0.8724	0.7700	0.8189	1.0880	0.9137	1.1089	0.5913	0.6397
3341	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3193	0.1934	0.3786	0.4516	0.5136	0.2902	0.4214	0.3922
3350	2.7472	1.7723	1.9923	0.7318	0.4235	0.2978	0.5186	0.5230	0.4141	0.5887	0.5013	0.7925	0.9044	0.7389	0.7381	1.5953	1.8584	1.5794	0.6049	0.4987
3357	-.-	-.-	-.-	-.-	0.7085	0.2847	0.4690	-.-	0.3677	0.4199	0.1914	0.4269	0.6736	0.6614	0.2963	0.3569	0.3884	0.4827	0.4031	0.3259
3360	1.3475	0.9223	0.8608	1.3917	1.4981	1.1393	1.0622	0.6693	0.7156	1.0390	0.8391	0.8295	1.1687	1.1731	0.9121	0.8269	0.6862	0.6610	0.6666	0.7978
3390	1.6361	1.1944	1.0589	1.2871	0.9960	0.6893	0.7519	0.8103	0.7348	0.9526	0.9002	0.7418	0.8081	0.7717	0.9488	1.0042	1.0843	1.2108	0.8956	0.8496
3411	1.1655	1.2587	0.9488	1.1606	1.3530	1.2771	1.1230	0.7322	0.9556	0.5764	0.5631	0.5616	0.4741	0.6066	0.4741	0.5808	0.5522	0.6013	0.4594	0.5083

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3420	1.0294	0.9801	0.9602	0.9404	0.5688	0.6797	0.6863	0.5268	0.5593	0.5867	0.5693	0.5281	0.5687	0.5804	0.7366	0.8642	0.7353	0.7692	0.4963	0.5029
3430	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6029	1.4833	0.7644	0.6527	0.3607	0.6856
3440	1.0575	0.9076	1.4826	1.3663	1.3070	1.2785	1.0858	1.3382	0.8164	1.0334	0.7262	0.9186	0.8892	0.6413	0.5902	0.8524	0.8089	0.5339	0.5157	0.6071
3442	2.5457	1.2831	0.7914	0.6148	0.7526	0.7465	0.7125	0.6756	0.4695	0.7273	0.8674	0.8927	0.8875	1.0050	0.7619	1.0113	0.7252	0.9754	0.7533	0.8173
3443	1.4389	1.0631	1.1291	0.9788	0.9443	0.8180	1.2039	1.5108	0.9995	1.3493	1.1198	1.2564	0.9220	0.7938	0.6944	0.6685	0.6920	0.5251	0.4982	0.5334
3444	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5721	0.4066	0.6448	0.9409	-.-
3448	1.3611	1.0823	1.0679	1.1396	1.2828	1.1396	1.0347	1.1097	0.8756	0.8882	0.8880	1.0493	0.9458	1.0945	0.8329	1.5421	0.8193	0.6815	0.4818	0.4885
3452	1.7452	1.1788	0.8625	0.9301	0.8209	0.8198	1.4875	1.4681	0.8838	0.9743	0.8467	0.7446	1.0230	0.7956	0.8881	1.2042	1.1139	1.0811	0.7871	0.9166
3460	1.1787	1.0045	0.8278	0.7337	0.6635	0.5293	0.6967	0.7148	0.5553	0.6592	0.7278	0.7280	0.7655	0.7239	0.9639	1.3469	0.8014	0.5952	0.7368	0.4620
3470	1.6248	1.8618	1.6584	1.4023	1.2638	1.1645	0.9813	0.6528	0.8671	0.8463	0.4382	0.4745	0.8907	0.6647	0.4503	0.5316	0.4703	0.5390	0.5884	0.6048
3480	1.4153	1.0956	1.2793	1.3284	0.7064	1.1210	1.0270	1.0263	0.6929	0.8614	0.6170	0.7263	1.1624	0.8521	0.5089	0.5092	0.4235	0.3410	0.3904	0.8407
3490	1.2594	0.9441	1.1473	1.2775	1.1002	0.8968	0.9056	1.0513	0.7749	0.6549	0.6428	0.6964	0.7941	0.5443	0.6386	0.8014	0.6535	0.7128	0.5530	0.4667
3510	1.0237	0.8673	1.2065	1.2538	1.0885	1.1530	1.2670	1.4296	0.8570	0.8847	1.0566	0.9329	0.9029	0.8064	0.6251	0.7278	0.6334	0.3673	0.3764	0.4593
3523	1.6013	1.3910	1.5723	1.5017	1.1933	1.4824	1.3438	1.2712	1.2235	1.1296	1.0784	0.8325	0.9317	0.5978	0.6733	0.9880	0.9532	0.7941	0.3954	0.5397
3524	1.7687	1.4284	2.0219	0.8705	0.8246	1.0049	1.4551	1.1625	0.7631	0.8957	0.9922	0.4128	0.5086	0.5650	0.5974	0.8967	0.9063	0.8139	0.7040	0.7915
3530	2.0622	1.3568	1.0791	1.2919	0.9648	0.6993	1.2925	0.7935	0.7364	0.7966	0.9071	0.9049	0.8549	0.9953	0.8177	2.5687	2.8792	1.5666	0.9865	1.0712
3531	1.4685	0.7870	0.9619	0.8349	0.8590	0.8489	0.7350	1.1268	0.7313	0.9557	0.7752	1.0331	0.7658	0.6374	0.7622	0.8771	0.8521	0.5445	0.4065	0.4571
3533	0.4257	0.5663	0.5321	0.6265	0.6245	0.5193	0.5968	1.3910	0.9847	1.0026	0.8193	1.0259	0.7047	0.7883	0.3544	0.3928	0.4848	0.6644	0.5818	0.6514
3537	1.7368	1.2444	0.9344	0.9844	0.7802	0.8150	0.9621	1.3833	0.6768	0.8360	0.7225	0.7085	0.8774	0.7535	0.6618	1.3140	0.8302	0.6022	0.5641	0.6452
3540	1.0345	0.8258	0.8797	1.1676	0.8518	1.0012	1.4708	1.4958	1.1078	1.2787	1.0224	1.1001	1.1491	1.0656	1.2231	1.7000	1.3263	0.7936	0.5808	0.9941
3541	1.6494	1.1506	1.1078	0.9439	0.7502	0.6602	0.7913	0.8824	0.7090	0.9652	0.9238	0.7862	0.7798	0.6973	0.8797	1.0713	1.0511	0.6035	0.5717	0.5258
3550	1.1661	1.1751	1.2563	1.3862	0.9766	1.2387	1.7678	1.6843	1.3005	0.6325	1.0856	0.7502	0.3899	0.4495	0.4913	0.8283	0.6988	0.7433	0.4900	0.3384
3555	3.7863	2.7773	1.8109	1.0675	1.6906	1.4049	0.1076	-.-	0.1087	0.0653	0.3429	0.3726	0.4194	0.4281	0.3153	0.9085	0.8873	1.0304	0.7719	0.5538
3559	1.7556	1.0868	1.0694	0.7587	0.5856	0.4925	0.6653	0.4835	0.4797	0.4993	0.6288	0.6891	0.6270	0.6282	0.7321	1.0695	0.8974	0.7022	0.6021	0.4625
3560	1.4342	1.2406	1.0628	0.9432	1.0381	0.9964	1.1023	0.9830	0.9478	0.9087	0.9060	0.9311	0.9501	0.7840	0.7743	1.2246	1.0684	0.9411	0.6757	0.5091
3561	1.4543	0.8097	0.8808	0.8253	0.8388	0.7235	0.7430	0.9723	0.6987	0.9884	0.6821	0.7174	0.6751	0.5182	0.6502	0.7230	0.4782	0.3784	0.3827	0.4124
3562	0.8455	0.6664	0.6829	0.7343	0.7516	0.7036	0.8712	0.9693	0.7658	0.9368	1.0438	0.7545	0.8775	0.5293	0.5213	0.8000	0.7024	0.7174	0.4153	0.4634
3564	1.7823	1.1041	0.8015	0.6977	0.6658	0.7110	0.5825	0.5391	0.5535	0.5020	0.5127	0.5544	0.4804	0.4766	0.5987	0.3810	0.4282	0.5027	0.5080	0.5840
3567	1.8877	1.6527	0.8493	1.5364	0.9777	1.2658	0.9872	1.5835	0.9032	0.9844	1.1490	1.7895	1.1603	0.9392	0.7971	1.1772	1.1252	0.9324	0.8894	1.0575
3569	1.2890	0.9703	1.2923	1.6103	0.9264	0.6866	0.9842	0.7131	0.5692	0.6096	0.6711	0.5631	0.6967	0.5153	0.4527	0.3937	0.4209	0.5255	0.4725	0.5075
3570	0.3386	0.2946	0.4051	0.4673	0.4465	0.4848	0.6411	0.6989	0.5304	0.5946	0.7352	0.6333	0.5206	0.5337	0.7163	0.8940	0.8280	1.0070	0.7854	0.8465
3571	1.4623	0.4268	0.4956	0.2265	0.4312	0.3005	0.2580	0.3712	0.2860	0.5727	0.4794	0.4640	0.4065	0.4247	0.5270	0.6326	0.6473	0.7458	0.5378	0.5135

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3572	1.6952	1.0365	0.5659	0.3051	0.3032	0.3864	0.5637	0.4278	0.4258	0.4338	0.4301	0.3597	0.5263	0.6572	0.6355	0.6642	0.5141	0.6244	0.5631	0.6755
3575	6.0596	3.8508	1.9921	1.5406	0.7654	0.4634	0.3606	0.4459	0.6151	0.5541	0.6009	0.8247	1.1826	0.9139	0.9956	0.8588	0.6888	0.4695	0.7230	0.9748
3576	0.1745	0.2867	0.3811	0.4352	0.0936	0.4073	0.4369	0.2514	0.2882	0.3628	0.5488	0.5045	0.6676	0.7474	0.7113	0.8088	0.4748	0.4336	0.4115	0.4958
3577	1.2044	1.3821	1.2300	0.2862	0.3463	0.2532	0.4433	0.3457	0.2884	0.3726	0.4527	0.4176	0.5509	0.4713	0.6109	0.6563	0.5277	0.7038	0.5588	0.4383
3578	1.9312	2.0529	1.7628	1.0916	1.1197	1.0700	0.3937	0.2560	0.3490	0.3344	0.4249	0.5057	0.7197	0.6621	0.8238	1.1764	0.6181	0.6686	0.3513	0.6305
3579	0.5327	0.6396	0.7374	0.7340	0.6861	0.6761	0.9730	0.5985	0.6544	0.6441	0.5728	0.3763	0.4965	0.3792	0.3831	0.4775	0.4015	0.3912	0.4944	0.4594
3580	1.2670	0.9243	0.8344	0.7620	0.7031	0.4528	0.6866	0.5996	0.4923	0.6683	0.5613	0.5344	0.5152	0.5428	0.4549	0.7301	0.5418	0.4202	0.3745	0.3107
3585	2.0294	1.2614	1.0991	1.1022	0.8404	0.9399	1.0991	0.9308	0.6959	0.9512	0.7960	0.7858	0.7839	0.7761	0.7637	1.0552	0.8139	0.7964	0.6092	0.5689
3590	1.6879	1.5751	1.4031	1.0629	1.0226	1.0887	0.9663	1.0943	0.8006	0.9018	1.0743	1.0161	0.8002	0.8554	0.8442	1.1242	1.2791	1.1615	1.0080	0.8743
3600	0.7834	1.0576	1.3972	0.8170	0.8827	0.7629	0.6973	0.5477	0.7066	0.8805	1.0583	1.1115	1.3020	0.8939	0.8412	1.1354	1.1634	1.2777	0.8991	0.7376
3612	1.4435	1.3565	1.4600	1.2449	1.4469	1.5054	1.2759	1.1565	0.9297	0.7483	0.9115	0.7135	1.2043	1.0976	0.6183	0.8063	0.5756	0.6907	0.5116	0.6531
3613	-.-	-.-	0.5543	0.6094	0.4050	0.2271	0.5194	0.6491	0.7537	0.9574	1.0091	1.1860	1.4384	2.0963	0.5149	0.3628	0.3750	0.5171	0.6130	0.8929
3620	2.6832	1.9192	1.4691	1.2475	1.6616	1.1697	0.8139	0.8395	0.6789	0.7321	0.7326	0.7537	0.7298	0.5895	0.6893	0.7840	0.7643	0.5171	0.4303	0.4132
3621	1.4133	0.8981	0.5965	0.6175	0.4463	0.3742	0.3960	0.4269	0.4514	0.6391	0.6990	0.7470	0.7235	0.5744	0.4340	0.7781	0.5249	0.3338	0.3057	0.3078
3630	0.3650	0.3751	0.5230	0.6835	0.7427	0.8006	0.6995	0.4646	0.4319	0.5105	0.4546	0.4070	0.5076	0.5541	0.5383	0.8878	0.4623	0.3287	0.3223	0.4594
3634	1.2956	1.0608	1.3499	1.3498	0.8864	0.6715	0.8806	0.7393	0.6990	0.8641	0.8182	0.6335	0.7423	0.4984	0.9158	2.6958	1.8572	0.6962	0.8489	1.0373
3640	0.8111	0.7435	0.8128	0.8406	0.8008	0.6822	0.8140	0.7653	0.5481	0.5988	0.5907	0.5392	0.4604	0.5333	0.5027	0.5868	0.7049	0.5660	0.5056	0.5025
3651	0.5989	0.5166	0.9846	0.7469	0.7743	0.5812	0.4578	0.7153	0.4813	0.6085	0.6978	0.5919	0.4904	0.4793	0.5447	0.6572	0.8533	0.8505	0.5470	0.4273
3652	1.1740	1.2499	1.3125	1.7890	2.4967	0.6813	0.4781	0.5004	0.3252	0.4671	0.4687	0.3044	0.3019	0.3910	0.5401	0.5801	0.5918	0.4078	0.1466	0.0853
3661	0.9158	1.4367	0.6673	0.6204	0.5391	0.3839	0.4244	0.3290	0.4006	0.5797	0.5342	0.7174	0.8101	0.7139	0.5466	0.6250	0.5614	0.4737	0.3529	0.3392
3663	0.8580	0.7124	0.7827	0.7144	0.6302	0.5082	0.4481	0.5365	0.4037	0.6872	0.7135	0.7060	0.7110	0.8095	0.7988	1.0159	0.8479	0.6266	0.5182	0.3979
3669	0.5001	0.5680	0.7748	0.7902	0.5216	0.4770	0.6896	0.6386	0.5845	0.6708	0.5776	0.5498	0.6072	0.5092	0.4638	0.6173	0.5394	0.5703	0.4619	0.4551
3670	1.5028	0.9433	1.0666	0.6921	0.7859	0.7136	0.7616	0.7960	0.4806	0.6486	0.5912	0.4876	0.8587	0.9481	0.9937	1.3358	1.1830	0.9232	0.5955	0.7376
3672	1.4324	1.3250	1.3155	0.9799	0.6620	0.6321	0.5602	0.6090	0.3166	0.4803	0.5930	0.7264	0.6594	0.6821	0.9885	0.8571	0.5124	0.5932	0.3899	0.4536
3674	1.0247	0.8992	0.7234	0.6154	0.4688	0.4469	0.4955	0.3964	0.2628	0.4267	0.4564	0.5601	0.5451	0.6406	0.7431	0.7769	0.6085	0.4573	0.3704	0.3807
3677	-.-	0.3476	0.4145	0.3217	0.3449	0.4133	0.4948	0.3158	0.4573	0.3944	0.4342	0.2922	0.4943	0.7739	0.9054	1.5528	0.5960	0.8701	1.2160	1.2676
3678	0.9671	0.9489	0.7411	0.6684	0.4515	0.4979	0.3613	0.4412	0.2141	0.2779	0.2721	0.4051	0.3153	0.7028	0.7490	0.6636	0.6648	0.4602	0.3472	0.3648
3679	1.2402	1.1501	0.9181	0.5197	0.6687	0.4873	0.6090	0.4507	0.3547	0.5468	0.6311	0.6416	0.7056	0.7786	0.8960	1.1546	0.9865	0.9023	0.7273	0.5935
3690	1.3898	1.4371	1.2277	1.0376	0.9892	0.7543	0.5908	0.4580	0.3613	0.5121	0.4878	0.5194	0.6819	0.6664	0.7329	0.8340	0.6730	0.8721	0.5920	0.7576
3695	-.-	-.-	-.-	-.-	-.-	0.2993	0.4110	0.2914	0.3651	0.4160	0.4997	0.5073	0.4760	0.5507	0.5443	0.5839	0.7165	0.7283	0.6618	0.5536
3711	1.9123	1.8484	2.0891	1.9236	2.3180	1.3062	1.0364	0.7761	0.7564	0.8484	0.7926	0.6564	0.8753	0.9381	0.9715	1.6010	1.2471	0.7402	0.5351	0.6808
3713	-.-	-.-	-.-	-.-	-.-	-.-	0.5237	1.3058	0.8362	1.1362	0.5103	0.6766	1.1401	1.6957	2.6907	8.0038	4.4190	0.3288	0.3463	0.4494

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3714	1.2614	0.9958	1.0807	1.2130	1.2649	1.1460	1.1483	0.8595	0.6121	0.7282	0.6281	0.5679	0.6735	0.6417	0.6584	0.9294	0.7429	0.4574	0.3649	0.4643
3715	1.6538	1.8808	1.5476	1.7471	2.2346	3.5520	5.3709	2.9705	-.-	-.-	0.5640	0.6755	0.5482	0.6918	0.4833	1.2529	0.3828	0.2250	0.2219	0.2088
3716	0.4800	0.5704	0.8376	1.0836	1.7144	0.9210	0.7563	0.3931	0.3512	0.5381	0.5276	0.5552	0.5897	0.6706	0.7085	1.1656	0.7886	0.5578	0.5158	0.4868
3720	2.3382	2.4870	2.7554	1.4262	1.7204	2.2430	3.3100	4.4815	4.3892	5.8569	9.9565	15.3277	31.9286	38.2580	46.7625	52.9913	64.1356	60.5297	78.8901	88.5272
3721	1.5358	1.0832	1.0273	0.9694	0.7307	0.5586	0.6487	0.4325	0.4397	0.5855	0.4797	0.6086	0.9690	1.0116	1.0172	1.1512	0.9354	0.6425	0.7197	0.6146
3724	1.3063	0.9320	1.0436	1.0035	0.9379	0.9176	1.0496	1.1191	0.7766	0.7343	0.7020	0.6775	1.0493	0.9817	0.8033	1.1212	1.1667	1.2364	0.8967	1.0612
3728	1.8687	0.8983	0.8230	0.6943	0.5007	0.3937	0.6091	0.7156	0.5948	0.6746	0.5378	0.6050	0.5211	0.5036	0.4739	0.5974	0.4517	0.3643	0.4268	0.7071
3730	0.9550	0.8611	0.9722	0.6806	0.6999	0.5707	0.9115	0.7808	0.6603	0.9307	1.0863	0.8718	0.7833	0.7045	0.6722	0.8245	0.8789	0.8138	0.6896	0.6641
3743	0.7562	0.6945	0.9134	0.7709	0.5543	0.4131	0.8621	0.6356	0.5589	0.7998	0.7485	0.5689	0.5992	0.5146	0.7316	0.9686	0.7614	0.4965	0.4346	0.5031
3751	2.4475	1.5167	1.2752	0.9562	0.8259	0.9143	0.7459	0.9306	0.7222	1.0745	1.0524	0.7635	0.7363	0.5552	0.4864	0.6510	0.4349	0.2548	0.1938	0.5770
3760	1.2945	1.0332	1.0225	1.0626	1.1860	1.1063	1.0444	1.0110	0.7129	0.7127	0.6204	0.5679	0.4813	0.6345	0.6801	0.9504	0.6630	0.6318	0.4292	0.4841
3790	1.6200	1.3634	1.0784	1.5447	1.9512	1.8088	1.0865	1.1025	0.8524	0.9158	0.9037	0.9742	0.9028	0.9251	0.9866	0.6542	0.4517	0.2942	0.4346	0.8667
3812	1.4445	1.3378	1.2751	1.0685	0.7208	0.4294	0.5157	0.3311	0.3675	0.5655	0.4617	0.4397	0.5863	0.5974	0.8448	1.2115	0.9848	0.9155	0.8906	0.6643
3821	1.1226	1.1431	1.1045	0.3953	0.4313	0.4190	0.4566	0.7437	0.4254	0.7119	0.5766	0.5202	0.5747	0.7070	0.7802	0.9939	1.1233	1.2503	1.1289	0.5931
3822	1.4912	1.1036	1.2750	0.9308	0.8875	0.7520	1.2956	1.1046	0.7595	0.8058	0.7565	0.8232	0.9800	0.6719	0.5528	0.5387	0.4070	0.3940	0.3935	0.4627
3823	1.0852	1.0315	0.7162	0.6403	0.6008	0.3851	0.5672	0.6441	0.5766	0.7638	0.6746	0.4930	0.5927	0.4089	0.5182	0.8735	0.8071	0.7563	0.6655	0.5604
3824	2.1705	1.5319	1.3961	1.4029	1.2879	1.5658	2.1639	1.8337	1.4057	0.9125	0.7710	0.6813	0.7984	0.5557	0.8547	1.1942	0.9879	0.6267	0.5506	0.5369
3825	1.0830	0.5916	0.5569	0.4200	0.4334	0.4167	0.4447	0.3261	0.2955	0.4807	0.5551	0.6671	0.5722	0.7430	0.8926	1.1724	0.8649	0.9302	0.7563	0.6923
3826	0.4643	0.4897	0.5672	0.4648	0.3230	0.3421	0.5622	0.6503	0.3738	0.4053	0.4509	0.4104	0.3985	0.4308	0.5161	0.4322	0.4239	0.4594	0.4141	0.4355
3827	1.3724	1.3244	0.9484	1.6560	1.2390	1.1170	0.5876	0.4236	0.4293	0.4213	0.4828	0.3730	0.5022	0.9499	0.6910	1.1199	0.7099	0.6572	0.7505	0.9183
3829	2.1974	1.3409	0.8769	0.6934	0.5401	0.6657	0.9071	0.7137	0.5323	0.6711	0.5229	0.4919	0.5237	0.5144	0.6013	0.7230	0.7733	0.5960	0.6224	0.6606
3841	0.2961	0.3313	0.4099	0.4480	0.4447	0.3453	0.3306	0.3110	0.2469	0.5010	0.4440	0.3701	0.3224	0.3512	0.2769	0.2709	0.2049	0.2503	0.2912	0.3261
3842	1.2721	1.4036	0.9103	0.7759	0.6281	0.5790	0.7241	0.3007	0.3531	0.7431	0.5589	0.3594	0.4684	0.4743	0.4982	0.4271	0.3186	0.3275	0.3937	0.4387
3843	0.5818	0.6982	0.8667	0.8380	0.9866	0.7586	0.6714	0.6872	0.5212	0.9180	0.6362	1.0530	0.4189	0.6669	0.8335	0.8274	0.9162	0.6051	0.5087	0.2209
3844	0.3179	0.3981	0.4359	0.5396	0.5033	0.3121	0.5769	0.3634	0.4497	0.5948	0.3645	0.3977	0.7105	0.5014	0.3164	0.9600	0.4271	0.2931	0.3428	0.5556
3845	0.3523	0.3274	0.3919	0.4664	0.3778	0.2763	0.2585	0.2651	0.2527	0.5622	0.4777	0.3465	0.3816	0.3802	0.3280	0.3127	0.2957	0.3000	0.3901	0.5329
3851	0.6621	0.7742	0.5908	0.7542	0.4574	0.3352	0.3805	0.4589	0.4095	0.4386	0.3945	0.4076	0.8386	0.5022	0.4868	0.3929	0.2375	0.2772	0.1537	0.4576
3861	0.4711	0.3810	0.6552	0.5711	0.6940	0.5354	0.5858	0.5298	0.6840	0.8199	0.6887	0.5579	0.7161	0.5478	0.6717	0.7931	0.6825	0.5268	0.4566	0.5535
3910	2.2724	1.3992	1.4163	0.9896	0.8396	0.5497	0.7618	0.7945	0.5812	0.7828	0.8839	0.8322	0.6761	0.5278	0.7235	1.1138	0.7332	0.5505	0.5822	0.6756
3911	1.2347	0.7974	0.9812	0.9538	1.1963	1.4302	1.5452	1.7646	1.5648	1.3183	0.6934	0.5698	0.4167	0.6520	0.7922	0.8372	0.6114	0.7439	0.8474	0.8169
3931	2.6192	1.6654	1.3476	1.3611	1.4716	1.7024	1.4244	1.3133	0.7012	0.7607	0.5303	0.5960	0.8316	0.8300	0.8464	1.2945	1.1704	0.9736	1.1207	1.2430
3942	-.-	0.7293	0.8135	1.0425	1.0579	0.9519	0.8473	0.8390	-.-	0.2695	0.3191	0.3365	0.4184	0.4550	0.5222	0.5866	0.4484	0.4043	0.4510	0.4907

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3944	2.6016	1.4606	1.5719	1.4492	1.9757	1.6748	1.4307	0.9813	0.9856	0.7632	0.4967	0.5107	0.8604	0.7856	0.6783	1.1223	0.7115	0.6875	0.9423	0.6442
3949	2.4367	1.4515	1.8842	1.7439	1.1294	1.3022	1.6679	1.3649	0.6604	0.8226	0.7638	0.5432	0.8865	0.6978	0.6121	1.2097	0.8451	0.8026	0.5220	0.5225
3950	0.9066	0.8460	0.8625	0.8842	0.8563	0.5922	0.8058	0.8272	0.8026	0.5751	0.3562	0.3566	0.3640	0.3780	0.3575	0.6419	0.4898	0.4699	0.4929	0.5314
3960	2.2176	1.7486	1.2341	0.9247	1.1422	0.9596	1.6303	1.7640	1.4195	1.6726	0.7465	0.5578	0.8732	0.9484	0.8519	0.5685	0.2861	-.-	0.2441	0.1826
3990	3.3891	2.6781	2.6058	1.2968	1.1677	1.0860	0.6293	0.7186	0.6652	0.5909	0.9240	0.5537	0.4095	0.3474	0.3576	0.4868	0.4260	0.5050	0.4035	0.4072
4011	2.2713	1.8094	1.9343	1.6186	1.4496	1.0659	1.0673	1.0812	1.0227	1.1883	0.9306	0.9509	0.9542	0.8646	0.7610	0.9064	0.5370	0.4507	0.3729	0.5117
4100	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0611	0.7264	0.5648	-.-	0.4561	0.2953	0.6046	0.7697
4210	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6260	0.2831	0.2283	0.2100	0.2045
4213	1.0605	0.8656	1.1749	1.3628	1.3051	1.0481	0.9560	0.7395	0.4829	0.6201	0.5658	0.4997	0.6602	0.7175	0.5773	1.0373	0.7948	0.6311	0.5417	0.6919
4400	1.3522	0.9375	0.9167	1.1873	1.0250	1.0111	0.8542	1.0846	0.7737	0.8316	1.2792	1.3049	1.1349	0.8107	0.5370	0.8931	0.8452	0.7906	0.5937	0.6056
4412	1.5534	0.8452	0.9770	1.2492	1.5653	0.8039	1.3718	2.0898	1.6150	2.1634	1.3101	1.3995	1.4332	0.9411	0.9230	1.2456	1.0687	1.3118	0.9946	0.9283
4512	0.8422	0.9750	1.2694	1.2880	1.6121	1.2635	1.2536	0.6908	0.5505	0.6967	0.6574	0.6467	0.7873	0.8328	0.7842	0.7953	0.5882	0.3427	0.3660	0.5648
4513	0.4459	0.3291	0.3480	0.4128	0.3670	0.3287	0.6589	0.4706	0.4375	0.5556	0.5347	0.4232	0.9129	0.7273	0.6364	0.8091	0.6848	0.7211	0.4741	0.9023
4522	1.8728	1.6201	1.7951	1.5510	1.7753	1.3736	1.2586	0.9729	1.4884	0.6884	0.3953	0.1072	0.4148	0.5790	0.3788	0.2985	0.5825	0.7167	0.5279	0.5903
4581	1.2705	0.9917	0.9693	1.1289	1.1506	1.5233	1.2121	1.5036	0.9510	0.9248	0.6949	0.6269	0.6196	0.6447	0.3555	0.5257	0.5520	0.7152	0.8313	0.9994
4610	0.6232	0.5480	0.5827	0.5426	0.5061	0.6216	0.7202	0.4806	0.5910	0.5453	0.4821	0.7839	0.7958	0.8033	0.7868	1.0260	0.9705	0.8449	0.7162	0.7291
4700	1.2287	1.0016	1.2076	1.3742	1.1369	0.6416	0.9554	1.1045	0.4474	0.8966	0.7485	0.6642	0.6506	0.5316	0.8731	1.5152	0.8406	0.6813	0.5453	0.6322
4731	0.4364	0.4611	0.5853	0.3974	0.4646	0.3240	0.3247	0.5949	0.4207	0.3628	0.2866	0.3106	0.7368	0.5291	0.5397	0.6629	0.3982	0.4614	0.4064	0.4420
4812	1.2491	0.8307	0.7176	0.5804	0.5079	0.3811	0.3867	0.2079	0.2420	0.2932	0.2544	0.2615	0.1645	0.1163	0.0902	0.1650	0.2052	0.1520	0.3305	0.3448
4813	1.2006	1.1084	1.0275	1.0026	1.0353	1.0738	1.0522	0.9131	0.8339	0.9042	0.7146	0.6415	0.6843	0.5814	0.3915	0.4476	0.4597	0.4327	0.3183	0.4219
4822	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9525	0.0895	-.-
4832	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1631	0.1889	0.2934	0.3297	0.2938	0.0424	0.0446	0.2394	0.1608	0.2295	0.1493
4833	0.7569	0.6875	0.5692	0.5770	0.6026	0.5694	0.7174	0.5203	0.4204	0.3521	0.3047	0.3097	0.3623	0.4509	0.4374	0.6020	0.2045	0.2015	0.2750	0.3265
4841	1.2213	0.9630	0.5712	0.4766	0.2352	0.2045	0.3800	0.3116	0.3595	0.3238	0.2394	0.3202	0.2539	0.2753	0.3229	0.4529	0.2070	0.1693	0.1968	0.2401
4899	1.4434	1.2830	1.4919	1.1851	1.2931	1.0794	0.8607	0.7661	0.9619	1.2800	0.8341	1.0052	1.1166	0.7930	0.4895	0.7310	0.5695	0.4975	0.5677	0.6763
4911	1.0900	0.9791	1.0108	1.1253	1.2290	1.2679	1.2285	1.0542	1.0893	1.0218	0.8895	0.7653	0.8927	0.8515	0.7622	0.8290	0.7014	0.6692	0.6680	0.8416
4922	1.6396	1.0597	1.2536	1.2773	0.8085	0.6226	0.8781	1.3041	0.9977	1.0472	0.9970	0.8802	1.0792	0.8704	0.5426	0.6637	0.7760	0.7320	0.5844	0.6433
4923	0.9430	0.8341	0.8475	1.0122	0.8909	0.7073	0.8422	1.0134	0.8437	0.8120	0.7338	0.7155	0.7391	0.7258	0.6125	0.6658	0.6829	0.6104	0.5707	0.7184
4924	1.2194	1.0822	1.0801	1.2053	1.1626	1.2354	1.2706	1.1905	1.1152	0.9380	0.8339	0.6815	0.7513	0.7769	0.6912	0.7258	0.6714	0.6231	0.5485	0.6795
4931	1.0820	0.9788	1.0031	1.1213	1.2031	1.2863	1.2206	1.0437	1.0336	0.9963	0.8708	0.7270	0.8328	0.8155	0.7308	0.7905	0.7016	0.6802	0.6720	0.8277
4932	1.4009	1.1472	1.0825	1.3764	1.0529	0.9538	1.1600	1.2882	1.3156	1.0816	0.9319	0.8030	0.8372	0.7858	0.6808	0.7486	0.6474	0.6190	0.5524	0.7166
4941	1.4633	1.1961	1.1619	1.2539	1.2632	1.3643	1.3359	1.1128	0.9764	0.9189	0.6556	0.6260	0.7246	0.7320	0.7409	0.8156	0.6895	0.6608	0.6666	0.7378

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
4950	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1120	0.2418	0.1636	0.2248	0.3699	0.4416	0.5873	0.4880
4953	1.3064	0.9429	0.7637	0.5929	0.5594	0.3774	0.4128	0.2803	0.3453	0.5382	0.3416	0.2642	0.2339	0.3103	0.3153	0.2475	0.3763	0.3909	0.5012	0.4855
4955	-.-	-.-	-.-	-.-	1.3074	1.8455	0.7130	0.4370	0.3226	0.4696	0.2496	0.2108	0.4174	0.3311	0.4485	0.3814	0.4782	0.5019	0.6517	0.5862
4961	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4900
4991	0.7976	0.9380	0.8750	0.9323	1.1142	0.8705	0.6687	0.4083	0.4091	0.6033	0.4075	1.0515	0.5992	0.1714	0.2877	0.3204	0.3574	0.3460	0.3798	0.4854
5000	0.4003	0.3844	0.4255	0.4785	0.4851	0.5982	0.6359	0.4881	0.4649	0.5604	0.4670	0.4631	0.3570	0.4341	0.4163	0.4541	0.2997	0.2963	0.3232	0.3524
5010	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6245	0.6978	0.7185	0.4434	0.5535	0.6103	0.7339	1.4002	1.8906	0.6594	0.3469	0.5451
5013	0.7561	0.6228	0.6816	0.7906	0.9439	1.0369	0.7544	0.7547	0.5114	0.7301	0.3595	0.7531	1.1083	0.8701	0.9796	1.8842	1.0087	1.0845	0.8940	0.8995
5020	3.1366	1.5680	1.6305	2.4297	2.5645	2.9587	1.9084	2.9286	0.3413	0.3839	0.5626	0.5648	0.8658	1.1514	1.6827	1.1874	0.8399	1.1552	1.3414	1.2163
5030	0.6797	0.7988	1.1477	1.3702	1.5440	1.6324	1.9771	0.7979	1.2058	1.0288	0.9501	0.9580	1.3366	0.8174	0.9438	0.8700	0.8662	1.0759	0.7819	0.7249
5031	-.-	-.-	-.-	2.1556	3.3220	2.6478	1.9539	1.1961	0.9213	1.3327	0.6174	0.8081	0.8736	0.9213	1.4084	2.1380	1.8671	1.1353	0.6593	1.0250
5040	1.6370	1.2675	1.1732	1.5351	1.0770	0.6193	-.-	-.-	-.-	-.-	-.-	-.-	0.5949	0.8590	0.9467	1.2371	0.7370	0.2146	0.3169	0.5293
5045	2.5884	1.2663	0.9755	0.7781	0.2143	0.4178	0.4812	0.7958	0.5876	0.7151	0.6370	0.6328	0.6679	0.5997	0.6664	1.3924	0.7765	1.0915	0.5640	0.6642
5047	1.1991	1.3127	1.2951	1.6701	1.1146	0.9332	0.8105	0.3445	0.7335	0.8570	0.6085	0.6284	0.9191	0.8815	0.8574	0.7950	0.3880	0.4174	0.4499	1.0296
5051	1.9895	1.6879	1.6631	1.7485	1.5458	1.3697	1.2490	1.3955	0.9688	0.9938	0.7895	0.7665	0.8868	0.7455	0.8290	1.0215	0.8459	0.8560	0.6786	0.8273
5063	1.5492	1.3461	1.1488	1.0011	1.0749	1.2660	1.5366	1.0339	0.8104	0.8692	0.7226	0.7524	0.6838	0.8015	0.7194	1.2510	1.1600	0.7697	0.6544	0.5338
5065	1.5827	1.4074	1.4083	1.1464	0.8630	0.6555	0.6921	0.5249	0.3741	0.6898	0.5902	0.6577	0.7468	0.7801	0.8801	0.9163	0.8146	0.6861	0.5356	0.7687
5070	1.2065	0.9419	1.1288	1.0186	1.4335	2.2947	1.7880	1.7707	0.5057	0.5825	0.6857	0.6753	0.8543	0.9756	0.7493	0.6464	1.0385	0.7780	0.7996	1.1206
5072	6.9808	2.7285	1.9100	2.5953	2.4417	1.9229	1.5818	0.6928	0.4776	0.7682	1.0727	0.7542	1.0899	0.8590	0.8830	0.8789	0.7869	0.4769	0.5307	0.5857
5080	1.3572	1.2866	1.3120	1.2068	1.0630	1.0272	1.1577	0.8415	0.6922	0.7721	0.4865	0.5607	0.6896	0.6135	0.6826	0.8565	0.9048	0.9552	0.8431	0.5143
5082	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6098	0.8111	0.5375	0.4852	1.0665	2.5215	-.-	0.4019	1.9731	0.4848	0.3721
5084	-.-	-.-	-.-	-.-	-.-	7.7838	6.9607	5.9603	-.-	1.3564	1.2428	1.9715	1.7437	2.1166	1.7845	1.7245	0.8640	0.5291	0.5241	0.5431
5090	2.4336	2.5318	2.5327	2.7996	4.1325	2.6954	2.6318	1.6375	0.7595	0.3984	0.5337	1.0107	1.1032	1.1822	0.4998	0.8739	0.9790	0.8182	0.7443	0.8181
5094	2.0285	1.5351	1.1862	1.2508	1.1587	0.6249	0.7737	0.2057	0.5510	0.5426	0.2704	0.2209	0.2989	0.4994	0.4418	1.0779	0.5262	0.5099	0.4129	0.1326
5099	1.4113	1.5951	0.8696	0.8580	1.4349	0.8536	1.0577	0.5224	0.4126	0.2806	0.2300	0.3893	0.3984	0.2874	0.4805	0.5248	0.5807	0.6103	0.5142	0.4589
5110	2.4983	2.9657	4.2159	5.1252	7.1415	5.8621	4.1924	0.7945	0.5140	0.6882	0.6465	0.5535	0.4891	0.5153	0.4997	0.8896	0.8427	0.7247	0.7079	0.8872
5122	1.0809	1.1455	1.1502	0.9895	0.9231	0.9497	0.8986	0.8681	0.5319	0.6231	0.4106	0.5545	0.6943	0.7169	0.7359	0.6482	0.5455	0.5440	0.6553	0.5811
5130	-.-	-.-	-.-	-.-	1.4556	1.7484	1.9225	2.2743	1.4440	1.6103	1.4834	1.1072	1.0712	1.4441	1.0091	1.9758	1.2598	0.4052	0.0598	0.1355
5140	1.0843	1.0327	1.1387	1.0994	1.2009	1.0396	1.2648	0.8438	0.7764	0.7214	0.5514	0.4801	0.5657	0.5637	0.4991	0.6330	0.5544	0.6025	0.5297	0.4428
5141	0.8408	0.7790	0.8365	0.9565	0.9672	0.7433	0.8033	0.5754	0.5102	0.5193	0.5289	0.6161	0.7186	0.6226	0.7742	0.7228	0.7856	0.9173	1.1598	1.2377
5150	1.5365	1.0748	1.2324	1.4272	1.5867	2.0191	1.5283	0.9953	0.6938	1.1250	0.7881	0.7342	0.6405	0.8777	0.6362	0.8293	0.5489	0.3514	0.4763	0.5649
5160	0.6590	0.7331	0.5821	0.7562	0.7914	0.7864	0.6384	0.6316	0.4722	0.6346	0.3803	0.4785	0.5339	0.5177	0.6144	0.6017	0.7050	0.5021	0.4589	0.5660

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
5171	2.0294	1.1328	1.2107	1.2134	0.8182	0.6139	0.7053	0.8354	0.4091	0.2004	0.1871	0.3244	0.5344	0.5249	0.4863	0.5387	0.4394	0.6173	0.4356	0.6408
5172	1.9350	1.8373	1.5994	1.2237	0.8023	0.7387	0.7615	1.4480	1.0276	1.1067	1.1825	1.2371	0.9451	0.9111	0.7069	0.7482	0.9613	0.7037	0.6489	0.6627
5190	1.8425	1.2111	1.6239	1.2952	1.3114	0.9654	1.1421	0.8892	1.2252	1.4463	0.8012	0.7482	0.4451	0.4324	0.9895	1.3399	0.5274	0.5542	0.4366	0.4715
5200	1.9526	1.3028	1.5893	1.4034	1.0865	1.1108	1.2418	0.8097	0.7236	0.7862	0.6356	0.6587	0.6297	0.6461	0.4223	1.1135	0.5872	0.5415	0.6046	0.6846
5211	0.7985	0.6776	0.6249	0.6416	0.6088	0.6534	0.4989	0.2659	0.3236	0.3394	0.3855	0.4182	0.6048	0.6117	0.7663	0.8596	0.6255	0.5512	0.5011	0.8279
5311	0.8001	0.8887	1.1200	1.1426	1.3741	1.5988	1.3743	0.8762	0.8584	0.7405	0.5649	0.4824	0.5819	0.5762	0.6887	0.9271	0.5367	0.5416	0.6533	0.8229
5331	0.7573	0.7869	0.7559	0.6434	0.8323	0.8385	0.8598	0.4478	0.3494	0.3933	0.2836	0.4915	0.6300	0.5147	0.6214	0.6245	0.4579	0.4796	0.5763	0.8465
5399	0.5514	0.4170	0.4397	0.3924	0.5889	0.8788	0.7087	0.5351	0.4831	0.6967	0.8503	1.0770	1.9667	0.9817	1.5497	1.2515	1.1244	0.7854	0.7031	1.4576
5411	1.3068	1.3018	1.3552	1.2563	1.4724	1.3696	1.2656	0.7558	0.6480	0.7121	0.6458	0.5232	0.5450	0.4895	0.4219	0.5125	0.5313	0.5553	0.6009	0.7267
5412	1.7546	1.0104	1.0624	0.7075	0.5466	0.5937	0.4805	0.4311	0.4151	0.3700	0.4074	0.3468	0.4922	0.5376	0.6599	0.8976	0.9680	1.0924	0.7744	1.0207
5500	0.9529	1.1071	1.3262	1.5028	0.9962	1.2319	1.2473	1.2600	0.7248	0.5700	0.4759	0.5111	0.9417	0.9552	1.2434	2.5774	2.9248	1.6327	1.1384	0.9139
5531	1.3154	1.9432	1.8297	1.9074	1.8662	1.4617	1.4217	0.9426	0.6064	0.5917	0.6435	0.6586	1.1499	1.0284	1.0507	1.3696	0.5167	0.3663	0.5187	0.6888
5600	1.0714	0.8074	0.9613	0.8324	1.2019	1.0650	0.9195	1.1439	0.5484	0.6338	0.6295	0.6362	0.7665	0.6184	0.4134	0.4736	0.4644	0.4640	0.5857	0.8633
5621	1.0743	0.7822	0.7188	0.6515	0.9072	0.8421	0.4729	0.4756	0.2599	0.3040	0.2671	0.2122	0.4879	0.4420	0.5859	0.8570	0.4123	0.5338	0.5473	0.7389
5651	1.7457	0.6062	0.7391	0.8214	1.2413	0.9777	1.0810	0.5757	0.2933	0.4403	0.3388	0.4271	0.6170	0.5342	0.3774	0.5598	0.3142	0.2777	0.4062	0.5269
5661	2.2311	1.8982	1.1600	1.1161	1.1263	1.2052	1.4265	1.0276	0.7172	0.7677	0.6405	0.5280	0.6446	0.5311	0.5562	1.3836	0.8411	0.5957	0.6125	1.0928
5700	2.3141	2.0187	1.4872	1.6880	1.6351	1.0719	1.1949	1.0785	0.4069	0.6479	0.3428	0.2100	0.3843	0.3612	0.5139	0.9398	0.4819	0.5147	0.4152	0.6055
5712	1.2543	1.7333	1.4748	1.3321	1.9929	1.2884	1.5249	0.7440	0.6283	0.5970	0.7386	0.5779	0.7066	1.0103	0.7368	0.6669	0.4748	0.5973	0.2947	0.4276
5731	1.2904	1.4617	1.3541	1.2137	0.7849	0.6760	1.4404	0.5203	0.8724	0.3429	0.3356	0.5975	0.8520	0.6908	0.6556	0.6560	0.5031	0.7170	0.4576	0.6034
5734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4194	0.1972	0.2983	0.8916
5735	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5386	0.3191	7.0940	7.0721	7.0530	0.6454	0.4542	1.1040
5812	0.5811	0.5512	0.4985	0.5703	0.6270	0.5892	0.6468	0.4573	0.3631	0.4035	0.3473	0.3498	0.4681	0.4540	0.3808	0.5736	0.4024	0.3659	0.3686	0.4926
5900	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5479	0.8926	0.4591	0.5016	0.4378	0.5020	0.6261	0.6502
5912	0.4438	0.6315	0.6191	0.6833	0.6808	0.5623	0.6447	0.4481	0.3680	0.3890	0.4389	0.4692	0.4405	0.4321	0.5446	0.5676	0.5096	0.6053	0.5431	0.4848
5940	0.5241	0.8980	1.0312	1.3502	1.7973	1.3822	1.0127	0.4213	0.6388	0.6793	0.8004	0.8288	0.9972	0.7475	0.8462	0.5531	0.4817	0.9634	0.7241	0.5651
5944	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3524	0.2409	0.2141	0.2920	0.2867	0.4354	0.6021	0.4847
5945	-.-	0.5625	4.2902	0.6487	1.1937	0.8470	0.7013	0.7478	0.5071	0.7263	0.7142	0.5885	0.6683	0.6577	0.6458	0.5519	0.7225	0.6056	0.3159	0.4719
5960	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4088	0.4143	0.3213
5961	0.7522	0.8294	0.5960	0.6652	0.7029	0.4150	0.5638	0.5021	0.3983	0.6535	0.7063	0.2743	0.4096	0.3481	0.3994	0.4802	0.3455	0.4925	0.3309	0.5392
5990	1.5094	1.0572	0.8283	0.8007	0.8764	0.7703	0.7232	0.4584	0.4616	-.-	-.-	0.5094	0.6062	0.6063	0.6181	0.5654	0.3431	0.6218	0.4001	0.5316
6021	1.6277	1.2633	1.3769	1.3609	1.4367	1.4224	1.3611	1.3109	1.0392	0.9759	0.7700	0.7618	0.9187	0.8659	0.8259	1.1291	0.8353	0.6635	0.7154	0.7423
6022	1.5046	1.1411	1.2583	1.3011	1.5222	1.5159	1.2687	1.2841	1.0503	1.0344	0.7181	0.6744	0.8034	0.7964	0.7926	1.1109	0.8305	0.6435	0.7841	0.7909

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6029	-,-	-,-	-,-	-,-	-,-	-,-	-,-	182.3569	3.7955	5.2500	7.2592	1.0385	0.7480	0.6808	0.7369	0.9012	0.8797	0.8535	0.5429	0.6369
6035	2.0642	1.3586	1.4613	1.6056	1.2933	1.3026	1.8258	0.8731	0.9702	1.0952	0.9172	0.9553	1.7154	1.7779	1.4960	1.9738	1.3820	1.1929	1.0957	1.0979
6036	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.8290	0.8526	0.9138	1.1652	1.0225	1.5978	2.6460	1.2539	1.0326	1.1304	1.1062
6099	1.5105	0.8747	1.5965	1.8450	1.0764	0.6855	1.4641	1.0102	0.7472	0.6862	0.9154	0.7412	0.6483	0.4560	0.4589	0.5394	0.7090	0.4141	0.2852	0.4829
6111	1.1982	1.1598	1.4643	1.4948	1.5860	2.0761	2.4745	0.7505	0.6179	0.8115	0.5459	0.5300	0.7542	0.5661	0.3696	0.4643	0.2945	0.2895	0.4131	0.5409
6141	1.2555	1.0264	1.3048	1.3673	1.3210	1.5328	1.5208	1.1447	0.9428	0.9929	0.7652	0.5444	0.9110	0.7914	0.6704	0.8296	0.6948	0.5644	0.4236	0.4489
6153	0.8185	0.6674	0.5853	0.7228	0.6620	0.5415	0.6015	0.6240	0.5361	0.5494	0.6240	0.7789	1.0485	0.9159	0.9885	2.1768	1.3398	0.9635	0.5474	0.8765
6159	-,-	2.8957	3.5871	4.5839	1.4585	1.6645	1.9054	1.1009	1.4537	2.2671	1.9712	2.4899	2.6031	2.8442	2.5597	2.8638	1.4396	0.8246	0.5112	0.8199
6162	1.3059	1.6121	1.1878	1.1543	0.6428	0.5970	0.7314	0.4707	0.4040	0.4813	0.4603	0.3944	0.6833	0.9603	0.9278	0.7111	0.8030	0.4684	0.6252	0.8306
6163	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.5542	0.3161	0.3237	0.3730	0.5941	0.3822	0.2032	0.2134	0.2818	0.2367	0.6418
6172	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.4929	0.9376	0.5202	1.0983	0.8071	0.9700	0.9211	1.4609	1.8384	1.6012	1.0080	1.1049
6199	1.7549	1.1219	1.0691	1.1769	1.0219	0.9876	0.9518	1.0808	0.8916	0.8696	0.8929	0.8752	1.0371	1.0275	0.9500	1.1305	1.0517	0.7419	0.7409	0.6819
6200	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.0772	0.1349	0.1614	0.1595	0.3010	0.4164	0.8333	0.9605	0.8997	0.3161	0.8187
6211	1.1463	1.1402	1.2343	1.1689	1.1744	0.7104	0.8343	0.6120	0.5202	0.6569	0.6685	0.5972	0.8210	1.0130	0.9795	1.0459	0.7176	0.7286	0.7797	0.9473
6282	2.0471	2.2118	2.4627	2.7255	2.4806	1.2062	0.5271	0.4614	0.2673	0.3444	0.2263	0.3090	0.5542	0.4938	0.4168	0.5980	0.3545	0.2912	0.3232	0.4216
6311	1.5622	1.1702	1.1737	1.2042	1.1596	1.3506	1.3239	1.3002	1.1481	0.9618	0.8453	0.9097	1.0644	1.0821	0.9010	1.1927	1.1040	0.8617	0.8380	0.7931
6321	1.0256	0.8615	0.9496	1.1331	1.0585	1.1822	1.1287	1.2056	1.0069	0.7578	0.7861	0.8786	1.2864	1.2073	0.7743	1.2008	1.2128	0.6889	0.9391	0.8835
6324	-,-	-,-	-,-	-,-	-,-	-,-	-,-	1.3487	0.2170	0.1880	0.1312	0.4262	0.7164	0.5276	0.2513	0.1845	0.1951	0.1968	0.2797	0.2915
6331	0.8711	0.7726	0.9743	1.1008	0.9822	1.1305	1.0665	1.0050	0.8821	0.8226	0.6374	0.6462	0.9238	0.9316	0.7817	0.9409	0.8232	0.7068	0.7928	0.7832
6351	0.6720	1.2389	0.8005	1.0358	1.0993	1.3246	1.2024	1.1152	0.8089	1.0792	0.7393	0.6120	0.9382	0.7607	0.6536	0.9160	0.7106	0.6734	0.8478	0.8698
6361	3.2325	1.5968	1.4749	1.2188	1.2986	1.4801	1.5588	1.0234	0.7875	1.1015	1.0423	1.1550	1.1974	1.1885	1.1136	1.6407	1.1484	0.8222	0.8376	1.2295
6399	-,-	-,-	-,-	-,-	-,-	-,-	-,-	4.3115	2.0054	0.1880	0.1184	0.2192	1.1001	1.2761	3.3765	4.8450	1.9401	1.6184	0.2329	0.4515
6411	0.4331	0.2329	0.2352	0.2644	0.2538	0.2862	0.3908	0.3591	0.2547	0.2056	0.1728	0.2268	0.3797	0.3835	0.3032	0.2984	0.2901	0.2297	0.2970	0.2740
6510	9.0366	3.7150	2.6723	1.6959	0.9345	1.6191	1.2552	1.5726	1.2388	1.1578	1.1634	1.3346	0.8954	1.3185	1.7052	1.5516	1.5940	3.1070	1.7779	1.4679
6512	1.7780	1.1327	1.2468	1.1215	0.7249	0.8137	0.7294	0.7873	0.4596	0.3972	0.2493	0.3702	0.9783	0.7189	0.6955	1.1650	1.3476	1.5236	0.8578	0.8540
6531	-,-	-,-	-,-	-,-	-,-	8.0948	0.3982	0.5142	0.4270	0.5751	0.5424	1.0430	1.3403	1.2930	1.1522	2.6818	0.2572	0.4208	0.4582	0.4289
6532	1.6599	0.1464	0.8741	0.6361	1.3023	0.8830	1.3141	0.6780	0.4303	0.3422	0.2543	0.3019	0.3516	0.3624	0.3558	0.4626	0.4735	0.5189	0.6366	0.6242
6552	0.9649	0.8290	0.6024	0.6991	0.4965	0.4948	0.9151	0.9970	0.8850	0.7768	0.6201	0.6801	0.7913	0.8619	0.8405	1.7284	1.4529	0.7270	0.8325	0.9081
6726	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-
6792	-,-	0.0214	0.0145	0.0104	0.0065	0.2897	0.1473	0.1544	0.1400	0.2244	0.2571	0.1971	0.2714	0.2413	0.2803	0.2606	0.1602	0.2061	0.3026	0.2601
6794	3.1342	1.6885	0.2557	0.1749	0.1987	0.1565	0.2027	0.0764	0.1284	0.1259	0.0948	0.2114	0.2291	0.2816	0.2322	0.7849	0.3168	0.3903	0.4235	0.4566
6795	0.7853	0.4305	0.2511	0.3078	0.2792	0.3055	0.2606	0.4159	0.4128	0.5308	0.5333	0.3534	0.3175	0.2734	0.1215	0.2066	0.1421	0.1373	0.2178	0.2152

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6798	2.0974	1.4873	1.3106	1.3017	1.0164	0.8607	0.8054	0.7877	0.6746	0.6841	0.6835	0.7531	1.0236	1.0117	1.1763	1.5531	1.2899	1.1628	0.7949	0.8162
6799	0.6338	0.7438	2.2497	2.0640	1.4671	0.9512	1.2130	0.9739	0.9317	1.1100	1.0791	1.1262	1.0385	1.1125	1.1187	1.2018	0.9418	0.9425	0.9795	1.0181
7011	0.9374	0.8289	0.7532	0.5371	0.4625	0.4119	0.5258	0.4762	0.4273	0.5337	0.4708	0.5256	0.7893	0.6807	0.7508	0.9968	0.7296	0.5701	0.7360	0.3448
7200	0.7393	0.7544	0.6655	0.9072	1.0640	0.8843	0.6266	0.4212	0.4832	0.4994	0.4373	0.3850	0.4109	0.5446	0.5214	0.3835	0.4157	0.4701	0.3971	0.4972
7310	-.-	-.-	-.-	-.-	-.-	0.2575	1.0000	1.0000	0.3238	-.-	1.0000	-.-	-.-	0.1978	0.6601	0.4328	0.2123	0.3182	0.1771	0.1896
7311	1.2777	0.7548	0.6969	0.7266	0.6826	0.7434	0.7869	0.5548	0.5392	0.4734	0.5421	0.4731	0.5358	0.6563	0.4896	0.5735	0.5690	0.4919	0.2622	0.2978
7320	0.9895	0.8907	1.2036	1.4079	1.6817	1.3870	1.1644	0.6158	0.3588	0.3552	0.2617	0.2695	0.5230	0.4948	0.4391	0.3250	0.3598	0.4662	0.4120	0.5161
7331	-.-	-.-	-.-	0.8388	0.9673	0.7733	0.6282	0.3083	0.2360	0.2343	0.1476	0.3852	0.2737	0.4994	0.3079	0.3489	0.3058	0.2778	0.2593	0.1526
7340	0.7687	0.9580	0.8287	0.8905	0.9533	0.8364	0.8178	0.6947	0.5357	0.1625	0.2262	0.3135	0.5114	0.5657	0.3338	0.4271	0.4175	0.6453	0.5953	0.5799
7350	-.-	-.-	-.-	-.-	-.-	-.-	0.7083	0.5463	0.2086	0.3253	0.3142	0.7305	0.6733	0.9267	0.7682	1.6475	1.1288	0.7230	0.5324	0.4894
7359	2.3611	1.5659	1.0266	0.8197	0.9545	0.7781	0.4940	0.2267	0.4370	0.4992	0.4936	0.8386	0.7508	0.7562	0.5677	0.7452	0.6823	0.6174	0.5561	0.5713
7361	0.7399	0.3777	0.3464	0.2832	0.4189	0.3117	0.4300	0.4513	0.3090	0.5870	0.5268	0.7195	0.4354	0.7119	0.4542	0.6644	0.2484	0.1978	0.1307	0.1317
7363	2.5076	0.9424	0.8056	0.8102	0.7457	0.5805	0.6946	0.8780	0.6092	0.5061	0.2795	0.2951	0.3160	0.2880	0.3583	0.7645	0.6444	0.5773	0.4039	0.3482
7370	-.-	-.-	0.6377	0.5784	0.5202	0.8159	1.1273	0.8564	0.8812	0.7262	0.7179	0.7232	0.5347	0.5769	0.7160	0.6234	0.4043	0.2885	0.3556	0.2743
7371	1.5702	0.5270	0.6648	0.6265	0.8391	0.4429	0.6413	0.6052	0.4850	0.4604	0.4270	0.5745	0.6933	0.6243	1.0136	0.8709	0.5681	0.4763	0.4464	0.3502
7372	0.6522	0.4726	1.0460	0.6798	1.2179	0.8807	0.5419	0.1966	0.2680	0.4005	0.4082	0.2153	0.2527	0.3400	0.3387	0.2726	0.2680	0.2654	0.2614	0.2693
7373	0.7355	0.6641	1.0002	0.7025	0.9130	0.6114	0.5557	0.5122	0.3816	0.3654	0.3476	0.4328	0.5032	0.6987	0.5850	0.7026	0.4380	0.5506	0.3317	0.3272
7374	0.1983	0.2078	0.2919	0.3198	0.3618	0.4806	0.3307	0.4371	0.3954	0.3804	0.2905	0.3051	0.3436	0.4860	0.4152	0.4146	0.4596	0.3281	0.3193	0.2891
7377	1.1189	0.8969	0.8047	0.2699	0.4101	0.4944	0.4371	0.3684	0.1796	0.6088	0.5370	0.5410	0.3346	0.5154	0.4800	1.0853	0.8418	0.9586	0.9770	0.7669
7380	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1272	0.1194	2.0312	2.3615	0.2626	0.2351	0.2329	0.3969	0.2661	0.4933	0.7978
7381	1.2416	1.1352	1.2317	1.3970	1.2262	0.9776	0.8879	0.5852	0.5607	0.6602	0.5646	0.4551	0.3874	0.4653	2.8086	0.3791	0.4127	0.5502	0.4720	0.5563
7384	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7756	0.3120	0.2296	0.3273	0.4024	0.2807	0.3735	0.2779	0.1450
7385	-.-	0.4394	0.3167	0.2454	0.4453	0.3156	0.6524	0.3712	0.9885	1.1926	1.0817	0.7838	0.9335	0.8568	0.5330	0.9567	0.7437	0.7282	0.5633	0.3665
7389	0.9350	0.7937	0.4792	0.5047	0.4046	0.2595	0.2360	0.2344	0.2397	0.3666	0.2383	0.3174	0.3463	0.4099	0.5016	0.6915	0.5357	0.3737	0.3245	0.3422
7500	0.9623	1.0536	0.9664	1.1606	2.3771	0.9325	0.7593	0.3024	0.5453	0.5362	0.3602	0.3384	0.4708	0.3887	0.4636	0.4697	0.5272	0.8094	1.1051	-.-
7510	1.1490	0.8910	0.7981	0.5895	0.7139	0.5848	0.8282	0.5185	0.4864	0.5566	0.5277	0.4665	0.6147	0.6521	0.7272	1.0302	0.6358	0.6677	0.5071	0.6516
7600	2.9057	2.0977	1.7017	0.9657	1.0581	0.4325	1.1643	1.1922	1.1225	0.8980	0.4784	0.6145	0.6042	0.6575	0.6237	0.8687	0.7250	0.6563	0.9940	0.8636
7812	0.4712	0.4706	0.6158	0.6266	0.7393	0.7031	0.7697	0.6750	0.6546	0.5819	0.4368	0.2748	0.1808	0.2730	0.1861	0.2921	0.2608	0.1932	0.3249	0.2712
7819	-.-	-.-	-.-	-.-	-.-	-.-	0.5776	0.6603	0.6437	0.7925	0.8315	0.2904	0.1361	0.2160	0.2387	0.2961	0.3869	0.3283	0.3291	0.3407
7822	1.2774	1.5081	1.5439	1.5467	0.7844	1.2620	2.2498	1.8317	1.9097	-.-	0.1984	0.2464	0.5301	1.0003	0.6776	0.7409	0.3878	0.6046	0.4618	0.4448
7830	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7076	0.4485	0.5469	0.5394	0.6644	0.6897	0.6971	1.0773	0.6922	0.9125	0.6603	0.6742
7900	0.9532	0.9528	1.0194	0.8810	0.8668	1.1418	0.9314	1.0890	0.6530	0.7059	0.7300	0.6094	0.4744	0.4635	0.3663	0.3320	0.4434	0.4358	0.4475	0.5481

Appendix D
Industry Median Values for Book Equity to Market Equity Ratio for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
7948	0.3414	0.0725	0.3371	0.4182	0.3495	0.1221	0.2440	0.3545	0.2097	0.2247	0.3493	0.2954	0.2663	0.2708	0.3524	0.4764	0.5029	0.4630	0.3901	0.4401
7990	0.8669	0.6536	0.5578	0.3389	0.4095	0.5318	0.7174	0.7106	0.5425	0.7040	0.5712	0.5025	0.3759	0.5145	0.3226	0.4827	0.4930	0.3176	0.3674	0.5526
7997	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1370	0.0046	-.-
8000	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0429	0.1108	0.1344	0.2983	0.2899	0.3967
8011	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.2433	0.4454	0.8695	0.6174	0.3973	0.3818	0.2489	0.3132	0.3620	0.5494	0.3322	0.2513
8051	1.6797	0.9882	0.9121	0.8700	0.4899	0.3929	0.5398	0.4164	0.4484	0.4092	0.3278	0.3228	0.4897	0.8779	0.7951	0.6384	0.6136	0.5478	0.4475	0.4694
8060	1.4695	1.0422	0.7613	0.5144	0.3176	0.2354	0.3293	0.2397	0.2436	0.2534	0.3243	0.3455	0.3181	0.6005	0.3498	0.3449	0.4703	0.4419	0.7205	0.7045
8062	1.5975	1.3034	0.6924	0.8372	0.5022	1.1835	0.5372	0.3597	0.5811	0.6241	0.6709	1.0240	0.7460	1.0963	0.8254	0.8828	0.6025	0.5414	0.3761	0.3933
8071	-.-	-.-	-.-	-.-	-.-	0.2283	0.0555	0.2465	0.0721	0.2801	0.3416	0.3774	0.2370	0.3614	0.2558	0.3439	0.1991	0.2673	0.1537	0.2721
8082	-.-	-.-	-.-	-.-	0.1094	0.2717	0.2696	0.2782	0.4695	0.4111	0.4676	0.4800	0.5947	0.5595	0.4496	0.4414	0.3802	0.4552	0.5553	0.6296
8090	-.-	-.-	-.-	-.-	-.-	-.-	0.5586	0.8493	0.0672	0.1223	0.4150	0.4848	0.4967	0.5483	0.4274	0.5028	0.3940	0.5963	0.4308	0.4046
8093	-.-	-.-	-.-	-.-	-.-	-.-	0.1715	0.2301	0.3022	0.5656	0.7180	0.3523	0.4964	0.3555	0.3711	0.5917	0.5327	0.3816	0.6911	0.4973
8200	0.4809	0.4791	0.3848	0.4829	0.3211	0.2405	0.3888	0.3137	0.2778	0.4064	0.3054	0.3264	0.4163	0.3811	0.5470	0.7611	0.4599	0.4190	0.5994	0.5154
8300	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3.8852	13.2434	5.4979	1.0305	0.8232
8700	0.5993	0.7212	0.6111	0.6119	0.2746	0.2834	0.2470	0.3507	0.1660	0.2164	0.1856	0.1933	0.3523	0.3492	0.2565	0.3536	0.2106	0.2417	0.2337	0.6181
8711	1.0450	0.8915	0.8565	0.9645	1.0115	0.5908	0.7732	0.7835	0.6924	0.9032	0.6900	0.6782	0.5139	0.6477	0.5861	0.6280	0.5304	0.6965	0.6427	0.5720
8731	2.0134	1.8641	2.0514	1.0067	1.4137	0.8766	1.1167	0.7237	0.4305	0.7650	0.6202	0.6109	0.6950	0.5378	0.3123	0.5869	0.8939	0.6878	0.8077	1.2569
8734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5737	0.7808	0.3679	0.1511	0.2509	0.2496	0.3716	0.4333	0.3035
8741	1.1017	1.1552	1.2210	1.5248	1.0755	0.7956	0.7729	0.5669	0.3800	0.3353	0.5160	0.6244	0.7802	0.7809	0.5420	0.5470	0.2991	0.3794	0.3548	0.8455
8742	1.6197	1.5158	1.0359	1.0071	0.8882	1.2554	1.1694	1.6315	0.8480	0.9959	0.9468	0.7166	0.7597	0.8118	0.5457	0.7266	0.8552	1.1546	0.8958	0.9012
8744	-.-	-.-	-.-	-.-	0.1939	0.0808	0.2202	0.6574	0.2515	0.2406	5.8299	0.7504	0.5152	0.4215	0.3711	0.3392	0.3956	0.3949	0.3911	0.2830
9995	1.3584	1.3367	1.8977	2.0218	2.1820	2.6077	2.5756	1.0290	0.8264	0.8238	0.6633	0.5845	0.8542	1.0509	0.8471	1.8157	2.6654	1.2512	0.4680	1.2696
MEDN	1.2416	1.0181	1.0308	1.0035	0.9672	0.8515	0.8677	0.7854	0.6388	0.6898	0.6202	0.5812	0.6594	0.6360	0.6181	0.7905	0.6497	0.5984	0.5197	0.5656
AVRG	1.3669	1.1073	1.1077	1.0634	1.3122	0.9829	1.0021	1.4471	0.9662	0.9964	0.9849	0.6729	0.8365	0.7766	0.8094	1.0438	0.9473	0.8091	0.7536	0.8394

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
0100	0.4082	0.4030	0.4197	0.3880	0.3661	0.3637	0.3287	0.3285	0.3143	0.3050	0.3123	0.2681	0.3580	0.2448	0.2162	0.3272	0.3434	0.4186	0.4292	0.3432
0200	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.8290	0.1490	0.1177	0.4304	0.6844	0.5029	0.5278	0.4949	0.4590
0700	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	6.6429	1.5518	0.3538	0.2120	-.-
0800	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0388	0.0721	0.1150	0.1559	0.1999	0.2443	0.2738	0.3278	0.4557
1000	0.0641	0.0934	0.0702	0.2404	0.3434	0.2875	0.3317	0.4364	0.3791	0.4457	0.3584	0.3988	0.3427	0.3430	0.4253	0.4244	0.5013	0.5275	0.3969	0.4110
1040	0.1512	0.1567	0.1394	0.1505	0.1823	0.1525	0.2382	0.2282	0.1718	0.2294	0.2980	0.2617	0.3055	0.2802	0.3175	0.2779	0.3065	0.3223	0.2507	0.3486
1090	0.3972	0.4810	0.4535	0.4205	0.3865	0.4541	0.4878	0.4459	0.5851	0.6104	0.6265	0.4855	0.4626	0.4072	0.2884	0.2536	0.2974	0.2625	0.1504	0.2268
1220	-.-	-.-	0.1128	0.2442	0.3581	0.3291	0.3584	0.2429	0.2170	0.2548	0.2936	0.2618	0.1821	0.2183	0.1975	0.3265	0.3235	0.4260	0.6745	0.4878
1221	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7394	0.5271	0.7475	0.5784	0.5498	0.5691	0.5305	0.5640	0.3043
1311	0.4149	0.4068	0.4075	0.4607	0.4255	0.4207	0.4937	0.5694	0.5207	0.4659	0.4697	0.5256	0.5410	0.6383	0.4752	0.4125	0.4334	0.4376	0.4738	0.5104
1381	0.4919	0.4692	0.4755	0.5477	0.5994	0.4062	0.4302	0.5255	0.4093	0.5484	0.7164	0.4575	0.8387	0.4431	0.3768	0.3987	0.3875	0.8991	0.2708	0.3160
1382	0.7387	0.7335	0.6924	0.7051	0.7016	0.4325	0.3094	0.3487	0.4044	0.4145	0.4311	0.8056	1.5044	0.8605	1.5926	0.5676	0.3287	0.3091	0.2960	0.3195
1389	0.4243	0.3823	0.3613	0.3339	0.4039	0.2760	0.3465	0.2790	0.4401	0.3982	0.4603	0.5223	0.3614	0.3789	0.5259	0.1822	0.1741	0.1344	0.1301	0.1842
1400	0.3405	0.3025	0.2486	2.4892	0.4441	0.2635	0.2497	0.2801	0.2014	0.2078	0.1849	0.1696	0.2491	0.2615	0.3192	0.3661	0.3654	0.3256	0.3065	0.2416
1531	0.6254	0.6302	0.5686	0.5958	0.5779	0.5380	0.4925	0.5100	0.4431	0.4786	0.5633	0.5496	0.5863	0.6426	0.7008	0.7341	0.7150	0.6897	0.6028	0.6289
1540	0.3612	0.3167	0.2732	0.2054	0.2331	0.1448	0.2640	0.3122	0.2877	0.2933	0.2879	0.4524	0.5783	0.5937	0.5565	0.6647	0.6233	0.5375	0.5436	0.5148
1600	0.2793	0.1959	0.2275	0.2135	0.2693	0.2487	0.2454	0.3128	0.2433	0.2682	0.3261	0.3252	0.3675	0.2751	0.2539	0.2308	0.3408	0.4484	0.3148	0.2005
1623	0.2646	0.3429	0.4351	0.4740	0.3575	0.3518	0.3344	0.3997	0.3354	0.4431	0.4588	0.3765	0.3233	0.3921	0.3198	0.3743	0.3703	0.3275	0.4498	0.4439
1700	0.4685	0.3692	0.3869	0.4174	0.4079	0.4721	0.2995	0.2519	0.2789	0.2854	0.4436	0.2867	0.3298	0.4559	0.5057	0.3895	1.1894	0.7378	0.4888	0.7347
1731	-.-	-.-	-.-	-.-	0.6164	0.4585	0.5237	0.5227	0.4602	0.5466	0.4671	0.4608	0.4315	0.5170	0.3853	0.3450	0.2036	0.2442	0.5490	-.-
2000	0.3450	0.3388	0.3141	0.3832	0.3895	0.3971	0.3954	0.3686	0.3372	0.3631	0.5392	0.5573	0.4588	0.7300	0.7489	0.6934	0.7584	0.7215	0.7978	1.1122
2011	0.3764	0.2905	0.3435	0.3416	0.2969	0.3433	0.3558	0.3708	0.3613	0.3373	0.3167	0.2977	0.4590	0.4569	0.4707	0.5814	0.4474	0.4112	0.4542	0.2046
2013	0.4618	0.4631	0.4680	0.4262	0.3918	0.3193	0.7065	0.6999	1.0219	0.9200	0.6576	0.6327	0.6165	0.6134	0.8143	0.4758	0.8211	0.9159	0.4183	0.9670
2015	0.4787	0.4679	0.5172	0.5377	0.5561	0.5903	0.4999	0.4976	0.5099	0.4889	0.5518	0.4897	0.4803	0.4252	0.5241	0.4992	0.5060	0.4966	0.4343	0.4254
2020	0.3292	0.3344	0.2674	0.3574	0.3225	0.3871	0.3245	0.2778	0.2742	0.2549	0.2516	0.1992	0.1774	0.7915	0.9640	1.1989	0.9691	0.8478	0.9306	1.0000
2024	-.-	-.-	-.-	-.-	-.-	0.3204	0.2539	0.2352	0.8796	0.2611	0.1835	0.2932	0.4986	0.5147	0.5278	0.4377	0.3013	0.2601	0.2680	0.4455
2030	0.4185	0.3685	0.3777	0.4260	0.4537	0.4040	0.3986	0.3944	0.3639	0.3660	0.3012	0.3814	0.4276	0.4691	0.4993	0.5173	0.4672	0.4500	0.3900	0.3703
2033	0.4459	0.4398	0.3812	0.3487	0.4024	0.3884	0.3609	0.3553	0.3994	0.3420	0.3447	0.3299	0.3057	0.3003	0.2755	0.2549	0.2784	0.5133	0.3606	0.4106
2040	0.3245	0.2951	0.2925	0.2818	0.3507	0.2784	0.2761	0.2634	0.2504	0.3538	0.4463	0.5474	0.5902	0.5414	0.5679	0.5867	0.5345	0.6065	0.5389	0.6235
2050	0.4013	0.4872	0.5103	0.5030	0.6604	0.4616	0.4625	0.4382	0.3895	0.3476	0.3587	0.3627	0.5384	0.5397	0.5700	2.1666	0.6757	0.6606	0.6268	0.4395
2052	0.0030	0.0024	0.0018	0.0070	0.0061	0.0191	0.0167	0.0142	0.0116	0.0108	0.3511	0.4152	0.7272	0.7070	0.1924	0.1751	0.0471	0.0612	0.6660	1.9168
2060	0.2067	0.1660	0.2031	0.2083	0.2826	0.2022	0.1388	0.1233	0.1041	0.2586	0.2011	0.4054	0.3242	0.4288	0.4088	0.4209	0.4209	0.3940	0.4455	0.5015

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2070	0.2729	0.1439	0.2076	0.1859	0.3240	0.2298	0.3394	0.3345	0.3049	0.2279	0.1711	0.1276	0.1326	0.1412	0.1418	0.1894	0.2232	0.2427	0.2516	0.3506
2080	0.3071	0.2848	0.2514	0.3115	0.3114	0.3050	0.3055	0.2961	0.3688	0.3874	0.4137	0.4589	0.5094	0.5448	12.5801	0.5813	6.8546	0.6175	0.6527	0.6596
2082	0.3656	0.3552	0.3316	0.3616	0.3580	0.4337	0.4260	0.3655	0.3320	0.2835	0.2728	0.3248	0.3389	0.1857	0.4114	0.3132	0.2970	0.3258	0.3381	0.3229
2086	0.2247	0.2199	0.2159	0.2744	0.2632	0.2651	0.2904	0.3293	0.3381	0.4453	0.7364	1.2239	1.2345	1.0771	0.8565	1.3473	1.5073	2.3189	0.6939	0.9952
2090	0.3022	0.3510	0.4407	0.2394	0.2305	0.1962	0.1643	0.1347	0.0956	0.2930	0.3150	0.2957	0.4522	0.4340	0.4544	0.4531	0.4518	0.5842	0.3444	0.7161
2100	0.5101	0.4533	0.4440	0.5159	0.5464	0.4985	0.2104	0.2988	0.2832	0.3287	0.2844	0.3740	0.3380	0.3522	0.3376	0.3294	0.2933	0.6640	0.3807	0.3940
2111	0.4125	0.4313	0.4332	0.3733	0.3745	0.3499	0.3403	0.3159	0.3024	0.3448	0.5831	0.7450	0.5584	0.6808	3.9793	1.7853	15.7724	8.0488	27.9525	6.3651
2200	0.3779	0.3720	0.3587	0.3725	0.4608	0.4142	0.3705	0.3631	0.3190	0.3126	0.3047	0.3911	0.4926	0.4821	0.4781	0.5011	0.6738	0.5359	0.4806	0.5011
2211	0.3147	0.3038	0.3067	0.3139	0.3199	0.2854	0.3000	0.3417	0.3381	0.4587	0.5969	0.6259	0.5636	0.4819	0.5159	0.5468	0.6659	0.5428	0.5570	0.6168
2221	0.6852	0.7813	0.7337	0.6469	0.7761	0.8294	0.4691	0.5104	0.4945	0.6884	0.5459	0.5419	0.4103	0.3641	0.4009	0.5287	0.6011	0.6395	1.0480	1.2617
2250	0.2976	0.2708	0.2993	0.2511	0.2426	0.2028	0.1962	0.2364	0.1113	0.1114	0.1449	1.5851	1.4363	0.7675	0.5963	0.4899	0.4020	0.3213	0.3493	0.3586
2253	0.3326	0.3264	0.3187	0.3490	0.3026	0.3227	0.3064	0.3113	0.3032	0.3221	0.2186	0.1592	0.2828	0.2944	0.3644	0.3619	0.4337	0.4899	0.4425	0.5948
2273	0.3561	0.3802	0.3823	0.4444	0.4504	0.4238	0.3959	0.3974	0.3233	0.3645	0.3016	0.4751	0.4292	0.6393	0.6375	0.6486	0.7140	0.6351	0.6417	0.6510
2300	0.3151	0.3479	0.3379	0.3368	0.3011	0.2823	0.2841	0.2669	0.2363	0.2277	0.2192	0.1713	0.1608	0.2135	0.2172	0.2046	0.3093	0.3694	0.2213	0.2336
2320	0.3120	0.3710	0.3888	0.4134	0.4315	0.4322	0.4235	0.3676	0.2833	0.4206	0.3002	0.4172	0.5217	0.5183	0.5714	7.2689	0.3601	0.3125	0.3598	0.4478
2330	1.4591	0.5701	0.4237	0.4948	0.6829	0.5820	0.4181	0.3770	0.3469	0.3609	0.4825	0.4169	0.3426	0.3032	0.3866	0.3918	0.3418	0.5440	0.3722	0.4451
2340	0.3124	0.4869	0.3962	0.4227	0.4130	0.3340	0.3758	0.2196	0.1855	0.2979	0.2868	1.3092	0.8216	0.9039	0.8959	0.9062	0.8175	0.7252	0.7050	0.6842
2390	0.3600	0.2996	0.0689	0.0109	-.-	0.3856	0.5714	0.3389	0.2580	0.3991	0.5832	0.4917	0.5048	0.5245	0.2484	0.2279	0.2283	0.4172	0.3197	0.8769
2400	0.4115	0.3609	0.3547	0.3615	0.3560	0.3696	0.3888	0.3823	0.3537	0.3462	0.3167	0.3379	0.3343	0.4241	0.3942	0.5141	0.5318	0.5617	0.5027	0.5099
2421	0.4611	0.4611	0.3918	0.3429	0.2843	0.3047	0.3179	0.3659	0.3359	0.3457	0.3442	0.4609	0.2941	0.2726	0.3684	0.4191	0.4572	0.4484	0.5722	0.5138
2430	0.4324	0.4351	0.4363	0.4124	0.4680	0.4036	0.3276	0.3652	0.4585	0.4668	0.5169	0.4051	0.4105	0.3896	0.5241	0.5162	0.4795	0.4627	0.3917	0.3116
2451	0.1916	0.2514	0.2244	0.2165	0.2078	0.1461	0.1136	0.2474	0.0572	0.0746	0.1785	0.3015	0.3719	0.4033	0.4868	0.4326	0.3628	0.3699	0.2641	0.2095
2452	0.4899	0.7750	0.6301	0.5239	0.4266	0.3838	0.4402	0.3426	0.2953	0.2700	0.2146	0.1861	0.1627	0.1329	0.1089	0.1730	0.1461	0.1181	0.1073	0.0980
2510	0.2739	0.2714	0.2591	0.2841	0.3217	0.3050	0.2829	0.3706	0.2473	0.2470	0.2407	0.3045	0.3412	0.3778	0.6107	0.3677	0.3305	0.3349	0.3236	0.4160
2511	0.2720	0.2429	0.2057	0.1784	0.1544	0.1513	0.1499	0.1364	0.1993	0.3466	0.3482	0.4587	0.4052	0.3982	0.4006	0.5038	0.5197	0.4984	0.3003	0.3264
2520	0.2005	0.3390	0.3531	0.2865	0.2748	0.2561	0.2463	0.2310	0.2003	0.1777	0.1696	0.1541	0.1833	0.2024	0.1643	0.1193	0.0976	0.0778	0.1063	0.0102
2522	0.3937	0.3697	0.3813	0.3525	0.3307	0.3026	0.2849	0.2531	0.2087	0.1548	0.1468	0.1260	0.1380	0.1173	0.1296	0.1293	0.2804	0.2958	0.3338	0.2386
2531	0.3256	0.3280	0.3057	0.4218	0.4206	0.3369	0.2901	0.2956	0.3561	0.3723	0.4141	0.3867	0.4203	0.4672	1.0454	1.0924	1.0166	1.2802	0.8717	0.9594
2540	0.1582	0.0929	-.-	0.1141	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2026	0.2407	0.3361	0.1842	0.1482	0.0881	0.1679	0.4543
2590	-.-	-.-	-.-	0.4279	0.3140	0.3293	0.2782	0.2339	0.2117	0.2653	0.2389	0.3549	0.3263	0.3103	0.2885	0.2742	0.3108	0.2985	0.2615	0.2911
2600	0.3753	0.3537	0.4075	0.3883	0.3546	0.3697	0.4578	0.5389	0.4184	0.3645	0.3396	0.4773	0.4284	0.4234	0.4298	0.5150	0.4724	0.3489	0.3400	0.2647
2611	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4686	0.4073	0.4231	0.4991

Appendix E
Industry Average Values for Leverage for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2621	0.3762	0.3651	0.3552	0.3277	0.2935	0.3258	0.3320	0.3356	0.3408	0.3212	0.3193	0.3488	0.3193	0.3431	0.3217	0.3763	0.4109	0.4132	0.4394	0.4391
2631	0.3573	0.3870	0.3920	0.3793	0.3620	0.3522	0.4088	0.4189	0.3607	0.3401	0.3796	0.3783	0.3775	0.3924	0.4716	0.4849	0.5214	0.5267	0.5852	0.6134
2650	0.1331	0.0961	0.0730	0.0088	0.0276	0.1797	0.4314	0.4567	0.4769	0.4885	0.5553	0.3604	0.4191	0.5145	0.5695	0.5941	0.5964	0.5780	0.5257	0.5261
2670	0.5484	0.5253	0.5274	0.4969	0.4422	0.3752	0.4688	0.4596	0.3941	0.3331	0.3636	0.4895	0.4104	1.2096	2.2996	1.7018	1.4247	1.4420	1.8821	1.1858
2673	0.2297	0.2115	0.1849	0.2683	0.1684	0.2675	0.2505	0.2355	0.2239	0.1720	0.2161	0.2183	0.5194	0.5673	0.4805	0.4877	0.4305	0.4514	0.3997	-,-
2711	0.2442	0.1753	0.1499	0.2180	0.2346	0.2958	0.3045	0.3185	0.2726	0.3953	0.5528	1.0901	1.1567	0.6799	0.7030	0.7417	0.6647	0.6482	0.5555	0.5429
2721	0.3252	0.2496	0.2190	0.1414	0.1398	0.1689	0.1396	0.0692	0.0976	0.0847	0.0838	0.1290	0.2143	0.2655	0.2251	3.5642	1.2265	2.6547	0.9072	1.2024
2731	0.1612	0.1998	0.1964	0.1759	0.2906	0.2421	0.1710	0.2103	0.1744	0.2351	0.2368	0.2318	0.1943	0.1466	0.2616	0.3500	0.3409	0.4367	0.5188	0.4689
2732	0.1885	0.1653	0.2344	0.3136	0.3445	0.3857	0.4208	0.4121	0.3813	0.3006	0.3023	0.3170	0.4473	0.4703	0.3852	0.4490	0.4908	0.5337	0.3936	0.2070
2741	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.4506	0.4123	1.3393	1.2931	0.5203	0.3764	1.9408	2.0870	0.6048	2.1307	2.8671	1.3266
2750	0.3685	0.3859	0.4247	0.3409	0.2960	0.3520	0.3616	0.4010	0.4199	0.4348	0.4454	0.4794	0.8952	0.8888	0.8527	0.5930	0.4429	0.3544	0.3889	0.4546
2761	0.2276	0.2162	0.2231	0.1872	0.1920	0.1905	0.1833	0.2177	0.1666	0.1487	0.1633	0.1982	0.2048	0.1722	0.1805	0.1849	0.1487	0.1324	0.1820	0.1791
2771	0.4214	0.4616	0.3785	0.3872	0.9603	0.5075	0.5554	0.4701	0.2931	0.9445	0.2647	0.3482	0.7000	0.3658	0.4324	0.2781	0.2832	0.1477	0.2169	0.2587
2780	0.2983	0.2948	0.2737	0.2983	0.2836	0.2737	0.2662	0.2053	0.2808	0.2647	0.2225	0.2271	0.3193	0.3318	0.3539	0.3286	0.3679	0.2114	0.3028	0.3990
2790	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.4224	0.0749	0.2123	0.2162	0.5277	0.5735	0.4785	0.2826	0.1838	-,-
2800	0.3639	0.3275	0.3604	0.3524	0.4302	0.3845	0.3665	0.3561	0.3243	0.3917	0.3697	0.5018	0.5072	0.5346	0.4794	0.4781	0.4875	0.4977	0.4982	0.5026
2810	0.4277	0.4754	0.4699	0.5312	0.4267	0.3868	0.4892	0.5141	0.5263	0.5480	0.5470	0.5251	0.4204	0.4238	0.5450	0.8703	0.7912	0.7324	0.6083	0.5240
2820	0.2744	0.2788	0.2634	0.2233	0.2020	0.2087	0.4018	0.3632	0.3087	0.2523	0.2409	0.5099	0.2819	0.2433	0.4638	0.4349	0.3748	0.4474	0.4208	0.3430
2821	0.4468	0.4335	0.4105	0.3928	0.3808	0.3683	0.3919	0.3380	0.3385	0.3761	0.4353	0.3795	0.3536	0.3643	0.4816	0.5608	0.4934	0.4672	0.4807	0.3857
2833	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.2998	0.6229	0.5978	0.6847	0.0809	0.0032	-,-	-,-	-,-
2834	0.2643	0.2575	0.2275	0.2764	0.2969	0.3001	0.2594	0.2550	0.2591	0.2449	0.2188	0.2405	0.6908	0.3321	0.4023	0.9124	0.4103	0.3924	0.5413	0.5378
2835	0.4070	0.4034	0.4041	0.3597	0.5711	0.2442	0.1775	0.2015	0.1559	0.3041	0.2239	0.2315	0.3471	0.2533	0.3862	0.2605	0.2901	0.2031	0.2266	0.3522
2836	0.7995	1.8599	1.2974	0.4537	0.5998	1.0958	0.6716	0.2639	0.2921	0.3560	0.2469	0.1888	0.1589	0.3471	0.2090	0.2178	0.4375	0.2372	0.2691	0.2476
2840	0.3286	0.3211	0.3279	0.3468	0.4623	0.3502	0.3211	0.3046	0.2575	0.2860	0.3191	0.4182	0.5551	0.5518	0.5509	0.4905	0.3833	0.3843	0.5475	0.5831
2842	0.3097	0.2985	0.2206	0.3139	0.2850	0.3405	0.4081	0.6339	0.7729	0.5373	0.4589	0.2860	0.1864	0.4522	0.4065	0.3028	0.7825	0.3748	0.3622	0.4933
2844	0.1870	0.1938	0.2137	0.2262	0.2281	0.2333	0.2578	0.3323	0.2566	0.2849	0.2965	0.3116	0.4255	0.4480	0.4745	0.4725	0.5821	0.5036	0.5223	0.7142
2851	0.3007	0.2726	0.3275	0.3481	0.3944	0.3473	0.3280	0.3108	0.2700	0.3255	0.3083	0.3362	0.3473	0.3414	0.4023	0.3934	0.3908	0.3460	0.3254	0.2825
2860	0.2879	0.2786	0.2926	0.3189	0.3226	0.2747	0.2684	0.2765	0.2718	0.2705	0.2783	0.3958	0.3367	0.3166	0.3165	0.4581	0.3814	0.4091	0.4802	0.3988
2870	0.5857	0.6182	0.6789	0.5997	0.4682	0.5184	0.4953	0.5605	0.5338	0.4476	0.5687	0.5687	0.5128	0.4562	0.4902	0.5303	0.6116	0.5589	0.5874	0.5319
2890	0.1846	0.1504	0.1439	0.1361	0.1641	0.1402	0.1527	0.1824	0.1669	0.1854	0.2032	0.2429	0.2031	0.2149	0.3566	0.2607	0.2563	0.2558	0.2283	0.2642
2891	0.3733	0.2790	0.2544	0.2201	0.3001	0.3094	0.2625	0.3121	0.2967	0.3015	0.2779	0.1523	0.2250	0.3043	0.2802	0.2599	0.1532	0.1686	0.2476	0.3244
2911	0.3417	0.3676	0.3778	0.3757	0.3453	0.3256	0.3544	0.3605	0.3642	0.4010	0.4301	0.4454	0.3741	0.4000	0.4436	0.4221	0.4522	0.4580	0.4548	0.4611

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
2950	0.3773	0.3822	0.2970	0.4197	0.4158	0.5236	0.5467	0.6343	0.6078	0.5700	0.5291	0.4767	0.3839	0.3907	0.4771	0.4847	0.5355	0.4556	0.4671	0.5870
2990	0.5825	0.2724	0.2499	0.2359	0.2318	0.2809	0.2502	0.4235	0.4198	0.4582	0.4202	0.4219	0.4049	0.4130	0.4791	0.5223	0.4647	0.5132	0.2149	0.1993
3011	0.2855	0.2841	0.2955	0.2998	0.3452	0.3130	0.2645	0.2148	0.1665	0.1601	0.1796	0.2836	0.3859	0.3509	0.3017	0.3276	0.2166	0.2865	0.1790	0.2002
3021	0.4610	0.4899	0.4683	0.4750	0.5438	0.2433	0.2470	0.1952	0.2479	0.3517	0.2199	0.1481	0.2127	0.3232	0.1817	0.2642	0.1828	0.2774	0.3684	0.2602
3050	0.5113	0.4935	0.4514	0.4671	0.3539	0.3922	0.3457	0.3914	0.2781	0.3084	0.5334	0.5491	0.6804	0.6365	0.6785	0.5942	0.5532	0.4944	0.4665	0.2109
3060	0.3703	0.2983	0.2879	0.2438	0.2557	0.2588	0.2067	0.1874	0.2062	0.2275	0.2468	0.2951	0.3372	0.4739	0.4283	0.6396	0.8528	0.6874	0.3926	0.3221
3080	0.0947	0.0731	0.0964	0.4396	0.4168	0.3145	0.3204	0.3469	0.5073	0.2758	0.3284	0.4636	0.6927	0.5142	0.5056	0.5761	0.7476	0.6585	0.6536	0.4436
3081	0.1462	0.1334	0.4499	0.3526	0.4145	0.4689	0.3512	0.2370	0.3429	0.2837	0.4792	0.7139	0.6603	0.5960	0.6696	0.6520	0.5363	0.5339	0.5407	0.5192
3089	0.2578	0.2328	0.2632	0.2352	0.2301	0.2186	0.2325	0.2488	0.2709	0.3469	0.3132	0.4530	0.4594	0.5216	0.5313	0.6100	0.6125	0.3826	0.4473	0.3450
3100	0.3622	0.3282	0.2900	0.3107	0.2011	0.1330	0.1135	0.1225	0.0808	0.0560	0.0398	0.0877	0.1131	0.0793	0.0721	0.0686	0.1441	0.1418	0.2052	0.3627
3140	0.2299	0.2533	0.2829	0.2532	0.3221	0.2979	0.2752	0.3493	0.2745	0.3335	0.2676	0.3351	0.2387	0.2812	0.3122	0.2855	0.2941	0.2919	0.2287	0.2040
3220	0.2828	0.2481	0.2142	0.2044	0.1979	0.1804	0.2060	0.2748	0.2533	0.2421	0.2355	0.2074	0.2226	0.2490	0.2762	0.2826	0.2982	0.6817	0.8555	1.3096
3221	0.4167	0.3755	0.3692	0.3941	0.4098	0.3759	0.3200	0.3222	0.3099	0.3297	0.3290	0.3051	1.3307	1.4026	1.5234	1.0201	0.9372	0.7456	0.7702	1.3340
3231	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2173	0.1978	0.5432	0.5536	0.5244	0.4020	0.3883	0.4488	0.4181	0.3639	0.2662	0.3308	0.3940
3241	0.5121	0.5194	0.5225	0.5168	0.4708	0.4362	0.4001	0.3957	0.4304	0.4243	0.3805	0.3469	0.3353	0.5254	0.5018	0.3600	0.3769	0.3427	0.3308	0.4346
3250	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.1187	0.1093	0.1060	0.1616	0.1784	0.1158	0.3027	0.2577
3260	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	2.4639	1.0359
3270	0.3247	0.3472	0.3396	0.2948	0.3041	0.2654	0.2546	0.3193	0.3074	0.3267	0.2792	0.3631	0.3335	0.8939	0.9505	0.8874	0.9808	1.1303	0.8770	0.6975
3272	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5422	0.4104	0.4006	0.4345	0.2287	0.2565	0.2060	0.1870	0.1723
3290	0.2893	0.2466	0.2113	0.2374	0.2540	0.2403	0.2549	0.1840	0.1344	0.1586	0.1651	0.5771	0.6423	0.6848	0.5976	0.5723	0.2822	31.5945	4.5812	0.8450
3310	0.1724	0.1731	0.2478	0.2620	0.2984	0.2669	0.2104	0.2554	0.2035	0.3516	0.2126	0.2554	0.2905	0.2622	0.3055	0.3227	0.2595	0.3293	0.8083	0.8651
3312	0.3356	0.3660	0.3669	0.3466	0.3439	0.3175	0.3192	0.4051	0.4089	0.4343	0.4466	0.4641	0.4411	0.3406	0.3480	0.4340	0.4539	0.5339	0.5564	3.2624
3317	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0635	0.0096	0.0427	0.3576	0.8490	0.9265	0.8285	0.4672	0.5345	0.5113	0.3332
3320	0.4536	0.4118	0.3940	0.4386	0.4756	0.4641	0.4969	0.4787	0.4325	0.5374	0.4423	0.4593	0.4023	0.4948	0.3549	0.3371	0.3209	0.3740	0.4233	0.6824
3330	0.3260	0.3322	0.3384	0.3029	0.3388	0.3117	0.3471	0.4354	0.3702	0.3575	0.3648	0.3518	0.2734	0.3298	0.3437	0.3064	0.2809	0.2942	0.2699	0.2688
3334	0.5305	0.5257	0.5315	0.4851	0.3962	0.4166	0.4859	0.4879	0.4944	0.4926	0.5193	0.4922	0.4949	0.4860	0.4293	0.4944	0.4764	0.4990	0.6548	0.6254
3341	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9911	1.4715	1.0310	0.9614	0.4403	0.3481	0.2978	0.2337	0.1966	0.1730
3350	0.3245	0.3800	0.4576	0.4077	0.5070	0.4173	0.4171	0.4789	0.6236	0.7322	0.8197	0.6753	0.5559	0.5445	0.4978	0.4253	0.4508	0.4719	0.5547	0.4379
3357	0.1944	1.0000	-.-	-.-	0.1787	0.2592	0.7178	1.4069	0.7739	0.6157	0.7017	0.7301	0.8095	0.9688	0.7873	0.9059	0.6441	0.6844	0.5346	0.2649
3360	0.3869	0.3526	0.2767	0.2926	0.2772	0.2449	0.2357	0.2105	0.1397	0.1346	0.1336	0.1192	0.1043	0.3932	0.3765	0.2917	0.2592	0.3713	0.2470	0.3425
3390	0.1083	0.0930	0.1242	0.2414	0.2486	0.2006	0.2370	0.2426	0.2777	0.3019	0.2760	0.2922	0.2956	0.2239	0.1990	0.2010	0.2211	0.2010	0.1827	0.2560
3411	0.4035	0.3803	0.3590	0.3775	0.3163	0.2897	0.2425	0.2087	0.1758	0.1779	0.2070	0.3655	0.3494	0.3793	0.5741	0.5918	0.5363	0.8953	0.8103	0.7365

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3420	0.4257	0.4364	0.4013	0.3874	0.3796	0.3495	0.3511	0.3184	0.2518	0.4105	0.4864	0.4852	0.5013	0.5101	0.4844	0.4907	0.4432	0.5101	0.5013	0.5412
3430	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0886	0.6338	0.6005	0.7635	1.0672	1.1226	1.1894
3440	0.2821	0.3116	0.2870	0.2754	0.3111	0.3424	0.3418	0.3436	0.2921	0.3129	0.3900	0.2845	0.4508	0.4607	0.4705	0.5431	0.5223	0.4207	0.3408	0.6771
3442	0.4919	0.4881	0.5689	0.5015	0.4486	0.4432	0.4324	0.5225	0.2673	0.3158	0.2847	0.4127	0.2566	0.2480	0.4877	0.3920	0.3397	0.0987	0.0874	0.0769
3443	0.1596	0.1558	0.1268	0.1065	0.1024	0.1209	0.1075	0.1188	0.1040	0.1051	0.1378	0.3807	0.3082	0.2724	0.2791	0.2389	0.3244	0.2752	0.2757	0.2645
3444	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4555	0.1947	0.3048	0.5011	0.6374	-.-
3448	0.2016	0.2118	0.1943	0.3075	0.3256	0.2806	0.2514	0.2016	0.1996	0.2839	0.3411	0.4028	0.3729	0.3553	0.6106	0.5407	0.7370	1.2220	0.9912	2.9494
3452	0.3447	0.3040	0.3631	0.3677	0.3680	0.4256	0.3878	0.3659	0.3290	0.3107	0.2769	0.3093	0.5248	0.4689	0.4384	0.5281	0.5418	0.5371	0.4957	0.5665
3460	0.2816	0.2300	0.2749	0.2854	0.3022	0.2925	0.2832	0.2040	0.2429	0.2741	0.2882	0.1959	0.4322	0.3696	0.3791	0.6378	0.3540	0.3959	0.6222	0.6111
3470	0.3457	0.3243	0.4271	0.3476	0.3983	0.3901	0.4123	0.2751	0.3667	0.4858	0.6068	0.5608	0.5591	0.5273	0.5546	0.5817	0.4243	0.3281	0.2377	0.1321
3480	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0429	0.2187	0.6392	0.9280	0.7214	0.4886	0.4160	0.4862	0.6301
3490	0.3412	0.3651	0.3247	0.3151	0.3583	0.3126	0.2752	0.5444	0.3240	0.2889	0.3910	0.4144	0.4047	0.4843	0.5106	0.5001	0.6022	0.5639	0.7324	0.4591
3510	0.3612	0.3336	0.3617	0.3558	0.3494	0.3526	0.2769	0.2953	0.2843	0.2648	0.2794	0.4182	0.3468	0.3860	0.3991	0.3833	0.3397	0.4129	0.3912	0.3125
3523	0.4539	0.4497	0.4454	0.4467	0.4389	0.4922	0.4763	0.4874	0.4930	0.5000	0.5302	0.5132	0.5516	0.5247	0.5591	0.6256	0.6415	0.6108	0.5663	0.5237
3524	0.5072	0.4200	0.4072	0.3948	0.3002	0.3023	0.2599	0.2969	0.2471	0.4099	0.4599	0.5440	0.4907	0.5308	0.5601	0.4720	0.4872	0.5489	0.5448	0.5340
3530	0.4811	0.4107	0.3466	0.3241	0.4582	0.4495	0.4648	0.4439	0.3775	0.4483	0.3504	0.4650	0.4635	0.5173	0.5033	0.4442	0.3022	0.3766	0.3879	0.4130
3531	0.2884	0.3184	0.3044	0.3700	0.3503	0.3601	0.3560	0.4248	0.4530	0.4267	0.4309	0.4363	0.4518	0.4537	0.4840	0.5321	0.5650	0.5122	0.3453	0.3723
3533	0.3232	0.3710	0.4181	0.3821	0.3007	0.4576	0.4022	0.4427	0.3911	0.3811	0.4157	0.4263	0.3832	0.3480	0.3519	0.3560	0.2818	0.3397	0.4081	0.4198
3537	0.5190	0.5146	0.5049	0.5076	0.4544	0.4568	0.4606	0.4769	0.4504	0.4256	0.4012	0.3754	0.3645	0.4125	0.6133	0.6160	0.6131	0.6456	0.4076	0.4370
3540	0.3584	0.2825	0.2539	0.2314	0.2204	0.2803	0.2050	0.2450	0.2401	0.3196	0.2267	0.3120	0.3375	0.2609	0.3488	0.4786	0.4817	0.5577	0.5210	0.4817
3541	0.2900	0.2235	0.1989	0.1879	0.1617	0.1826	0.1812	0.2083	0.2761	0.2892	0.3212	0.3509	0.3467	0.3819	0.3379	0.2814	0.2817	0.2864	0.3461	0.2860
3550	0.3724	0.4139	0.4753	0.4996	0.5797	0.5494	0.3891	0.5250	1.5698	0.5756	0.7848	0.7779	0.7225	0.5353	0.4882	0.4804	0.5839	0.6568	0.8059	0.4045
3555	0.3573	0.3072	0.3758	0.2986	0.4119	0.5205	0.9541	-.-	0.0865	0.5994	0.4642	0.7918	0.6555	0.5911	0.5265	0.5188	0.6626	0.7327	0.4259	0.4417
3559	0.3943	0.3721	0.3378	0.2764	0.3255	0.2562	0.3067	0.3217	0.3371	0.3246	0.2796	0.3348	0.3204	0.3282	0.3524	0.3154	0.3077	0.3002	0.3293	0.2596
3560	0.3686	0.3077	0.3260	0.3691	0.3959	0.4206	0.4124	0.3213	0.2476	0.2986	0.3292	0.2855	0.3141	0.3766	0.3757	0.3191	0.3219	0.3696	0.3999	0.4312
3561	0.2337	0.2122	0.1963	0.1843	0.2631	0.2602	0.2988	0.3577	0.3520	0.3072	0.3095	0.2954	0.5053	0.5699	0.5138	0.4285	0.3004	0.4073	0.3031	0.4851
3562	0.0490	0.0629	0.0581	0.0621	0.0610	0.0568	0.0517	0.0452	0.6412	0.6173	0.5515	0.5161	0.3558	0.2278	0.1804	0.2036	0.2285	0.1880	0.1954	0.1712
3564	0.2660	0.3355	0.2792	0.2338	0.2393	0.2318	0.2160	0.1966	0.1806	0.2923	0.2273	0.3279	0.2507	0.2453	0.3702	0.1819	0.1414	0.2892	0.1910	0.2183
3567	0.2157	0.2827	0.2341	0.2417	0.2674	0.3014	0.3810	0.2001	0.2570	0.3188	0.3396	0.5066	0.5869	0.5377	0.3448	0.5442	0.3221	0.3731	1.7967	0.2901
3569	0.2975	0.2235	0.2007	0.2545	0.2490	0.2571	0.2879	0.2620	0.2215	0.1920	0.2666	0.2739	0.2800	0.2904	0.5120	0.5850	0.6550	0.6097	0.5583	0.5632
3570	0.2139	0.1924	0.2129	0.2210	0.2313	0.2629	0.2349	0.2112	0.1865	0.2005	0.2299	0.2411	0.2125	0.2431	0.3074	0.3109	0.3475	0.3539	0.3843	0.3776
3571	0.3853	0.2090	0.2331	0.1568	0.1648	0.2090	0.1341	0.2229	0.1921	0.2362	0.3225	0.1754	0.2172	0.2277	0.2776	0.2099	0.1836	0.2983	0.2502	0.3174

Appendix E
Industry Average Values for Leverage for 1975–1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3572	0.4550	0.4040	0.2352	0.3566	0.4595	0.4214	0.2941	0.1585	0.1989	0.3736	0.3330	1.4864	0.2890	0.3214	0.3054	0.2446	0.2666	0.3470	0.4024	0.3176
3575	0.4373	0.5045	0.3305	0.5754	0.4345	0.3746	0.2641	0.4328	0.0891	0.0705	0.1192	0.1704	0.2297	0.1998	0.1458	0.1994	0.1156	0.1226	0.1930	0.1566
3576	0.6173	0.4329	0.3863	0.2848	0.5415	0.3417	0.2095	0.2891	0.1105	0.1257	0.1221	0.1958	0.2298	0.2049	0.1780	0.1656	0.2015	0.2235	0.2421	0.1028
3577	0.775212.1237		0.6519	0.3992	0.2590	0.3085	0.6982	0.3852	0.6246	0.4892	0.5740	0.4318	2.7173	0.3941	0.3230	0.2673	0.2097	0.1818	0.2523	0.2609
3578	0.1531	0.1432	0.1302	0.1161	0.1161	0.0911	0.1153	0.1240	0.2738	0.1993	0.1637	0.2287	0.2717	0.2748	0.2076	0.3067	0.1986	0.4390	0.3012	0.3188
3579	0.3180	0.2889	0.3659	0.3618	0.2520	0.2353	0.2847	0.3414	0.1750	0.3281	0.4640	0.3552	0.3055	0.4125	0.4401	0.4281	0.4184	0.3922	0.7041	0.4261
3580	0.2662	0.2102	0.2805	0.3138	0.4509	0.1938	0.2167	0.1770	0.2113	0.1463	0.3233	0.3919	0.4428	0.4882	0.5627	0.4730	0.4329	0.4222	0.6297	0.5385
3585	0.4548	0.4520	0.4299	0.4430	0.4577	0.4939	0.5410	0.5171	0.6876	0.6077	0.4594	0.4307	0.4048	0.5466	0.7029	0.7513	0.7352	0.6869	0.7294	0.4637
3590	0.3092	0.3174	0.3148	0.3075	0.3026	0.2646	0.2430	0.2774	0.2676	0.2769	0.3442	0.5146	1.1650	1.1952	1.1594	0.6593	1.1080	1.1825	1.2579	1.0833
3600	0.3906	0.3330	0.2535	0.2861	0.2945	0.2901	0.2257	0.2089	0.1952	0.2017	0.2051	0.2873	0.3322	0.4461	0.4351	0.5495	0.5570	0.5474	0.5094	0.4869
3612	0.1913	0.1594	0.1652	0.1657	0.2214	0.2074	0.2254	0.1541	0.2132	0.2518	0.4818	0.4785	0.5175	0.4959	0.3901	0.3109	0.3212	0.3033	0.5741	0.5789
3613	-.-	-.-	0.2429	0.3524	0.3394	0.3436	0.2994	0.2713	0.0352	0.2543	0.4342	0.4703	0.3876	0.2713	0.4176	0.3432	0.2808	0.2645	0.2141	0.1536
3620	0.2432	0.2048	0.1703	0.2432	0.2028	0.1746	0.2215	0.2048	0.1620	0.1465	0.1543	0.2047	0.1700	0.1560	0.2599	0.2494	0.3212	0.3333	0.3619	0.3926
3621	0.2801	0.2357	0.2251	0.2136	0.2660	0.2653	0.2304	0.3550	0.3567	0.3906	0.3899	0.4728	0.4126	0.4501	0.4931	0.4550	0.3303	0.4274	0.3699	0.3900
3630	0.2565	0.1819	0.1623	0.1485	0.0972	0.0782	0.0714	0.0770	0.0692	0.0626	0.0629	0.1274	0.2570	0.4213	0.5766	0.6204	0.5323	0.5977	0.5792	0.5595
3634	0.3750	0.4308	0.4298	0.3994	0.4039	0.4351	0.5177	0.5253	0.2157	0.3526	0.4056	0.4597	0.6112	0.2526	0.2667	0.3872	0.4205	0.2471	0.2518	0.2290
3640	0.2317	0.2116	0.1979	0.1673	0.1969	0.1886	0.1609	0.2228	0.1955	0.2282	0.2114	0.2544	0.2528	0.2943	0.3242	0.3214	0.3400	0.3780	0.3908	0.3622
3651	0.3838	0.3569	0.3723	0.3721	0.4143	0.3655	0.3514	0.3892	0.3564	0.4605	0.3794	0.4612	0.4742	0.3818	0.4116	0.4314	0.4906	0.5718	0.3734	0.3074
3652	0.2456	0.1604	0.4486	0.3481	0.4209	0.4188	0.4779	0.4398	0.3732	0.2571	0.3271	0.6351	0.6749	0.4382	0.5079	0.6440	0.6126	1.9038	1.1376	0.7493
3661	0.4361	0.3987	0.3985	0.3073	0.3186	0.2674	0.3270	0.3046	0.2901	0.3010	0.3391	0.3246	0.2532	0.2685	0.2550	0.2782	0.2834	0.3072	0.3112	0.2184
3663	0.2670	0.2686	0.2383	0.2426	0.2723	0.2612	0.1919	0.1728	0.1452	0.1767	0.1729	0.1877	0.1795	0.1993	0.2472	0.4007	0.2712	0.5735	0.5773	0.3236
3669	0.3181	0.2807	0.2923	0.2400	0.3168	0.3271	0.1491	0.1792	0.1452	0.1848	0.2921	0.2633	0.2923	0.3123	0.2853	0.4009	0.3850	0.3348	0.4268	0.3304
3670	0.5800	0.5448	0.4376	0.4120	0.2473	0.2248	0.2327	0.2332	0.2847	0.3398	0.2237	0.2426	0.3150	0.3190	0.3867	0.3255	0.4469	0.4666	0.5300	0.3668
3672	0.3823	0.3835	0.4963	0.5666	0.4956	0.4739	0.5404	0.5029	0.3938	0.3730	0.2822	0.4151	0.4023	0.5078	0.4257	0.4453	0.4849	0.5190	0.3589	0.3516
3674	0.3204	0.2727	0.2553	0.2553	0.2775	0.3176	0.3372	0.3853	0.2675	0.2603	0.3288	0.3411	0.3253	0.2710	0.2834	0.2951	0.2886	0.2291	0.2220	0.1977
3677	0.3892	0.4154	0.4802	0.5817	0.5915	0.3269	0.4042	0.2962	0.5365	0.3039	0.3783	0.4617	0.3356	0.3427	0.3429	0.3547	0.1683	0.1026	0.1989	0.0212
3678	0.2559	0.2515	0.2825	0.2711	0.2290	0.2408	0.2242	0.2301	0.2586	0.3718	0.2892	0.1650	0.2887	0.1341	0.4089	0.3998	0.2900	0.4892	0.4713	0.4143
3679	0.3210	0.3140	0.3108	0.2718	0.2819	0.2657	0.2578	0.2869	0.3072	0.2691	0.2835	0.2930	0.2927	0.3592	0.3605	0.4203	0.3584	0.2679	0.2619	0.2864
3690	0.3681	0.3091	0.3298	0.2930	0.3445	0.2888	0.2627	0.2737	0.1691	0.1870	0.2133	0.4068	0.4099	0.6243	0.5277	0.4542	0.3879	0.3821	0.3590	0.3413
3695	-.-	-.-	-.-	-.-	-.-	0.1197	0.1004	0.1175	0.1246	0.1030	0.1123	0.2984	0.2353	0.2902	0.2993	0.2434	0.1845	0.1705	0.1701	0.0817
3711	0.3078	0.2668	0.2545	0.2334	0.2438	0.3416	0.3512	0.4175	0.3763	0.3042	0.3261	0.2844	0.2841	0.3959	0.4027	0.4377	0.4585	0.5518	0.6192	0.4178
3713	-.-	-.-	-.-	-.-	-.-	0.7604	0.3626	0.3372	0.3265	0.7438	0.2516	0.9740	0.8564	0.7811	0.6928	0.7128	0.7466	0.7964	0.5764	0.5621

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3714	0.2896	0.2791	0.2755	0.3025	0.3011	0.3521	0.3442	0.3109	0.3205	0.2780	0.3348	0.4149	0.4013	0.4293	0.5027	0.4953	0.6709	0.4687	0.5278	0.4570
3715	0.3965	0.4333	0.3927	0.4456	0.4758	0.5667	0.5806	0.6704	0.4519	0.0023	0.3778	0.6203	0.6658	0.6194	0.7731	0.5964	0.4790	0.8452	0.7707	0.7142
3716	0.1129	0.1377	0.1692	0.2697	0.2199	0.2174	0.3516	0.1497	0.2424	0.0884	0.1582	0.1399	0.1785	0.1984	0.3287	0.2261	0.2738	0.2529	0.1499	0.1020
3720	0.3086	0.2447	0.2701	0.2491	0.2544	0.2603	0.2397	0.1933	0.1741	0.1746	0.5139	0.6709	0.4872	0.6704	0.6690	0.6592	0.6227	0.7514	0.7128	0.6819
3721	0.4127	0.3208	0.2597	0.2070	0.2514	0.2656	0.2795	0.2185	0.1266	0.1299	0.1851	0.3275	0.3503	0.3648	0.4567	0.4289	0.3703	0.4078	0.4319	0.6383
3724	0.3854	0.3301	0.2791	0.3307	0.3734	0.3771	0.3525	0.3525	0.3121	0.4294	0.4209	0.4262	0.4008	0.3910	0.3986	0.4380	0.4389	0.5004	0.5144	0.5308
3728	0.5563	0.5570	0.5568	0.3939	0.3762	0.3882	0.4328	0.5077	0.6469	0.9342	2.0477	4.2241	0.5782	0.6287	0.6669	0.6859	0.5635	0.5704	0.5241	0.6109
3730	0.5778	0.4928	0.4694	0.4346	0.2273	0.3417	0.2045	0.1626	0.1611	0.1033	0.2885	0.3248	0.2021	0.2859	0.2969	0.3402	0.4053	0.3257	0.3197	0.4366
3743	0.4084	0.3885	0.4096	0.3725	0.4163	0.3782	0.3971	0.3323	0.4007	0.4410	0.4492	0.5542	0.5002	0.5685	0.4954	0.4821	0.5422	0.4866	0.5393	0.7212
3751	0.4979	0.3568	0.3483	0.3939	0.8454	0.3610	0.3885	0.4331	0.3308	0.3020	0.5823	0.7929	0.7207	0.6728	0.6212	0.5952	0.5641	0.4899	0.4442	0.4256
3760	0.4293	0.4021	0.3830	0.3485	0.3536	0.2979	0.2877	0.2066	0.2483	0.2821	0.3512	0.2817	0.5942	0.5862	0.5906	0.5052	0.4367	0.4362	0.4577	0.6085
3790	0.5441	0.3920	0.2638	0.1811	0.2344	0.1042	0.0816	0.0397	0.0367	0.1058	0.0230	-.-	0.0825	-.-	0.1653	0.0403	0.0256	0.0139	0.3637	0.7374
3812	0.2760	0.2469	0.2887	0.2962	0.2788	0.2840	0.2526	0.2351	0.2265	0.2332	0.2939	0.3990	0.4013	0.4635	0.4401	0.4595	0.4482	0.4054	0.4000	0.3064
3821	0.2885	0.2913	0.5267	0.1915	0.2011	0.2847	0.3142	0.4506	0.3650	0.2053	0.3470	0.4350	0.3968	0.3999	0.4197	0.3066	0.3189	0.4415	0.3953	0.4119
3822	0.4239	0.2457	0.2395	0.2492	0.2572	0.2472	0.2690	0.2841	0.2788	0.2578	0.2564	0.3933	0.3843	0.3918	0.3041	0.2994	0.3039	0.2812	0.2807	0.3173
3823	0.4189	0.3322	0.3629	0.3340	0.3390	0.2951	0.2145	0.2380	0.1800	0.2321	0.2705	0.2649	0.2756	0.2563	0.2367	0.3066	0.3146	0.3742	0.3773	0.4134
3824	0.3755	0.3739	0.3963	0.3697	0.2116	0.3138	0.3840	0.3296	0.3125	0.3820	0.2340	0.5217	0.5549	0.5090	0.4912	0.4700	0.3318	0.4514	0.6489	1.1806
3825	0.3365	0.2944	0.2637	0.3044	0.2966	0.3066	0.3085	0.2743	0.1725	0.2157	0.2145	0.2192	0.2526	0.2757	0.3679	0.2765	0.2304	0.3358	0.6526	0.3244
3826	0.2609	0.2276	0.2780	0.3141	0.3215	0.3584	0.3583	0.3514	0.3459	0.3487	0.3323	0.2510	0.2234	0.2131	0.2017	0.2661	0.2198	0.2052	0.2299	0.2493
3827	0.3923	0.3394	0.3489	0.3566	0.3366	0.5551	0.3145	0.4754	0.0703	0.0663	0.0942	0.0530	0.0926	0.3778	0.1857	0.1643	0.1877	0.1704	0.2084	0.1968
3829	0.4741	0.4116	0.3797	0.4327	0.3681	0.3169	0.3314	0.4094	0.3505	0.3588	1.6334	0.2966	0.3205	0.3352	0.4347	0.3512	0.3198	0.4091	0.4179	0.5702
3841	0.3115	0.3607	0.4168	0.3634	0.3522	0.3480	0.3274	0.3655	0.3212	0.3455	0.4257	0.3330	0.3001	0.2763	0.2595	0.3729	0.4802	0.4235	0.4431	0.5181
3842	0.2874	0.3084	0.2586	0.3030	0.2499	0.1893	0.2598	0.1661	0.2335	0.2468	0.2560	0.2766	0.2855	0.3382	0.5375	0.5701	0.4957	0.6693	0.3326	0.6575
3843	0.4456	0.4256	0.4887	0.5768	0.5509	0.4868	0.2565	0.6265	0.6903	0.7188	0.7428	1.1716	0.9721	0.8339	0.7510	0.7056	0.6052	0.5534	0.5019	0.5068
3844	-.-	-.-	-.-	-.-	0.5509	0.1998	0.2457	0.2463	0.3529	0.3266	0.2869	0.4083	0.4639	0.2479	0.1095	0.0973	0.1436	0.1211	0.1224	-.-
3845	0.4181	0.5290	0.3829	0.3843	0.4536	0.2956	0.3608	0.3020	0.3241	0.4366	0.3982	0.3546	0.2788	0.3605	0.3473	0.2946	0.2221	0.1650	0.1660	0.1787
3851	0.4014	0.3528	0.3121	0.2984	0.2295	0.2592	0.2356	0.5611	0.3002	0.3912	0.4936	0.6913	0.7857	0.7581	0.4367	0.4160	0.3641	0.5771	0.8654	0.7662
3861	0.3542	0.3075	0.2952	0.2980	0.3184	0.2997	0.3114	0.3399	0.3381	0.8600	0.5628	0.5039	0.4434	0.7036	0.9353	0.9617	0.8864	0.7689	0.7912	0.4826
3910	0.3178	0.4358	0.4164	0.5044	0.4587	0.4000	0.3729	0.3650	0.4087	0.3963	0.4000	0.4319	0.4488	0.4135	0.4778	0.5167	0.4582	0.3542	0.3093	0.3341
3911	0.2324	0.2860	0.2907	0.2410	0.2049	0.2208	0.1172	0.1320	0.1459	0.2181	0.2991	0.4170	0.3555	0.3961	0.3539	0.3887	0.4261	0.4213	0.3233	0.3022
3931	0.1182	-.-	-.-	-.-	-.-	0.0188	0.0167	0.0145	0.0128	0.0112	0.4218	0.6091	0.5630	0.7479	0.7222	0.5370	0.4471	0.3700	0.2392	0.3024
3942	0.6794	0.4832	0.4407	0.3299	0.5053	0.5123	0.4530	0.4007	0.7415	0.2793	0.3196	0.3582	0.4002	0.3409	0.2845	0.2125	0.1908	0.2183	0.3912	0.3573

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
3944	0.5435	0.3738	0.4429	0.4889	0.4338	0.5214	0.4938	0.4489	0.3662	0.4184	0.4054	0.3356	0.4981	0.4314	0.6155	0.5909	0.4408	0.3194	0.3425	0.3868
3949	0.4434	0.4186	0.4723	0.4332	0.4247	0.4968	0.5086	0.4885	0.4566	0.4263	0.4141	0.4650	0.4360	0.4247	0.4655	0.5737	0.7130	2.2503	0.6793	0.4687
3950	0.2272	0.3093	0.3374	0.3176	0.3297	0.3036	0.3385	0.2878	0.2784	0.2658	0.3076	0.2346	0.2272	0.2858	0.2905	0.5262	0.4857	0.2998	0.2902	0.3663
3960	0.6311	0.7774	0.7541	0.9363	0.6886	0.7720	1.5392	0.6607	4.1095	0.7490	1.1011	1.1952	1.2483	0.9425	0.9424	1.3416	0.8744	1.3552	1.1772	3.2176
3990	0.2658	0.2711	0.2205	0.1954	0.2156	0.3880	0.2395	0.2545	0.2903	0.2814	0.3335	0.3398	0.4247	0.3717	0.3956	0.3595	0.3451	0.2857	0.3433	0.2296
4011	0.3923	0.3817	0.3839	0.3858	0.3787	0.3717	0.3757	0.3709	0.3236	0.3022	0.3721	0.4129	0.3644	0.4794	0.5963	0.5633	0.5942	0.5640	0.5503	0.4675
4100	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.8795	0.9290	0.9239	-.-	0.6909	0.6010	0.3489	0.6200
4210	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3891	0.4626	0.5126	0.2793	0.1287	0.2275	0.3410	0.3905	0.4615	0.5313
4213	0.4124	0.4149	0.3204	0.2958	0.3225	0.2876	0.2626	0.3832	0.2279	0.2965	0.3357	0.3711	0.3664	0.5418	0.5134	0.5273	0.5417	0.5365	0.4397	0.4897
4400	0.4900	0.4240	0.3569	0.3381	0.3471	0.3848	0.3979	0.4222	0.3857	0.4087	0.3518	0.4027	0.3376	0.5037	0.4725	0.4451	0.4094	0.5188	0.4770	0.5090
4412	0.6034	0.5319	0.4873	0.5630	0.6452	0.6693	0.6304	0.6515	0.5721	0.5792	0.5188	0.5387	0.5199	0.5887	0.5341	0.4968	0.5210	0.4887	0.5045	0.5174
4512	0.6665	0.5960	0.5496	0.5248	0.5406	0.5693	0.5014	0.5354	0.5243	0.5201	0.5453	0.5578	0.5543	0.5828	0.6278	0.6071	0.6832	0.7447	0.9317	3.3563
4513	-.-	-.-	0.4240	0.3430	0.4463	0.3437	0.3883	0.3928	0.2582	0.3600	0.3887	0.4669	0.4690	0.6440	0.5764	0.4717	0.5550	0.5955	0.5367	0.5073
4522	0.3771	0.4106	0.4315	0.7190	0.7343	0.7339	0.7591	0.8144	0.8467	0.7704	0.8463	1.0595	3.4076	1.8604	1.0172	0.9995	1.2653	1.8522	1.9932	1.7291
4581	0.7399	0.7712	0.7004	0.6165	0.5553	0.5808	0.6051	0.5214	0.6053	0.5728	0.5209	0.4218	0.5593	0.7694	0.8556	0.8492	0.5511	0.5390	0.7666	0.6994
4610	0.6904	0.7227	0.7045	0.6743	0.6385	0.6135	0.5773	0.5321	0.4020	0.4302	0.4292	0.5565	0.5388	0.5892	0.7242	0.7190	0.7748	0.7401	0.7453	0.7181
4700	0.6405	0.6627	0.7283	0.3198	0.3747	0.5199	0.7140	0.7657	0.8863	0.7807	0.8156	0.8352	0.7814	0.6221	0.6698	0.7422	0.6780	0.9155	0.8907	0.7968
4731	0.4943	0.5663	0.3896	0.2995	0.2348	0.1762	0.2066	0.4634	0.3345	0.2704	0.3641	0.2765	0.3711	0.4154	0.4075	0.3361	0.3757	0.3631	0.3401	0.3373
4812	1.8340	1.5878	1.0981	0.8495	0.5560	0.3783	0.2198	0.3688	0.5054	1.0112	0.7523	0.4450	0.6626	0.5609	0.6913	2.0352	2.2673	2.2092	1.4096	1.2847
4813	0.6488	0.6594	0.6303	0.6077	0.6150	0.5891	0.5877	0.5630	0.5301	0.4923	0.5072	0.5051	0.4988	0.4774	0.5098	0.5317	0.5411	0.5956	0.4699	0.5343
4822	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.2359	1.3761	-.-
4832	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	2.2022	0.7817	0.7007	0.7862	0.7440	0.7497	1.8904	1.8185	2.2333	1.1522	0.6703	1.4652
4833	0.5857	0.6130	0.6644	0.6440	0.6353	0.5325	0.6168	0.7352	0.8643	0.7041	0.8513	1.0664	2.9551	1.0637	0.7428	1.4968	1.7581	0.6364	0.4959	0.5785
4841	0.7262	0.8165	0.7832	0.7339	0.6374	0.4173	0.4752	0.5427	0.5442	0.6414	1.3721	1.0984	1.4116	1.6985	2.0135	1.8075	2.2647	2.2175	1.6231	2.1596
4899	0.0026	0.0576	0.0503	0.0056	0.0137	0.0131	0.0122	0.1401	0.2972	0.3278	0.4119	0.2363	0.3505	0.3887	0.3383	0.4685	0.5593	0.3825	0.4852	0.5281
4911	0.5620	0.5424	0.5382	0.5306	0.5313	0.5369	0.5380	0.5113	0.4992	0.5001	0.5044	0.5016	0.5041	0.5181	0.5168	0.5356	0.5490	0.5383	0.5402	0.5458
4922	0.5884	0.5583	0.5785	0.5390	0.5493	0.5019	0.5451	0.5410	0.4929	0.4904	0.5680	0.5589	0.4964	0.5584	0.5267	0.5845	0.5944	0.5708	0.5480	0.5853
4923	0.5013	0.4759	0.4577	0.4512	0.4452	0.4311	0.4269	0.4316	0.4001	0.3956	0.4337	0.4700	0.4602	0.5078	0.5131	0.5013	0.5240	0.5363	0.5060	0.4845
4924	0.5709	0.5484	0.5458	0.5309	0.5372	0.5264	0.5282	0.5333	0.5151	0.4842	0.5054	0.4923	0.4924	0.4934	0.5106	0.5218	0.5286	0.5287	0.5262	0.5280
4931	0.5458	0.5278	0.5157	0.5054	0.5130	0.5104	0.5049	0.4964	0.4821	0.4733	0.4830	0.4869	0.4970	0.5043	0.5034	0.5128	0.5120	0.5244	0.5190	0.5165
4932	0.5221	0.5133	0.5338	0.4986	0.5189	0.5135	0.5075	0.4868	0.4753	0.4516	0.4710	0.4734	0.4538	0.4556	0.4919	0.6696	0.6259	0.5832	0.5692	0.5684
4941	0.6196	0.6045	0.5907	0.5897	0.5912	0.5716	0.5833	0.5853	0.5771	0.5644	0.5603	0.5424	0.5415	0.5617	0.5851	0.6006	0.5882	0.5674	0.5461	0.5438

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
4941	0.6196	0.6045	0.5907	0.5897	0.5912	0.5716	0.5833	0.5853	0.5771	0.5644	0.5603	0.5424	0.5415	0.5617	0.5851	0.6006	0.5882	0.5674	0.5461	0.5438
4950	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.9311	0.1623	0.2035	0.4867	0.4709	0.6082	0.6525	0.7203	0.7794
4953	0.5530	0.5116	0.4426	0.3974	0.3966	0.3534	0.3049	0.4178	0.2489	0.5091	0.4480	0.4443	0.4656	0.4616	0.5679	0.4824	0.5828	0.5389	0.6060	0.5494
4955	0.1431	0.4393	0.0771	0.0852	0.2586	0.3389	0.1145	0.3789	0.2323	0.2811	0.2012	0.3573	0.3039	0.4466	0.4243	0.3911	0.3944	0.3333	0.3142	0.4194
4961	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.8466	0.7142
4991	0.2825	0.1736	0.2068	0.2983	0.3924	0.2476	0.4014	0.3889	0.3513	0.3892	0.5572	0.6679	0.3921	0.4606	0.4276	0.6821	0.5946	0.5022	0.4527	0.5917
5000	0.0396	0.0312	0.0248	0.0268	0.0935	0.0966	0.0930	0.0665	0.1323	0.0684	0.0751	0.0691	0.0685	0.0480	0.0387	0.0442	0.0359	0.0388	0.0707	0.0392
5010	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.1626	0.0064	0.1159	0.1239	0.3438	0.4550	0.3489	0.3820	0.3915	0.2282	0.4173	0.3655	0.3985
5013	0.2026	0.2101	0.2108	0.2168	0.1858	0.1542	0.1732	0.1369	0.1215	0.2473	0.5082	0.3918	0.3681	0.3512	0.3590	0.3472	0.3370	0.3040	0.2984	0.3310
5020	0.4482	0.2699	0.5160	0.5652	0.5932	0.5739	0.5655	0.4549	0.5691	0.5152	0.4756	0.4483	0.6232	0.5757	0.6122	0.6665	0.4925	0.4894	0.6037	0.4526
5030	0.0177	0.0147	0.0122	0.0101	0.1103	0.1953	0.3447	0.4244	0.3670	0.5029	0.3968	0.4835	0.4675	0.3957	0.0305	0.0790	0.1602	0.3125	0.5343	0.4477
5031	0.5590	0.5486	0.5131	0.4511	0.4271	0.6109	0.6013	0.5764	0.1484	0.2332	0.5656	0.5089	0.4286	0.4351	0.4379	0.4475	0.4364	0.4451	0.3454	0.3646
5040	0.2969	0.2964	0.3690	0.3948	0.3602	0.2787	-,-	-,-	-,-	-,-	-,-	0.3910	0.4183	0.3470	0.5327	0.5960	0.2615	0.5355	0.5212	0.8141
5045	0.5354	0.4714	0.5185	0.4484	0.4423	0.2290	0.1946	0.3021	0.3241	0.4262	0.3569	0.4027	0.3804	0.3185	0.4062	0.3499	0.3501	0.4765	0.3948	0.4704
5047	0.4329	0.5341	0.5121	0.4826	0.3554	0.2939	0.3131	0.2442	0.2492	0.3250	0.5558	0.6629	0.4901	0.5016	0.4865	0.5127	0.2877	0.1952	0.2508	0.6606
5051	0.2989	0.3574	0.3746	0.3765	0.3424	0.3073	0.3281	0.3088	0.3033	0.3156	0.3213	0.4745	0.2480	0.2686	0.3000	0.3548	0.3779	0.4274	0.2991	0.2674
5063	0.6085	0.5939	0.6173	0.5839	0.7001	0.6752	0.6187	0.5050	0.5727	0.6003	0.5353	0.6809	0.6177	0.6042	0.7041	0.9693	0.5708	0.6239	0.6716	0.5044
5065	0.3740	0.3565	0.3945	0.4139	0.4165	0.4446	0.4482	0.4624	0.4404	0.3133	0.3953	0.4050	0.4087	0.4212	0.4200	0.4193	0.5021	0.4840	0.4478	0.5156
5070	0.2596	0.2666	0.3641	0.4182	0.4877	0.4309	0.4661	0.4366	0.4221	0.4046	0.4831	0.5199	0.5714	0.6178	0.7644	0.8102	0.7909	0.7276	0.6234	0.7841
5072	0.7512	0.7649	0.7676	0.7826	0.6267	0.3911	0.2200	0.5894	0.3727	0.3423	0.4859	0.4560	0.5849	0.6740	0.5307	0.4151	0.4896	0.4931	0.4155	0.5701
5080	0.3740	0.4064	0.3818	0.4126	0.4533	0.4680	0.4041	0.4188	0.3588	0.3287	0.2461	0.2720	0.3032	0.3130	0.4628	0.3919	0.4060	0.4545	0.5149	0.4768
5082	-,-	-,-	-,-	-,-	-,-	-,-	-,-	-,-	0.5807	0.1357	0.7650	0.5799	0.5676	0.5796	0.7771	1.2380	0.5268	0.4614	0.1487	0.7903
5084	0.0696	0.0534	0.0377	0.0277	0.0187	0.3611	0.2232	0.1928	0.1872	0.1646	0.1166	0.0985	0.0928	0.0661	0.0195	0.0120	-,-	-,-	0.7584	0.5125
5090	0.4003	0.4749	0.4012	0.4291	0.3738	0.3027	0.2986	0.2106	0.2134	0.3488	1.1331	0.4241	0.5175	0.4740	1.1955	0.9386	0.7431	0.3844	0.6468	0.3632
5094	0.1428	0.1805	-,-	-,-	0.2319	0.5896	0.6344	0.8229	0.6230	0.6497	0.9562	0.6519	0.9427	0.6879	0.6952	0.4681	0.4238	0.5173	0.4739	0.4393
5099	0.0916	0.0486	0.0214	0.1264	0.0339	0.0214	0.0409	0.0338	0.0653	0.0792	0.0596	0.0836	0.0665	0.0539	0.0668	0.1447	0.3423	0.2997	0.5531	1.6041
5110	0.2773	0.2810	0.2931	0.3665	0.3752	0.3198	0.4030	0.2964	0.3363	0.3344	0.3731	0.4201	0.2678	0.2355	0.3032	0.4424	0.4119	0.5209	0.5667	0.4824
5122	0.7271	0.4474	0.4729	0.5262	0.5105	0.4489	0.4679	0.3882	0.2174	0.1818	0.4086	0.5070	0.5139	0.6092	0.4879	0.5812	0.5341	0.4737	0.4772	0.3786
5130	-,-	-,-	-,-	-,-	0.5727	0.5189	0.3757	0.4441	0.4666	0.4837	0.3881	0.4410	0.3760	0.3936	0.4666	0.5350	0.5792	0.8071	0.8284	0.7922
5140	0.4015	0.4326	0.4932	0.5445	0.5582	0.5942	0.4346	0.4238	0.4239	0.3713	0.4002	0.3581	0.4238	0.4600	0.5422	0.3925	0.4090	0.4448	0.4605	0.4120
5141	0.3211	0.2496	0.2226	0.4383	0.4100	0.3948	0.3688	0.3889	0.3835	0.4152	0.3873	0.4087	0.3547	0.8153	0.7912	0.7402	0.6591	0.6462	0.6469	0.9590
5150	0.4181	0.2364	0.4144	0.4485	0.3817	0.4866	0.4656	0.5321	0.4855	0.4667	0.3684	0.4479	0.5525	0.6440	0.6210	0.6762	0.7330	0.7805	0.7873	0.8073

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
5160	0.2063	0.2525	0.2608	0.3224	0.2696	0.2618	0.2661	0.4154	0.3007	0.3207	0.4029	0.4219	0.4245	0.4764	0.4356	0.4556	0.4283	0.4284	0.4602	0.2699
5171	0.5638	0.5460	0.5048	0.5400	0.4456	0.3715	0.3553	0.4410	0.4097	0.4422	0.6594	0.6242	0.5473	0.4692	0.4531	0.5481	0.6251	0.5621	0.2839	0.3447
5172	0.4803	0.4822	0.4975	0.5843	0.4513	0.4558	0.4833	0.7461	0.6875	0.6669	0.6136	0.6249	0.4718	0.4990	0.4520	0.6165	0.4637	0.4676	0.4055	0.4014
5190	0.0226	-.-	-.-	-.-	-.-	0.0824	0.1015	0.3287	0.3034	0.2777	0.2483	0.3299	0.1653	0.1763	0.1706	0.2806	0.2300	0.2623	0.2813	0.5324
5200	0.3554	0.3751	0.3912	0.3961	0.2903	0.4184	0.3979	0.3133	0.3651	0.2839	0.2953	0.3862	0.4228	0.5332	0.4878	0.8953	0.4163	0.7177	0.6954	0.4748
5211	0.3246	0.2158	0.2731	0.3393	0.3382	0.3144	0.3249	0.2200	0.2153	0.4251	0.4252	0.4301	0.3607	0.5789	0.5704	0.6096	0.4153	0.6440	0.5781	0.5216
5311	0.3688	0.3612	0.3755	0.4472	0.4551	0.4501	0.5065	0.5077	0.4608	0.4740	0.4942	0.4308	0.4285	0.5606	0.5173	0.5279	0.6970	0.5398	0.4795	0.4891
5331	0.2170	0.1764	0.2399	0.3071	0.2719	0.3097	0.3270	0.3109	0.3251	0.3621	0.3608	0.4784	0.4856	0.4272	0.4136	0.4458	0.4409	0.4588	0.4428	0.4316
5399	0.4088	0.1455	0.2729	0.5566	0.4335	0.4979	0.4132	0.3092	0.2229	0.2310	0.3547	0.4069	0.3747	0.3323	0.5432	0.5050	0.4600	0.4065	0.3784	0.3346
5411	0.2828	0.2738	0.3333	0.4723	0.4846	0.4618	0.4496	0.4300	0.3942	0.3802	0.4064	0.4854	0.5166	0.6553	0.6705	0.5980	0.6418	0.6388	0.6394	0.6095
5412	0.4819	0.2838	0.2424	0.2649	0.7342	0.6849	0.5433	0.7121	0.5264	0.6029	0.5372	0.7629	0.6182	0.6636	0.7153	0.6824	0.6726	0.6756	0.6587	0.6642
5500	-.-	-.-	0.0361	0.0417	0.0344	0.0307	0.0264	0.0673	0.4427	0.3674	0.5023	0.4355	0.3180	0.5300	0.5977	0.7228	0.6136	0.6406	0.5043	0.3961
5531	0.2307	0.2038	0.1869	0.1534	0.1609	0.1775	0.1654	0.2022	0.2100	0.1899	0.2725	0.2616	0.2994	0.3298	0.4165	0.5095	0.3705	0.2947	0.2889	0.2791
5600	0.3348	0.3890	0.4180	0.4806	0.4456	0.4529	0.4886	0.3855	0.1953	0.2321	0.2601	0.2301	0.2550	0.2217	0.2160	0.2746	0.2334	0.2266	0.1976	0.2058
5621	0.3030	0.1899	0.2922	0.3488	0.3566	0.3602	0.2047	0.2402	0.1478	0.2417	0.2420	0.2180	0.2726	0.3067	0.6704	0.3435	0.4722	0.4609	0.2629	0.3054
5651	0.4190	0.3606	0.3336	0.3851	0.4482	0.4103	0.4414	0.2372	0.2032	0.2341	0.2220	0.2855	0.1904	0.2402	0.3034	0.3182	0.2554	0.1474	0.1270	0.2041
5661	0.6964	0.6489	0.5454	0.5619	0.5125	0.5072	0.5183	0.5053	0.4803	0.4187	0.4177	0.3192	0.3225	0.2932	0.2819	0.2894	0.2782	0.4158	0.3724	0.4041
5700	0.2656	-.-	-.-	-.-	-.-	0.7948	0.3997	0.3695	0.2047	0.2495	0.3093	0.4560	0.4855	0.4292	0.2821	0.2840	0.2402	0.2940	0.2184	0.2620
5712	0.3643	0.3071	0.3554	0.4506	0.5044	0.4685	0.5031	0.4504	0.4280	0.5317	0.5939	0.6778	0.7560	0.8520	0.8354	0.7938	0.8027	1.1822	0.8520	0.5635
5731	0.6122	0.4755	0.5279	0.5331	0.5015	0.4955	0.4613	0.2873	0.3935	0.3526	0.2639	0.2273	0.3100	0.3043	0.2438	0.3262	0.2942	0.2838	0.3889	0.2629
5734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7981	0.0559	0.4317	0.5262
5735	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	3.5038	0.9663	4.4750	4.3446	1.4632	0.6479	0.5283
5812	0.3932	0.3340	0.5557	0.4571	0.5047	0.4795	0.4654	0.4352	0.3880	0.4141	0.4395	0.4628	0.4089	0.5199	0.5377	0.5020	0.7724	0.5162	0.5645	0.7288
5900	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4116	0.5946	0.7322	0.6413	0.7028	0.6264	0.7440	0.7498	0.7583	0.6625
5912	0.2424	0.2192	0.2191	0.2383	0.2600	0.2604	0.2173	0.2193	0.1955	0.2832	0.3361	0.5831	0.7182	0.4857	0.5028	0.4751	0.4668	0.4387	0.4941	0.3018
5940	0.1647	0.1514	0.2843	0.2413	0.2599	0.2804	0.2365	0.2752	0.1218	0.1351	0.2412	0.1803	0.2612	0.1678	0.1697	0.1872	0.2429	0.2903	0.3147	0.2875
5944	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7940	-.-	0.0694	0.2011	0.1876	0.2146	0.2480	0.4689	0.4298
5945	-.-	0.2852	0.4175	0.3759	0.2626	0.2151	0.2985	0.1143	0.1066	0.1574	0.1090	0.0858	0.1415	0.2233	0.2134	0.2110	0.1884	0.1740	0.1620	0.3718
5960	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.8642	0.0547	0.0804	0.2869
5961	0.5528	0.4257	0.6002	0.5984	0.6315	0.5859	0.5971	0.5631	0.4155	0.8102	0.5156	0.3382	0.5496	0.5226	0.4870	0.4875	2.5056	0.6262	0.3078	0.2885
5990	0.3780	0.3256	0.4204	0.4039	0.3630	0.6859	0.6094	0.4592	0.3911	-.-	1.0732	0.7354	1.5448	0.9545	1.0058	0.2829	0.2960	0.2970	0.3503	0.5496
6021	0.6363	0.6655	0.6700	0.6846	0.6973	0.7044	0.7225	0.7228	0.7046	0.6928	0.7081	0.6829	0.6564	0.6305	0.6374	0.5990	0.5648	0.5508	0.4200	0.4734

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6022	0.5140	0.5336	0.5771	0.6268	0.6272	0.6421	0.6243	0.5498	0.5147	0.5251	0.5304	0.5155	0.4817	0.5070	0.5009	0.4868	0.4907	0.4900	0.3984	0.4246
6029	-.-	-.-	-.-	-.-	-.-	-.-	0.2810	0.4024	0.3291	0.4092	0.3840	0.6479	0.6917	0.6764	0.6859	0.6836	0.6709	0.7337	0.7636	0.7456
6035	0.6430	0.6051	0.6657	0.7060	0.6909	0.6949	0.7639	0.8638	0.8553	0.8783	0.8514	0.8053	0.8401	0.8684	0.8195	0.8041	0.7399	0.6341	0.4957	0.5521
6036	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0220	0.9526	0.6323	0.4983	0.6248	0.6615	0.6699	0.5745	0.5196	0.4619	0.4480
6099	0.0976	0.3839	0.3075	0.2845	0.2369	0.1326	0.0478	0.0402	0.3035	0.1325	0.2904	0.2793	0.1934	0.2041	0.1178	0.0442	0.0131	1.0992	0.7452	0.3259
6111	0.9721	0.9689	0.9645	0.9678	0.9699	0.9743	0.9830	0.9845	0.9634	0.9674	0.9689	0.9627	0.9646	0.9649	0.9589	0.9591	0.9640	0.9493	0.9513	0.9589
6141	0.7025	0.7018	0.7241	0.7403	0.7943	0.7785	0.8191	0.8108	0.8012	0.8331	0.7681	0.8054	0.8370	0.8701	0.8546	0.8620	0.9201	0.8508	0.8167	0.8200
6153	0.8653	0.8968	0.7958	0.8312	0.7884	0.7744	0.7571	0.7694	0.8518	0.8687	0.8942	0.8877	0.8772	0.8620	0.8514	0.8166	0.8265	0.7979	0.7888	0.8039
6159	-.-	0.9270	0.9254	0.9257	0.8573	0.8674	0.8434	0.8513	0.8286	0.8056	0.7925	0.7823	0.7593	0.7612	0.7430	0.7075	0.6882	0.6876	0.6788	0.6149
6162	0.9106	0.9150	0.8936	0.8876	0.8834	0.8623	0.8250	0.8202	0.6772	0.7062	0.6738	0.6922	0.6239	0.8141	0.8141	0.6417	0.9328	0.6874	0.7794	0.6866
6163	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3481	0.1003	0.1434	0.2252	0.4064	0.5751	0.7849	0.5660	0.3987	0.4229	0.2954
6172	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.9547	0.7906	0.7416	0.7390	0.4172	0.5324	0.6887	0.6674	0.6341	0.5860	0.6115	0.6291	0.6624
6199	0.5353	0.5172	0.5249	0.5577	0.5402	0.4949	0.5499	0.4950	0.4234	0.4281	0.3699	0.3029	0.3466	0.3769	0.4500	0.4390	0.4179	0.4629	0.3438	0.3226
6200	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2806	0.2423	0.2385	0.3562	0.2551	0.3428	0.3846	0.3099	0.4773	0.3801	0.4224
6211	0.6474	0.7258	0.7326	0.7548	0.7477	0.6978	0.6710	0.6553	0.5841	0.6190	0.5967	0.5992	0.6233	0.6550	0.6567	0.6212	0.5992	0.5803	0.5813	0.6735
6282	-.-	24.1300	0.7715	0.4351	1.3383	0.5558	0.3669	0.2265	0.2671	0.2655	2.7167	3.9616	0.8441	99.3980	12.8552	13.8721	1.0236	1.4116	0.6645	0.8467
6311	0.2234	0.2161	0.2119	0.1958	0.2860	0.2690	0.3185	0.3373	0.3289	0.3183	0.3106	0.3324	0.3672	0.3805	0.3955	0.4519	0.4579	0.4169	0.3671	0.4398
6321	0.3319	0.3274	0.3742	0.1402	0.2355	0.2150	0.2658	0.1942	0.2082	0.2141	0.2150	0.2360	0.2671	0.3631	0.2946	0.3067	0.3151	0.2967	0.2470	0.3256
6324	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3497	0.3067	0.0725	0.5029	0.5309	0.7472	0.4346	0.4674	0.1060	0.3582	0.2792	0.2049
6331	0.3020	0.2725	0.2691	0.2924	0.2979	0.3544	0.2991	0.2809	0.2865	0.3102	0.3571	0.2983	0.2552	0.2808	0.2775	0.3150	0.3445	0.3321	0.2754	0.3026
6351	0.5410	0.4318	0.3892	0.3404	0.3161	0.3289	0.2323	0.2616	0.1965	0.4254	0.3473	0.3104	0.3376	0.3718	0.3694	0.3854	0.2767	0.2514	0.2054	0.2397
6361	0.3468	0.3522	0.1630	0.1729	0.2773	0.3172	0.3507	0.2616	0.2063	0.1541	0.1903	0.2871	0.3164	0.3222	0.3273	0.3597	0.3747	0.2582	0.2445	0.3179
6399	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2263	0.1949	0.1428	0.5160	0.4935	0.4282	0.3467	0.3502	0.3183	0.2672	0.1895	0.4628	-.-
6411	0.2613	0.1317	0.1583	0.2920	0.3126	0.3322	0.3107	0.3895	0.5506	1.0142	0.5476	0.4601	0.5337	0.4314	0.3444	0.4210	0.5240	0.7743	0.5408	0.4200
6510	0.7641	0.7604	0.7520	0.6119	0.6406	0.4195	0.3737	0.3073	0.4483	0.4281	0.3839	0.4343	0.6099	0.6579	0.7786	0.7904	0.8111	0.8181	0.7977	0.6407
6512	0.7112	0.7000	0.6829	0.6918	0.7155	0.7047	0.7038	0.7061	0.6811	0.8264	0.7113	0.5993	0.5022	0.5482	0.5702	0.5830	0.6305	0.7458	0.6761	0.7690
6531	-.-	-.-	-.-	-.-	-.-	0.1354	0.5592	0.5527	0.2829	0.3202	0.4176	0.7874	0.7271	0.7465	0.7120	1.1495	2.1418	0.3403	0.5744	18.8931
6532	0.7535	0.7312	0.6782	0.6292	0.6506	0.5560	0.5097	0.5453	0.4513	0.5617	0.5954	0.3377	0.2180	0.1070	0.0644	-.-	-.-	-.-	-.-	-.-
6552	0.5581	0.5669	0.5683	0.5015	0.4048	0.3599	0.3815	0.4123	0.2727	0.4211	0.5484	0.4456	0.4719	0.5648	0.4761	0.5169	0.5920	0.5640	0.4483	0.4623
6726	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-
6792	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.2379	0.0623	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-
6794	0.2905	0.1353	0.1083	0.2101	0.1762	0.1617	0.1631	0.4172	0.1792	0.3982	0.1857	0.1496	0.1745	0.2913	0.2908	0.5681	2.9111	1.0709	4.7332	0.3675

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
6795	0.0546	0.1430	0.1687	0.1880	0.2571	0.3029	0.2998	0.2938	0.2161	0.3556	0.2842	0.2131	0.1428	0.1540	0.1654	0.1821	0.2286	0.2313	0.1494	0.1076
6798	0.6495	0.6411	0.6046	0.5871	0.5668	0.5322	0.4819	0.4968	0.4895	0.4474	0.4237	0.4313	0.4287	0.4797	0.4776	0.4862	0.5066	0.5309	0.5716	0.4816
6799	0.6016	0.4768	0.4585	0.2997	0.3800	0.3338	0.4264	0.4519	0.4111	0.4493	0.4159	0.6064	0.4882	0.4343	0.7894	0.9964	0.8508	0.8307	0.4541	0.2440
7011	0.6537	0.5943	0.6056	0.5753	0.5815	0.5329	0.5108	0.5016	0.5269	0.4988	0.5785	0.5399	0.5849	0.6304	0.5727	0.6227	0.6619	0.6773	0.7494	0.7281
7200	0.3906	0.3852	0.3535	0.3762	0.3994	0.3542	0.2914	0.2818	0.2944	0.3007	0.3471	0.3470	0.4734	0.3896	0.3631	0.4114	0.5565	0.4214	0.4184	0.3786
7310	-.-	-.-	-.-	-.-	-.-	1.0415	1.2767	1.1886	1.5503	1.5377	0.9431	1.7667	3.2960	2.4598	3.7860	5.2950	7.3965	5.5044	4.6485	9.8622
7311	0.1250	0.1230	0.1306	0.0813	0.2060	0.1870	0.1453	0.1653	0.1772	0.2856	0.4535	0.3837	0.3570	0.7895	0.5116	0.7728	0.6286	0.8351	0.8429	0.4148
7320	0.3109	0.2401	0.2496	0.3571	0.5505	0.3826	0.3970	0.3770	0.2753	0.3720	0.3788	0.5507	0.3857	0.4643	0.4855	0.3465	0.3484	0.4358	0.8540	1.6563
7331	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0874	0.0368	-.-	-.-	-.-	-.-	-.-	2.2828	0.9980
7340	0.2840	0.2171	0.2167	0.1904	0.2171	0.1533	0.1145	0.1439	0.0530	0.5748	0.8208	1.2425	0.1632	0.2771	0.3354	0.3225	0.1892	0.1975	0.9131	0.2722
7350	-.-	-.-	-.-	-.-	-.-	-.-	0.7620	0.6751	0.6217	0.8135	0.8729	0.7588	0.9139	0.9922	1.0153	1.0083	0.9690	0.9087	0.9707	0.9905
7359	0.7028	0.6656	0.6437	0.6779	0.6658	0.6698	0.5516	0.4235	0.4272	0.4817	0.4974	0.5644	0.5063	0.4764	0.4943	0.5164	0.4467	0.4939	0.5040	0.4537
7361	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.0932	0.0743	0.0658	0.0678	0.0197	-.-	-.-	-.-	-.-	-.-	-.-	-.-
7363	0.5006	0.4441	0.2706	0.2301	0.1844	0.3299	0.3630	0.3944	0.5087	0.4715	0.4438	0.3904	0.8318	0.7900	0.9173	0.9076	1.0925	1.3584	0.7347	0.3240
7370	0.0505	0.0369	0.3619	0.3664	0.4251	0.3653	0.4048	0.4053	0.3242	0.3962	0.3116	0.2283	0.2351	0.3012	0.3321	0.5085	0.5040	0.3690	0.3615	0.3094
7371	0.1708	0.2788	0.2545	0.2354	0.3126	0.3554	0.1544	0.1257	0.0826	0.1394	0.1779	0.1464	0.1346	0.2158	0.1275	0.0568	0.1967	0.1642	0.1576	0.1408
7372	0.7707	0.6291	0.5444	0.3928	0.2685	0.3094	0.2324	0.1107	0.0830	0.1747	0.2099	0.1909	0.1707	0.2041	0.1689	0.1503	0.1665	0.1051	0.1301	0.1911
7373	0.4204	0.3717	0.2655	0.2849	0.3156	0.2990	0.2907	0.2504	0.2060	0.2334	0.2972	0.1823	0.2628	0.5153	0.4020	0.4445	0.5289	0.4334	0.3934	0.3255
7374	0.0821	0.0502	0.1010	0.1204	0.1652	0.3452	0.1609	0.1421	0.0558	0.2065	0.2312	0.2042	0.2152	0.2794	0.2645	0.3065	0.4360	0.2974	0.2569	0.2310
7377	0.6783	0.6940	0.7558	0.7582	0.7588	0.7712	0.8279	0.7912	0.7677	0.7811	0.6917	0.7882	0.7527	0.7696	0.8230	0.8406	0.8382	0.8160	0.8166	0.7850
7380	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.3272	0.0467	0.5026	0.4102	0.5128	0.4860	0.4438	0.3498	0.4842	0.4820	1.2246	1.8823
7381	0.3866	0.3123	0.3341	0.3182	0.3159	0.3075	0.2876	0.3101	0.2877	0.2775	0.2973	0.3041	1.6582	1.0001	1.2399	1.0203	0.8303	0.6651	1.2372	1.0618
7384	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6318	0.4119	0.2851	0.8037	0.5418	0.0873	-.-	-.-	-.-	-.-
7385	0.4055	0.3203	0.5551	0.6352	0.3313	0.1071	0.1356	0.0636	0.0298	0.0250	0.4192	0.2765	0.0241	0.6125	0.5936	0.5497	0.5653	0.2512	0.5494	0.4233
7389	0.0088	0.0027	0.0077	0.1656	0.1921	0.1610	0.2342	0.2048	0.1641	0.1534	0.3223	0.2348	0.2263	0.2708	0.9309	0.7806	0.7294	0.5531	0.3225	0.2441
7500	0.0043	0.0129	0.0828	0.0778	0.0802	0.0744	0.0573	0.0454	0.0362	0.0274	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-
7510	0.7835	0.7322	0.7954	0.7885	0.7876	0.7325	0.7020	0.6752	0.6703	0.6989	0.7050	0.7160	0.7062	0.7121	0.7038	0.6812	0.6625	0.6553	0.6204	0.4690
7600	0.6516	0.6014	0.5552	0.6566	0.5962	0.5431	0.6787	0.6740	0.6094	0.4968	0.5607	0.5890	0.4721	0.4871	0.4313	0.4533	0.7142	0.4070	0.7429	0.6600
7812	-.-	-.-	-.-	-.-	-.-	-.-	0.0898	0.2032	0.2053	0.4348	0.4170	0.2832	0.2405	0.1625	0.2432	0.3352	0.6542	0.6571	0.5076	0.3611
7819	-.-	-.-	-.-	-.-	-.-	0.3039	0.0453	0.2776	0.1899	0.5159	0.7208	0.4831	0.3800	0.5898	0.8932	1.2334	0.3243	0.4854	0.4922	0.4554
7822	0.6622	0.6291	0.6636	0.6272	0.4770	0.4797	0.4084	0.4140	0.5065	0.4554	0.1026	0.5087	0.3867	0.6045	0.3169	0.3044	0.6153	0.6177	0.3802	0.6609
7830	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6901	0.4689	0.4672	0.6202	0.7318	0.7768	0.5836	0.5842	0.5949	0.7416	0.8481	0.8064	0.3245

Appendix E
Industry Average Values for Leverage for 1975-1994

SIC	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
7900	0.3309	0.2662	0.3477	0.3358	0.4220	0.3572	0.2864	0.2344	0.1885	0.1331	0.0554	0.0419	0.0269	0.0193	0.0134	0.0091	0.0018	-.-	-.-	-.-
7948	0.9534	0.9895	0.8527	0.7270	0.7181	0.7283	0.6052	0.4212	0.5384	0.4188	0.4015	0.3508	0.3996	0.3761	0.2003	0.3545	0.3588	0.2893	0.2592	0.3127
7990	0.4983	0.4443	0.4338	0.3986	0.4654	0.4299	0.5307	0.5844	0.6199	0.6826	0.6841	0.8792	0.7385	0.7833	0.7908	0.7919	0.7202	0.7124	0.7130	0.6317
7997	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.7647	0.9928	-.-
8000	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.4936	0.3541	0.4439	0.2005	0.2641	0.5994	2.2238
8011	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.5662	0.4398	0.4173	0.6186	0.5078	0.4969	0.5153	0.5589	0.5002	0.5000	0.4710	0.7085
8051	0.6716	0.6918	0.7227	0.7538	0.7443	0.7313	0.7368	0.7727	0.6495	0.6461	0.6211	0.5908	0.7136	0.6400	0.7184	0.7479	0.6399	0.5888	0.5857	0.5756
8060	0.5301	0.5434	0.4878	0.5345	0.5060	0.4781	0.4242	0.3721	0.3228	0.3813	0.3791	0.4517	0.5694	0.8093	0.6662	0.8126	0.7043	0.4386	0.4393	0.4409
8062	0.6917	0.6896	0.6431	0.5611	0.5718	0.6297	0.5118	0.4874	0.7356	0.7268	0.7048	0.7946	0.9384	1.0998	1.2805	0.7800	0.6076	0.5400	0.5506	0.5173
8071	-.-	-.-	-.-	-.-	-.-	0.0181	0.0136	-.-	0.9417	0.7170	0.6212	0.5745	0.5652	0.4227	0.5593	0.5742	0.6969	0.6695	1.3849	1.0295
8082	-.-	-.-	0.7581	0.6212	0.6047	0.5312	0.3065	0.6480	0.2727	0.4527	0.4148	0.3724	0.4543	0.4721	0.4402	0.4801	0.3380	0.3475	0.6198	0.4439
8090	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	0.6569	0.6400	0.3937	0.4813	0.2171	0.1803	0.2246	0.1978	0.1662	0.1264	0.1778	0.2208
8093	-.-	-.-	-.-	-.-	-.-	-.-	0.0832	0.1529	0.0110	0.3845	0.2269	0.2982	0.3057	0.3507	0.4343	0.3025	0.3121	0.3462	0.3652	0.4936
8200	0.1873	0.1572	0.2167	0.2267	0.4363	0.5859	0.3715	0.2706	0.1926	0.2864	0.2856	0.4266	0.4571	0.4702	0.5862	1.2383	2.1047	0.3725	0.3391	1.8959
8300	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	1.0000	1.0000	1.0000	1.0000	0.5481	0.6756	0.6617	0.7846	0.3148
8700	0.2496	0.2043	0.0841	0.1193	0.1733	0.5725	0.2957	0.2112	0.1316	0.1165	0.1543	0.1095	0.1764	0.1867	0.2371	0.3062	0.2224	0.1409	0.5080	0.4494
8711	0.4248	0.1976	0.2385	0.2473	0.2777	0.2167	0.2329	0.2276	0.2250	0.2491	0.2815	0.3582	0.4900	0.3766	0.4862	0.3329	0.2628	0.3208	0.3280	0.6643
8731	0.2106	0.3796	0.2426	0.4169	0.4391	0.3806	0.5933	0.5646	0.6927	0.3516	0.2553	0.2635	0.2049	0.1920	0.4421	0.4020	0.5354	0.9079	0.6746	0.7544
8734	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	-.-	2.0959	0.0676	0.0723	0.2194	0.2928	0.2326	0.2390	0.2880	0.4208
8741	0.1885	0.2905	0.2006	0.2021	0.2217	0.2180	0.1768	0.3343	0.1119	0.1313	0.1989	1.5722	1.4594	0.8152	0.7989	0.3720	3.3616	1.2930	1.1056	5.3324
8742	0.4126	0.3722	0.3788	0.3306	0.3797	0.2232	0.1534	0.3045	0.3531	0.4302	0.6288	0.6245	0.8118	0.7774	0.5606	0.2633	0.2575	0.1516	0.1947	0.1495
8744	-.-	-.-	-.-	0.8039	0.6020	0.6324	0.1174	0.0803	0.0730	0.9640	0.5009	0.5692	0.7442	0.6808	0.5862	1.0002	0.7723	0.8923	0.6544	1.1450
9995	-.-	-.-	-.-	-.-	-.-	-.-	0.3586	0.5387	0.5973	0.5098	0.6108	0.6297	0.5996	0.6202	0.7025	0.3066	0.5810	0.3340	0.4625	0.0507
MEDN	0.3696	0.3545	0.3609	0.3566	0.3582	0.3452	0.3372	0.3431	0.3220	0.3460	0.3721	0.4170	0.4104	0.4382	0.4716	0.4705	0.4581	0.4627	0.4617	0.4494
AVRG	0.3922	0.4869	0.3770	0.3823	0.3882	0.3715	0.3621	0.3683	0.3663	0.4306	0.4159	0.4727	0.4770	0.7366	0.6554	0.6052	0.6015	0.6314	0.6136	0.6362

Appendix F
Decile Limits of Trading Volume (in millions of shares) for 1975–1994

	Upper Limits for each Decile of Trading Volume								
Year	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
75	0.088	0.170	0.273	0.412	0.667	1.078	1.965	3.594	6.835
76	0.122	0.233	0.375	0.604	0.906	1.503	2.712	4.862	8.782
77	0.121	0.241	0.393	0.597	0.947	1.554	2.637	4.683	8.525
78	0.169	0.331	0.565	0.870	1.337	2.146	3.453	5.699	10.404
79	0.153	0.342	0.551	0.873	1.360	2.199	3.525	6.215	11.856
80	0.205	0.458	0.760	1.213	1.851	2.890	4.817	8.390	17.469
81	0.232	0.472	0.768	1.213	1.804	2.811	4.628	7.854	16.292
82	0.210	0.470	0.819	1.251	1.936	3.078	5.134	10.428	22.487
83	0.328	0.699	1.196	1.840	2.880	4.389	7.040	13.348	28.353
84	0.270	0.614	1.021	1.607	2.522	3.887	6.618	13.053	28.297
85	0.318	0.823	1.452	2.260	3.389	5.354	9.093	16.492	33.801
86	0.465	1.034	1.774	2.763	4.206	6.540	11.177	20.772	43.839
87	0.478	1.111	1.980	3.020	4.812	7.604	12.873	24.749	52.023
88	0.347	0.763	1.309	2.104	3.386	5.453	9.657	18.323	40.987
89	0.413	0.898	1.609	2.630	4.366	6.766	11.591	21.990	45.182
90	0.347	0.782	1.479	2.528	4.166	6.614	11.236	20.651	42.572
91	0.346	0.856	1.629	2.943	4.910	8.029	14.010	23.876	48.752
92	0.420	0.985	1.898	3.330	5.555	9.084	15.086	25.501	53.543
93	0.500	1.226	2.295	3.876	6.491	10.229	16.594	28.434	59.742
94	0.508	1.230	2.304	3.880	6.293	9.990	16.101	28.990	61.561

Investors' Pricing of Exchange Rate Risk in U.S. Firms that File for Bankruptcy

I. Introduction

There are two diametrically opposed philosophies regarding corporate financial distress. The first, which I refer to as the armchair philosophy of corporate bankruptcy, minimizes any influence of exogenous economic factors and maintains the fundamental reasons for business failures lie within the firm itself.[1] The second philosophy, which is more pragmatic, considers the condition of the overall economy to be the primary force behind corporate distress and business failures.[2]

Focusing first on the armchair philosophy, the following verse exemplifies its outlook:

> One ship drives east and another drives west
> With the selfsame winds that blow.
> 'Tis the set of the sails
> And not the gales
> Which tells us the way to go.[3]

While there is some validity in this philosophy with respect to corporations,

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[1]Altman (1983), et al.

[2]Platt and Platt (1994).

[3]Wilcox.

it is not necessarily applicable to all, and perhaps not even most, of the firms that file for bankruptcy. Unquestioning fealty to this philosophy as the principal explanation for a firm's failure is analogous to suggesting that it is an individual's fault if they develop cancer. Obviously an individual's actions, either through ignorance or conscious choice — using tobacco products, for example — may be responsible for some forms of cancer, but it is illogical to suggest the citizens of Chernobyl were responsible for the numerous cases of cancer that developed following the release of radiation from the nearby nuclear power plant in April 1986. Similarly, corporations may — through ignorance, calculated risk, or perhaps deliberate design — expose themselves to financial distress and, at the extreme, bankruptcy. But this perspective does not present the complete picture — it ignores any possible influence of exogenous factors.

In essence, this concept — that responsibility for bankruptcy lies primarily within the firm — suggests each firm is an island unto itself isolated to a large degree from other firms within the industry and to a lesser degree from the economic environment. Thus, when a firm experiences financial distress and succumbs to bankruptcy, the bankruptcy is primarily attributable to the firm's financial decisions/actions with perhaps a limited role played by the storms of economic instability engulfing it.

If the armchair philosophy were valid for industry on a wholesale basis we should expect to find certain supporting evidence. Specifically, the inference of this philosophy is that although economic conditions change

from year-to-year, since the economy plays a lesser role than managerial actions in a firm's financial stability, or instability as the case may be, there should not be a significant difference from year-to-year in the number of business failures.[4,5] Given the focus of this research, we must recognize the distinction between the more common business termination and the less common business failure. Whereas business formations generally are considered a primary factor in determining the number and distribution of business terminations, this relationship does not necessarily hold for business failures. For amplification, Table I presents the total number of business formations, terminations, and failures for the years 1990 – 1994.

Table I
Business Formations, Terminations, and Failures
1990 - 1994

Category	1990	1991	1992	1993	1994
Business Formations	769,000	726,000	737,000	780,000	807,000
Business Terminations	844,000	821,000	819,000	801,000	803,000
Business Failures	60,747	88,140	97,069	86,133	71,520

Sources: *The State of Small Businesses: A Report for the President, 1994*, U.S. Government Printing Office, Washington, D.C., 1995; *Business Failure Record, 1994*, The Dun & Bradstreet Corporation, Wilton, Connecticut, 1995.

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[4]Altman (1983), on page 99 states: ". . . economic conditions, exogenous to the individual firm, *may* [emphasis added] contribute to its eventual failure. It should be made clear, however, that in almost all cases the fundamental business failure problems lie within the firm itself."

[5]Although Altman's pejorative use of the word *failure* may be common to describe the large number of new business formations that survive less than five years, The Dun & Bradstreet Corporation employs more precise terminology. Dun & Bradstreet classifies most of the business closings as simply "business discontinuances" or terminations. They define a "business failure" as consisting of businesses involved in court proceedings or voluntary actions that involve losses to creditors.

Given the generally consistent patterns for business formations and terminations, if the economy and/or other exogenous variables do not play a major role in corporate distress — from a rudimentary perspective — we should expect a distribution that is approximately uniform over time with respect to the number of firms filing for bankruptcy. Although the absence of a uniform distribution does not implicate the economy as the guilty party causing business failures, a significant variation in the distribution substantially eliminates random possibility as a probable explanation for the failures. In eliminating the random possibility explanation, we have a rebuttal for Altman's argument that the cause for fundamental business failure problems lie within the firm itself.

From a more meticulous perspective, if the armchair philosophy is to prevail, there should be supporting empirical evidence. The empirical evidence we should expect would be that there is little to no contagion effect manifest in a corporate bankruptcy announcement. That is, a bankruptcy announcement is firm-specific and does not convey industry-wide negative information; the bankruptcy of one firm does not result in significantly negative abnormal returns for the other firms within the industry. To the contrary, instead of the contagion effect we should consistently find evidence of the competitive effect — a positive benefit to other firms within an industry when a competitor files for bankruptcy. In other words, the bankruptcy of one or more firms means there are fewer competitors to satisfy the existing level of demand, consequently the remaining firms should experience positive abnormal stock price reactions.

Unfortunately, we do not find data that unambiguously support the armchair philosophy. For a casual review of recent experience, Figure 1 is a bar chart showing the number of business failures, on a monthly basis, for the 11-year period of 1984 through 1994. The chart conveys the impression of a large variation in the number of firms that file for bankruptcy on a year-to-year basis. Using a general linear model to examine the data, we find the differences among the years in the average monthly number of business failures are significant at the .01 level. This cursory review of the data dispels the notion of a uniform distribution of firms filing for bankruptcy on an annual basis and strongly hints there may be factors other than the firms' decisions contributing to their bankruptcy. That is, external factors, such as economic conditions asserted in the pragmatic philosophy, may be playing a larger role in corporate financial distress than the armchair philosophy recognizes.

From the empirical perspective, evidence supporting this isolationist perspective of the armchair philosophy is limited to findings of the competitive effect obtained by Lang and Stulz (1992) and Akhigbe and Madura (1995). They found the competitive effect phenomenon was associated only with the bankruptcy announcements of relatively large firms in concentrated industries. The data suggest these competitive effects are restricted to oligopolistic industries because a subsequent study by Kim and Papaianaou (1994) that included smaller firms obtained contradictory results; they did not substantiate the competitive effects found by Lang and Stulz or Akhigbe and Madura.

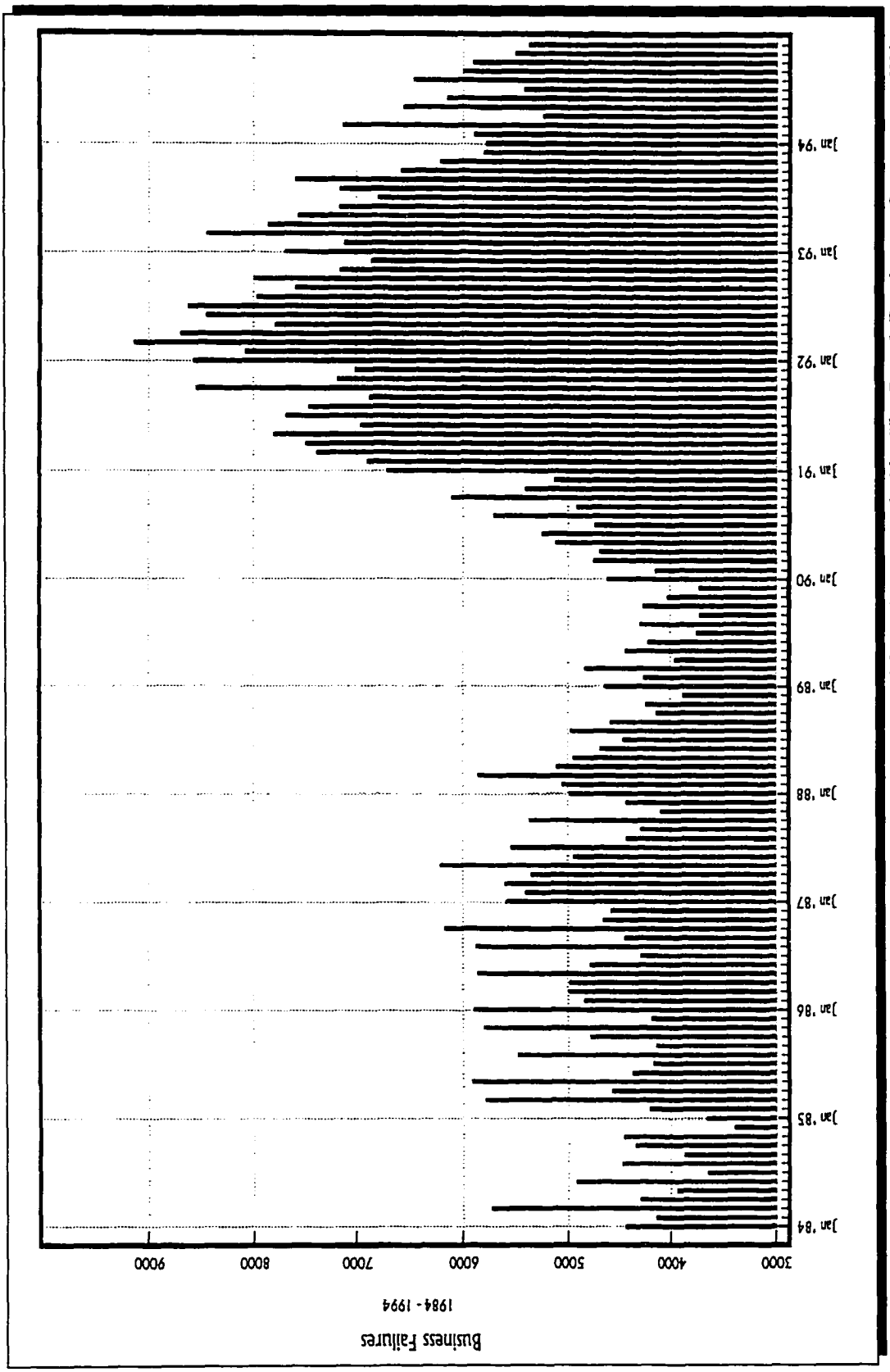

Figure 1. *Business Failures for the years 1984–1994. Chart created from data provided by The Dun & Bradstreet Corporation, Wilton, CT, Copyright 1995. Used with permission.*

While there is limited empirical evidence of the competitive effect that supports the isolationist philosophy, there is other research that undermines its primary tenets. Specifically, there are the results of Bernanke's (1983) study finding contagion effects in the banking industry, and the evidence of contagion effects in industrial firms documented by Lang and Stulz (1992), Kim and Papaianaou (1994), and Akhigbe and Madura (1995).

Accordingly, the evidence implies that: 1) firms within an industry, from the investors' perspective, are not entirely autonomous and isolated from one another — there may be influences that are pervasive and industry-wide rather than simply firm-specific, and 2) economic conditions may contribute more to a firm's financial instability than the armchair theory concedes. Thus, the pragmatic philosophy that credits the economy as the primary force behind corporate distress emerges as the dominant theory.

Given the role the economy appears to play in corporate financial distress, we should question why the research has focused more on firms' internal financial data vice the broader macroeconomic factors. Perhaps the complexities of the economic issues facing industrial firms is one of the reasons there has been limited research into this facet of corporate finance.

Considering the intricacy of the issue, the first task is to identify the economic factor(s) that may play a role in corporate bankruptcy. Bartov and Bodnar (1994) postulate that the exchange rate is one of the most important prices in the economy.[6] Obviously, for firms engaged in international

[6]Bartov and Bodnar, 1994, p. 1758.

trade, the exchange rate is of vital importance, but is the exchange rate relevant to domestic firms? That is, we must question its relevance to domestic firms particularly in light of the corporate bankruptcy issue.

For clarification, we can classify firms into several categories to indicate their potential for exposure to foreign exchange movements. At one extreme is a multinational firm — the Coca-Cola Company, for example — with operations in foreign countries and deriving a portion of its revenue (typically 10%, or more Rivera (1991)) from these operations. Other firms with obvious foreign exchange exposure would be importers/exporters; an importer of European wines and liquors, for example. Another group of firms with presumable exposure to foreign exchange movements is manufacturers for whom: 1) the raw materials/supplies are purchased directly from foreign sources, 2) up-line vendors procure their materials from foreign sources, or 3) the quoted price for the materials are denominated in a foreign currency. The final category is the purely domestic firms — no foreign operations nor supplies/raw materials denominated in a foreign currency.

Examining the relationship between exchange rates and corporate bankruptcy is important because we traditionally consider these as two disparate topics. A common view is bankruptcy is primarily associated with domestic firms, because domestic firms do not have the benefit of the presumed stability offered by the broader geographical markets of international trade. Although the lack of international markets contributes to domestic

firms' financial instability, as a counterbalance they ostensibly avoid exposure to exchange rate risk. Arguably, to take the analysis one step further, exchange rates should be of limited concern to domestic firms. Therefore, if economic conditions play a role in corporate bankruptcy, and the exchange rate is one of the most important prices in the economy, how do we bridge the chasm isolating corporate bankruptcy from exchange rates?

Adler and Dumas (1984) provide the insight into this area that we desire. They argue that most firms, evenly purely domestic ones, are exposed to exchange rate risk. Other researchers supporting this position include: Levich and Wihlborg (1980),[7] Jorion (1990, 1991), and Bodnar and Gentry (1993). Furthermore, Hodder (1982) developed a theoretical, mathematical model to measure exposure to exchange rate movements. His results suggest ". . . purely domestic firms (no foreign assets or liabilities) will typically be exposed" to exchange rate movements.[8]

According to this rationale, a firm need not be a multinational or involved in the import/export business to be exposed to exchange rate risk. A Colorado ski resort, a purely domestic firm, could experience reduced revenue during periods of a strong dollar because U.S. skiers find it relatively inexpensive to take their skiing vacations in Europe. Conversely, European skiers may decide to forgo a U.S. ski vacation as too expensive because of the strong dollar. This line of reasoning suggests the exchange

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[7]Levich and Wihlborg (1980), pp. 31–32.

[8]Hodder (1992), p. 375.

rate may be an important economic issue for domestic firms — particularly those experiencing financial distress.

It is this thought process that renders the hypothesis related to the exchange rate and corporate bankruptcy we will be testing. We examine whether the exchange rate is one of the most important prices in the economy particularly for that segment of firms on the brink of financial distress. Specifically, we investigate whether investors place a value on perceived foreign exchange risk for firms on the road to bankruptcy.

II. Background

This section of the paper presents a review of the salient literature in two specific areas. The first area is the research that advances the theory that the economy is a major influence on business cycles/business failures and lays the foundation for the selection of a macroeconomic variable as a proxy for the business cycle that we use in our empirical model. The second area discusses the relevance of exchange rates and their influence vis à vis the stock returns of firms on the brink of financial distress.

a. The Influence of the Economy on Business Cycles/Business Failures

Virtually all countries experience recurrent fluctuations in business activity that persist for periods of several quarters to several years. Given the widespread actuality of these fluctuations, occasionally referred to as the business cycle phenomena,[9] it is not surprising there is interest in the relationship between the economy and business cycles/business failures.

Before delving into a review of the influence of the economy on business cycles/business failures, we first should have a common understanding of the term "business cycles." The definition of a business cycle as used by the National Bureau of Economic Research (NBER), the nonprofit

[9]Prescott (1986), p.10.

membership corporation responsible for dating business cycles, is attributed to Wesley Clair Mitchell circa 1927. According to the NBER:

> Business cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; the sequence of changes is recurrent but not periodic; in duration business cycles vary from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar character with amplitudes approximating their own.[10]

Given that a recession is further defined as a "peak-to-trough" movement in economic activity, the NBER reports the United States has experienced 30 recessions since the middle of the nineteenth century, with nine of these recessions occurring since the end of World War II. Appendix A presents the NBER Business-Cycle Chronology for the United States.

Although we can clearly identify the peaks and troughs of the business cycle ex post, it is much more difficult to assess the current state of the economy. Notwithstanding the difficulties, there are several macroeconomic variables frequently used to gauge the condition of the economy. For example, the Federal Reserve looks at, among other factors, real gross domestic product (GDP) growth, consumer prices, M2 growth, and the jobless rate[11] to gauge the state of the economy and then uses monetary policy to either stimulate or stifle the economy's growth. Other commonly used variables are discussed by Hardouvelis (1988), who, after examining

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[10]Wynne and Blake (1993), p. 3.

[11]Wessel (1995), p. A2.

the exchange rate and interest rate responses to news-related 15 macroeconomic variables,[12] concludes that stock markets respond not only to monetary news, but also to news about the trade deficit, domestic inflation, and variables that reflect the state of the business cycle.

Given the frequency with which recessions occur coupled with the significance of business failures, one would expect to find an abundance of research examining the relationship between business cycles and business failures, but that is not the case. Surprisingly, an examination of the American Economic Association's *Journal of Economic Literature* and the *Index of Economic Articles in Journals and Collective Volumes* for the years 1969–1996 produced only two articles related to the specific venue of business cycles and business failures: Williamson (1987) and Platt and Platt (1994).

The focus of Williamson's research was to construct an equilibrium model of real business cycles with financial intermediation as an essential factor playing a role in the business cycle. Although he concluded his model mimics commovements in business failures, real output, and money among other factors, his exposition was essentially a mathematical treatise spotlighting the importance of financial intermediation rather than investigating macroeconomic variables linked to business failures.

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[12]Four monetary series (M1, bank reserves, Fed discount rate, and surcharge rates), two inflation series (consumer and producer price indices), the trade deficit, and eight other macroeconomic variables (unemployment rate, industrial production index, personal income, orders of durable goods, the index of leading indicators, retail sales, consumer credit, and housing starts).

Platt and Platt, studying business failures on a state-by-state basis, found significant differences in the causes of business failure across the 48 states. Segregating the states into four subgroups — northern industrialized states, farm states, rural/oil producing states, and less industrialized states — they found within each subgroup common factors were significant determinants of corporate failure rates. The factors were: economic conditions, business costs, and, to a lesser degree, new business formations. They concluded the overall condition of the economy is the predominate force driving corporate distress and the aggregate business failure rate.

Since economic conditions play a major role in corporate financial distress, for this research we desire a macroeconomic variable that: 1) may be used as a proxy for the business cycle, 2) the data are reported on a monthly basis,[13] and 3) is not correlated with the exchange rate movements. From Hardouvelis' (1988) research we find that neither interest rates nor major foreign currencies respond to changes in the Industrial Production index. Additionally, the monthly data for this index is available from the Federal Reserve Bank of St. Louis' *FRED®* (Federal Reserve Economic Data) database.[14] Accordingly, we use the Industrial Production Index as the proxy for the state of the U.S. business cycle. Figure 2 is a

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[13]We require monthly data because the data for business failures and exchange rate movements are reported on a monthly basis. The requirement for monthly data ruled out the possibility of using the Gross Domestic Product as a variable in our model.

[14]The internet address for *FRED®* is: www.stls.frb.org\fred. To judge whether the Industrial Production Index is a good proxy for the business cycle, we compare it with the U.S. Real Gross Domestic Product (1992 dollars) for the period Q1 1967 – Q4 1996. The coefficient of correlation for the two variables was 0.99359.

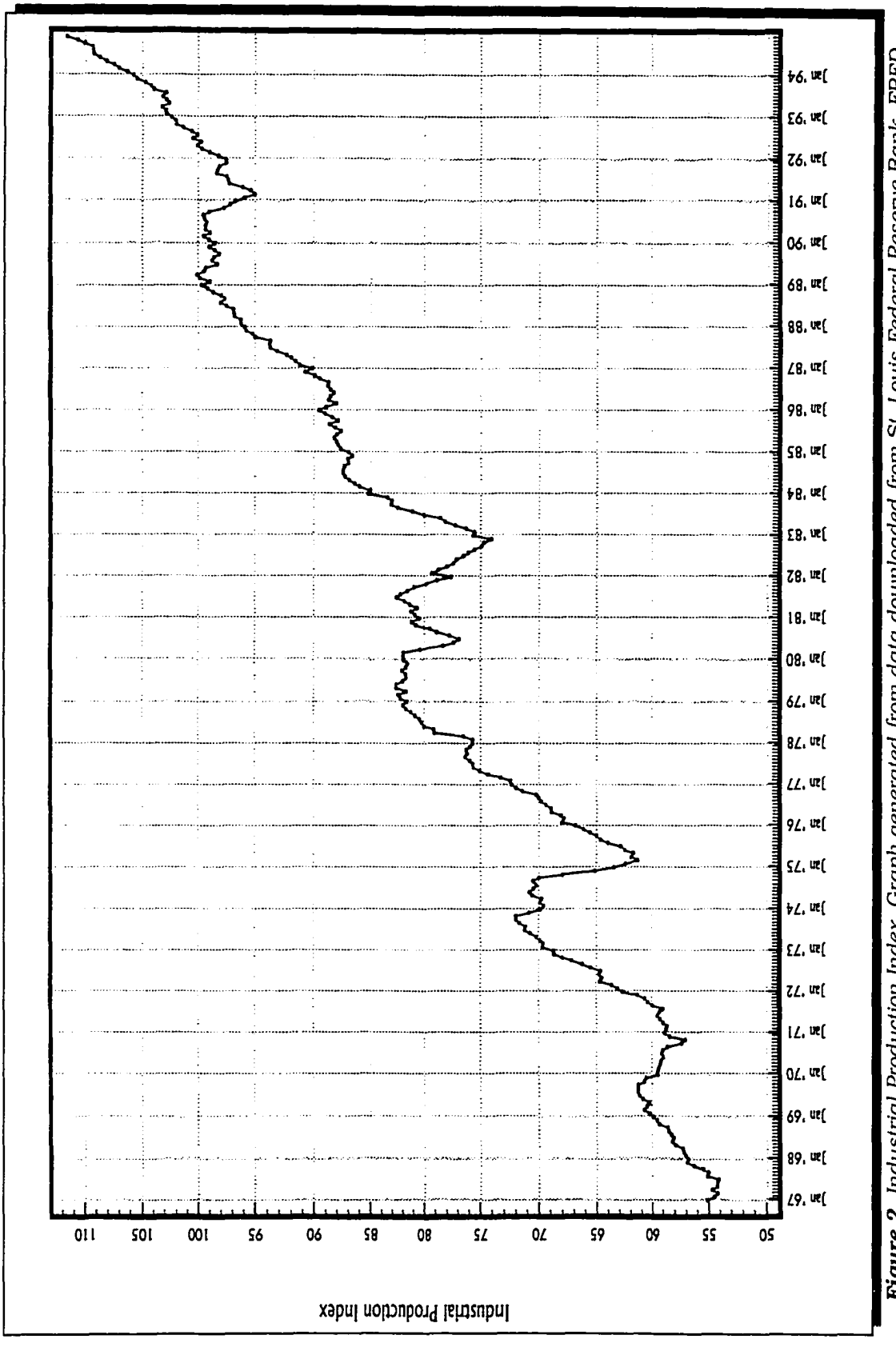

Figure 2. *Industrial Production Index. Graph generated from data downloaded from St. Louis Federal Reserve Bank, FRED.*

graph of the Industrial Production index created from data downloaded from *FRED*®

Using Platt and Platt's (1994) results that established the importance of the economy relative to business failures and having selected a macro-economic variable to use as a proxy for the overall economy, we now focus our attention to the relationship between exchange rates and the stock returns of firms that file for bankruptcy.

b. The Relevance of Exchange Rates to the Stock Returns of Firms that file for Bankruptcy

Why, to question Bartov and Bodnar's suggestion, is the exchange rate one of the most important prices in the economy? From a simplistic perspective, widely fluctuating exchange rates affect not only profits and losses from changes in foreign currency values but also the ability to sell abroad, to meet import competition, and compete with substitute goods/services available in foreign countries. Therefore, the exchange rate, as Adler and Dumas (1984) and Jorion (1991) assert, can potentially affect all firms — even purely domestic firms — that must compete against not only imports but also alternatives to domestic products/services available in foreign countries.

The key phrase of the explanation above is "widely fluctuating exchange rates." Fluctuating exchange rates were not a problem in the U.S. prior to 1973 because the dollar, as were the major foreign currencies, was

tied to the gold standard. Before World War I, the U.S. dollar was convertible into gold at a rate of $20.67 per ounce of gold, but during the war and the early 1920s currencies were allowed to fluctuate. Although there were attempts to return to the gold standard following the war, most trading nations abandoned the gold standard in 1931 following the collapse of the Austrian banking system. The U.S. returned to a modified gold standard in 1934 with the dollar devalued to $35 per ounce of gold. This rate held until 1971 when the dollar came under intense pressure because of a record-high deficit in the balance of payments, causing the U.S. to suspend purchases and sales of gold by the U.S. Treasury.

By the end of 1971 most of the major trading currencies had appreciated relative to the dollar — in effect a devaluation of the dollar — which led to a formal devaluation of the dollar to $38 per ounce of gold in December 1971 by the U.S. Continuing deficits in the U.S. balance of payments further weakened the dollar and it was devalued a second time to $42.22 per ounce in February 1973. Since it was apparent a fixed-rate system was no longer practical, most currencies were allowed to float to levels determined by market forces. Although gold was not officially demonetized as a reserve asset and floating exchange rates were not formally sanctioned until 1976, the transition from fixed to floating exchange rates in 1973 created an environment that allows the wide fluctuations in the exchange rates which sustains Bartov and Bodnar's contention the exchange rate is now one of the most important prices in the economy.

It is therefore not surprising that since March 1973 exchange rates have become more volatile and less predictable than under the system of fixed exchange rates. Figure 3, on the following page, graphically shows how the exchange value of the dollar has fluctuated during the years of 1967 through 1994 when compared with a weighted average of the currencies of ten foreign industrial countries.[15]

Given the potential significance of exchange rate movements vis-à-vis stock returns, we would expect to find an abundance of literature discussing these movements and their affect upon: 1) the stock market in general, and 2) financially distressed firms in particular. To the contrary, as previously noted, there has been scant attention given to the role economic factors in general, and exchange rates in specific, may be playing in stock price performance.

The majority of the research associated with changes in the exchange rate has been related to the exposure of multinational corporations and/or the effectiveness of their hedging strategies. In those instances where it is inferred that the exchange rate may affect domestic firms, the discussion usually is presented in oblique terms that do not make it sufficiently obvious that multinational corporations are not the only ones affected. For example, "The declining dollar forces some foreign companies exporting goods to the U.S. to raise prices in order to get enough of the now-cheaper

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[15] The ten foreign currencies are Belgium, Canada, France, Germany, Great Britain, Italy, Japan, Netherlands, Sweden, and Switzerland.

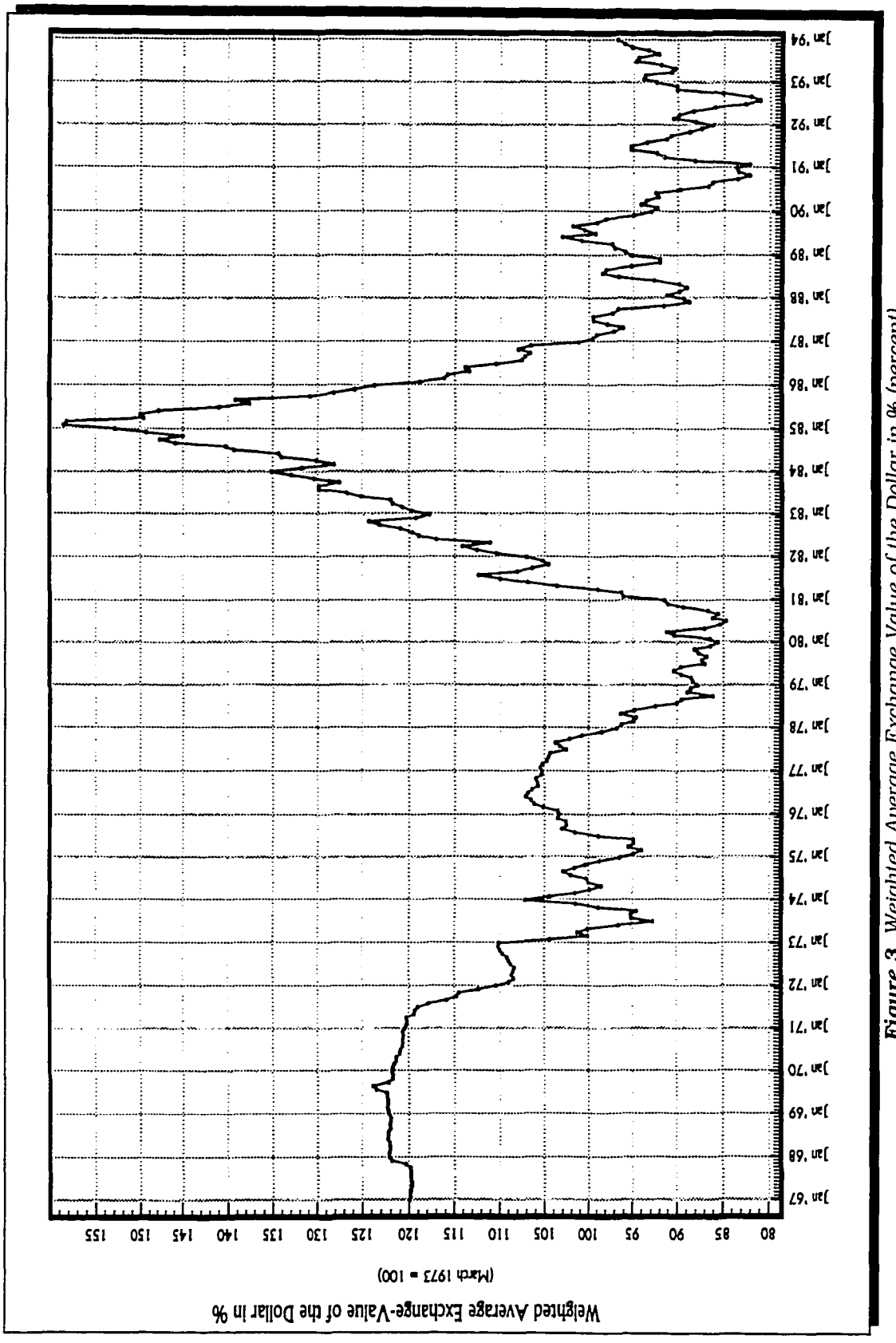

Figure 3. *Weighted Average Exchange Value of the Dollar in % (percent).*

dollars to cover their cost and profit requirements at home."[16] Whereas the more expensive imports should have a positive effect for domestic firms as well as multinational corporations, the cited article focused exclusively upon the multinational firms and did not address potential problems confronting domestic firms.

Although there has been some empirical research into the relationship between exchange rate movements and security returns, it is circumscribed in volume and diversity. The recent research into this relationship by Jorion (1991), Bodnar and Gentry (1993), Bartov and Bodnar (1994), and Dumas and Solnik (1995) are representative of the literature.

Jorion, using the arbitrage pricing theory introduced by Ross (1976), tested whether investors impute a premium for exchange rate risk in the U.S. stock market. Testing this hypothesized relationship with a two-factor model and a six-factor model, Jorion was unable to find evidence of a correlation between expected returns and exchange rate risk. Accordingly, he concluded U.S. investors do not appear to price foreign exchange risk.

Bodnar and Gentry, using the ten-year period of January 1979 through December 1988 (September 1983 – December 1988 for Japan), created industry portfolio returns for Canada, Japan, and the United States to examine industry-level exchange rate exposure. They found evidence of significant exposure for some industries in each of the countries, but the

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[16]"How Dollar's Plunge Aids Some Companies, Does Little for Others," *The Wall Street Journal*, October 22, 1990, pp. A1 and A4.

same industries were not priced in every country. Furthermore, although exchange rate changes help to explain industry-specific returns in all three countries, they also found that many individual industries do not have significant exchange rate exposure. They conclude the exchange rate is important for explaining industry returns at the economy-wide level.

Bartov and Bodnar looked at a sample of U.S. firms from 1978 to 1989 that consistently had large foreign currency adjustments. They found that contemporaneous changes in the dollar were of limited value in explaining abnormal stock returns, but there was a significantly negative relationship between the lagged change in the dollar and abnormal stock returns. They reason that the inability to find a significant relationship for contemporaneous exchange rate changes may be due to including: firms in the sample with limited linkages to international conditions, or firms with exposure of opposite signs. In essence, failure to appropriately filter and properly classify the firms may be responsible for these inconclusive results related to contemporaneous exchange rate changes. Of particular interest is Bartov and Bodnar's interpretation of their results that investors do not use all available information, specifically past changes in the exchange rate and the past relation between exchange rate changes and firm performance, to predict changes in firm value. Moreover, they find significant evidence that analyst do not fully use the information in past changes in the dollar when estimating a firm's earnings.

Dumas and Solnik, broadening the horizon of the investigation into the pricing of exchange rate risk, examine four countries — Germany, the

United Kingdom, Japan, and the United States — using a conditional, intertemporal APM (asset pricing model). Their selection of a conditional model is based upon the argument that ignoring conditioning information that is available to the investor — such as interest rates and equity prices — introduces defects into the model; moreover, for logical consistency, a conditional construct requires the intertemporal specification. They conclude foreign exchange risks premia are a significant component of securities rates of returns in the international financial market. For comparison purposes, in addition to the conditional, intertemporal model, Dumas and Solnik test the unconditional versions of international APM and classic APM; they are unable to reject the hypothesis that exchange rate risk is not priced in the international APM, which, they say, is consistent with the inconclusive results of earlier tests of unconditional APM.

In summary, the results of this research have been mixed with respect to the sensitivity of equity returns to exchange rate changes. A couple of explanations are: 1) as Bartov and Bodnar suggest, we have not properly classified and filtered the sample, or instead of contemporaneous changes a lagged approach is more appropriate; or, 2) as Dumas and Solnik argue, researchers have been using unconditional models instead of conditional models. Whereas Dumas and Solnik obtained significant results using the conditional, intertemporal model, their argument for using the conditional model disregards Bartov and Bodnar's findings that investors and analysts do not use all available information. Consequently, while

recognizing a conditional model may be of value for examining the influence of exchange rate changes in the international environment, there are weaknesses, acknowledged by Dumas and Solnik, inherent in their formulation that renders its applicability to be of questionable value for the research at hand.

The results of this extant research notwithstanding, the question remains: are domestic firms exposed to exchange rate risk? This research investigates this question by focusing on firms that file for bankruptcy. The logic for this choice is that limiting the sample to firms announcing their bankruptcy results in a concentration of domestic firms because bankruptcy is more commonly associated with domestic firms than multinationals. Furthermore, it is likely that financially weakened firms — that is, firms that subsequently file for bankruptcy — may be more susceptible to economic shocks than their stronger competitors. It follows that, if there is a group of domestic firms more sensitive to exchange rate movements, we theorize it would be the financially infirm.

III. Data

The sample included in this study is limited to firms making bankruptcy announcements during the years 1975 through 1994. The initial sample of announcing firms was obtained from the 1995 COMPUSTAT® II Industrial Annual Research File[17] and the *Wall Street Journal Index*. This produced the preliminary sample of 241 firms for which we had a verified announcement date. Validating this list of firms using the CRSP® Tapes to ensure sufficient return data were available reduced the sample to 232 firms in 119 different industries according to their 4-digit SIC code. We did not attempt to balance the number of firms among the respective industry classifications because this research is not focused on the relative sensitivity of specific industries to changes in the foreign exchange rate, but only the sensitivity of the firms that are characterized by the category of "financially weakened." This listing of 232 firms that constitute the sample is provided in Appendix B.

The data used to compute the relative change in the exchange rate of the U.S. dollar were obtained from the "Weighted Average Exchange Value of the Dollar" compiled by the Board of Governors of the Federal

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[17]A code of "02" in Footnote Slot No. 35 indicates bankruptcy as the reason a firm was deleted from the file.

Reserve System. This Federal Reserve index, where March 1973 = 100, is a weighted average of the U.S. dollar against currencies of ten foreign industrial countries (Belgium franc, British pound, Canadian dollar, Dutch guilder, French franc, German mark, Italian lira, Japanese yen, Swiss franc, and Swedish krona). The weights are based on the 1972–1976 average world trade of each country compared to the total of all ten countries.

The data used to compute the relative changes in the Industrial Production Index were obtained from the Federal Reserve Bank of St. Louis' economic database. Although the data set for the Industrial Production Index begins with January 1946, we deleted the data prior to January 1967. We deleted the data from the earlier years for two reasons: 1) to maintain consistency with the data for the weighted average exchange value of the dollar, and 2) the earlier years were not relevant for our sample of financially weak firms that span the period of 1975 – 1994.

IV. Model and Variable Definitions

As discussed in the literature review, current research presents various models for analyzing investors' pricing of exchange rate movements and arguments supporting their use. Dumas and Solnik (1995) assert that disregarding conditioning information available to the investors results in a defective model; their premise dictates the use of a conditional model which also requires an intertemporal model. Their argument for use of this construct ignores the findings of Bartov and Bodnar (1994) who conclude that neither investors nor analysts use all freely available information. Additionally, Bartov and Bodnar, as a result of their results suggest, a lagged relationship between changes in the foreign exchange rate and changes in firm performance is more relevant than a contemporaneous one. Consequently, in light of the results of Bartov and Bodnar, we consider an unconditional model with a lagged specification better suited for the research at hand.

Starting with the basic model used by Bartov and Bodnar, we augment it with variables to capture any abnormal returns related to the business cycle and investors' stock buying/selling to realize gains/losses for tax advantage purposes during the period surrounding the calendar year end. The formulation of this augmented model is:

$$TAR_{iT} = \beta_0 + \beta_1 \Delta FX_{m_x - m_{x+1}} + \beta_2 \Delta IP_{m_x - m_{x+1}} + \beta_3 DEC_{iT} + \beta_4 JAN_{iT} + \varepsilon_{iT} \quad (1)$$

where:

TAR_{iT} = Total Abnormal Return for firm i during time period T computed using equation (2) (period T is a calendar month);

$\Delta FX_{m_x - m_{x+1}}$ = the relative change in the weighted average exchange value index from month m_x to m_{x+1} $\{\Delta FX_{m_x - m_{x+1}} = [(FX_{m_{x+1}} - FX_{m_x})/FX_{m_x}]$ Note: neither m_x nor m_{x+1} are necessarily included in period $T\}$;

$\Delta IP_{m_x - m_{x+1}}$ = the relative change in the industrial production index from month m_x to m_{x+1} $\{\Delta IP_{m_x - m_{x+1}} = [(IP_{m_{x+1}} - IP_{m_x})/IP_{m_x}]$ again, neither m_x nor m_{x+1} are necessarily included in period $T\}$;

JAN_{iT}, DEC_{iT} = dummy variables to capture abnormal returns associated with the months of January and December ($JAN_{iT} = 1$ if time period T is January, 0 otherwise, and $DEC_{iT} = 1$ if time period T is December, 0 otherwise);

$\beta_0, \ldots, \beta_4$ = intercept and slope coefficients estimated using Ordinary Least Squares (OLS);

ε_{iT} = the error term for firm i during time period T.

$$TAR_{iT} = \left[\prod_{d=d_a}^{d_z} (1 + AR_{id}) \right] - 1 \quad \text{for } ([d_a, \ldots, d_z] \in T) \quad (2)$$

where:

AR_{id} = the abnormal return for firm i on day d computed using equation (3).

$$AR_{id} = R_{id} - \hat{R}_{id} \quad (3)$$

where:

$R_{i,d}$ = the realized rate of return for security i, or firm i, on event day d (data obtained from CRSP);

$\hat{R}_{i,d}$ = the estimated rate of return for security i on event day d computed using equation (4).

$$\hat{R}_{i,d} = \hat{\alpha}_i + \hat{\beta}_i R_{m,d} \tag{4}$$

where:

$R_{m,d}$ = the market rate of return for the CRSP equally weighted index on event day d;

α_i, β_i = the intercept and slope coefficients, respectively, computed using the market model given in equation (5).

$$R_{i,d} = \alpha_i + \beta_i R_{m,d} + \varepsilon_{i,d}, \quad i = 1, 2, \ldots N, \tag{5}$$

where:

$\varepsilon_{i,d}$ = the error term for security i on event day d (the OLS residual).

The coefficients of interest for this research are β_1, β_2, β_3, and β_4 from equation (1). If the relationship between changes in the exchange rate and a stock's returns is as we hypothesize, β_1 should be negative. That is, a strengthen of the dollar should result in decreased returns for domestic firms. (Obviously, a strong dollar would be more beneficial, corresponding to a positive relationship, for firms that rely more heavily upon imported goods rather than exports, while a strong dollar would have a more adverse impact upon firms dependent upon exporting products. Nonetheless, given

the focus of this research is primarily domestic firms [that is, firms making bankruptcy announcements], these firms collectively should have a lower degree of import/export influence with respect to their factors of production. Accordingly, we anticipate the negative relationship between the exchange rate and the stocks' returns.) Conversely, if there is a relationship between the economy (for which the industrial production index is the proxy) and our stocks' returns, β_2 should be positive — as the economy improves, relative to the previous month, there should be a positive change in the stocks' returns.

Similar to β_1, we expect a negative coefficient for β_3. That is, if there is selling of the stock in December for tax purposes, when the variable is coded as "1", we would expect the selling action to exert a downward pressure on the stock price producing a negative return. A corresponding argument holds for β_4, but in this instance we would expect a positive coefficient. Here, buying the stock in January, when the variable is as "1," should apply an upward pressure on the price of the stock yielding a positive return.

V. Empirical Results

Using the methodology defined by equation (2) to compute a series of 49 monthly abnormal returns — the announcement month and the preceding 48 months — for each of the 232 firms, produced a sample of 9,314 observations.[18] Using these abnormal returns in equation (1), we tested for a significance in the changes of the foreign exchange rate and industrial production index, and the presence of December and January effects.

Consistent with the results of earlier research that used unconditional models to test the data, we did not find any evidence, for either the full 49-month period or any one-year subperiods, of the stock market returns exhibiting sensitivity to changes in the foreign exchange rate. These results were comparable throughout the analyses that included numerous combinations of contemporaneous and lagged changes for the foreign exchange rates and industrial production indexes. This lack of significant results, to undermine the suggestion of Bartov and Bodnar for using a lag operator, was persistent for lagged changes as well as contemporaneous changes in the exchange rate.

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[18]For some of the firms, there were insufficient data to compute the abnormal returns for all 49 months. Consequently, the resulting sample is less than the possible maximum of 11,368 observations (i.e., 232 x 49 = 11,368).

Although we frequently obtained significant coefficients for the industrial production index, the results were erratic — both positive and negative coefficients — and they varied to the extent it was not possible to identify whether a contemporaneous or lagged change in the Index was a more consistently relevant variable. We obtained similarly erratic results for the December effect variable, but they were not consistently significant. Finally, we did not find any indication of a January effect for this sample.

These erratic results bolster Bartov and Bodnar's argument for classifying and filtering the sample. In filtering the sample we should note one of the primary characteristics of exchange rates since March 1973, specifically their tendency toward volatility. This volatility suggests simply using a lag operator may be insufficient to detect the relationship between stock returns and exchange rate movements. The implication related to using a lag is the market has a delayed reaction to changes in the exchange rate. This delayed effect may be troublesome during periods of vacillatory movements in the exchange rates — changing from an appreciation to a depreciation of the dollar, or vice versa — particularly if the market returns are a factor of a combination of the contemporaneous change and/or two or more lags of the exchange rate. That is — regardless of the time chosen — during periods of vacillation in exchange rates, before the market is able to digest and react to one specific change, the exchange rates reverse in the following month(s). This reversal may offset, or even outweigh, the previous months' change. Thus, if the exchange rates are vacillating with no clear

trend, we should not be surprised if there are no consistent reactions from the stock market related to changes in the exchange rate.

As a consequence of this volatility and/or want of a clear pattern, it is only when there is a deviation from a vacillatory movements that we might expect to observe a significant reaction in the stock market arising from changes in the foreign exchange rate. Therefore, previous research's combining periods of vacillation in the exchange rate with the periods of more pronounced trends, and not refining their samples to segregate the data corresponding to the respective patterns, may have contributed to the failure to identify significant relationships between stock market returns and the foreign exchange rates. Accordingly, we consider it essential to refine the sample to purge the periods of vacillatory movements that only serve to obscure any relationships that may hold for the firms' abnormal returns and the exchange rate.

To isolate periods of vacillation from definitive trends in the foreign exchange rates, we created a subset of the data. The qualification criterion for inclusion in this subset, we refer to as Condition I,[19] is the mathematical sign, either positive or negative, of the change of the exchange rate for the current month ($m = T$) and the two immediately preceding months (m-1 and m-2) must be the same. This refined sample, 3,586 observations,

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[19]The Boolean algebraic expression for this condition is:

$$(\Delta FX_m < 0 \text{ and } \Delta FX_{m-1} < 0 \text{ and } \Delta FX_{m-2} < 0)$$
$$\text{or}$$
$$(\Delta FX_m > 0 \text{ and } \Delta FX_{m-1} > 0 \text{ and } \Delta FX_{m-2} > 0).$$

included only those data that represented a three-month trend of either appreciating or depreciating exchange rates.

Again, using various combinations of contemporaneous and lagged changes in the foreign exchange rate and industrial production indexes to examine this data produced improved, but inconsistent results. For the overall period of 49 months we found the relationship between exchange rates and the abnormal returns was not significant (the lowest significant level was .19). Furthermore, when we examined the one-year subperiods within this 49 month span of time, the results were erratic. That is, we obtained a similar relationship for years two and four (months 13–24 and 37–48, respectively) before the bankruptcy announcement (lowest significant levels were .17 and .20, respectively), but not years one and three (months 1–12 and 25–36, respectively). Interestingly, this refinement of the sample attenuated some, but not all, of the erratic results for the industrial production index. There were no improvements for either the December or January effect variables.

These results suggest a simple three-month period may not be sufficient to describe a trend in the movement of exchange rates for the purpose of eliciting a reaction from the stock market. There are a couple of methods for ensuring a trend has more definition. One obvious method is to lengthen the period of time the trend must persist to qualify for inclusion in the sample. The second method is to require the overall magnitude of the change during the trend to meet, or exceed, a specified threshold.

Examining the former method, we extended the length of the period for defining the trend to four months. Although there was a substantial reduction in the sample size, down to 2,255 observations from 3,586, there were no discernible changes in the results (the coefficient for ΔFX was significant at the .18 level). Another increase in the length of the period to qualify for a trend from four to five months resulted in a further reduction in the sample size, 1,873 observations, but this time the reduced sample was accompanied by a deterioration in the results (the coefficient for ΔFX was significant at the .44 level). It is possible the retrogression in the results may solely be attributable to the smaller sample size; a factor we could not remedy given our original sample. Mindful of this possible limitation, we cautiously conclude that lengthening the period to qualify for a trend beyond three months does not appreciably improve the results.

Moving to the second method to ensure a given subset of data meets the definition for a trend, we added the following criterion for the data to qualify for the sample: the exchange rates had to change by more than five percent over the three month period preceding the month in question.[20] We refer to this criterion a Condition II. Satisfying this condition eliminates any periods of minuscule changes in the exchange rate. That is, applying this criterion sharpens the focus to those periods where any changes in the

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[20]The qualifying condition is:
when $\Delta FX_m < 0$,

$$(1 + \Delta FX_{m-1})(1 + \Delta FX_{m-2})(1 + \Delta FX_{m-3}) < .95,$$

or, when $\Delta FX_m > 0$,

$$(1 + \Delta FX_{m-1})(1 + \Delta FX_{m-2})(1 + \Delta FX_{m-3}) > 1.05.$$

exchange rate are more definitive, and perhaps the changes are sufficient to induce a reaction from the stock market.

Applying Conditions I and II to the sample resulted in improved results for the changes in the foreign exchange rate and industrial production index, but no improvement for either December or January. The best results for the industrial production index were obtained using a lag of two months relative to the market returns. Although we consistently obtained significant results for the foreign exchange rate, they were unpredictable. That is, occasionally the best model for the data was a contemporaneous change in the foreign exchange rate, but more frequently the best model used a lag of either one, two, or three months.

Given the overall results of a significant relationship between the changes in the foreign exchange rate and the market returns, but the unpredictability associated with the choice of a particular lag suggests we need to combine the individual influences attributable to the one, two, and three month lags. We accomplish this by calculating the average change in the foreign exchange over the three month period.

Modifying the original model, equation (1), by: 1) dropping the variables for December and January, 2) using a two month lag for the change in the industrial production index, and 3) using the average value of one, two, and three months lags for changes in the foreign index rendered the model given below page (where $m = T$):

$$TAR_{LT} = \beta_0 + \beta_1 \Delta FX_{((m-1 + m-2 + m-3)/3)} + \beta_2 \Delta IP_{m-2} + \varepsilon_{LT}$$

This model generated the results presented in Table II. As shown in the table, the changes in the foreign exchange rate were significant for the full sample of 49 months as well as the third and fourth years preceding the bankruptcy announcement. Although changes in the industrial production index were not significant for the full sample, they were for the two subperiods of the third and fourth years preceding the announcement. Interestingly, neither variable was significant in the first and second years immediately preceding the announcement. This pattern suggests that as the potential for bankruptcy becomes more certain, the significance of that event dominates the other factors in the economy, particularly with respect to changes in the foreign exchange rate and industrial production index.

Table II
Results for the Full Sample and Four, One-Year Subperiods (Sample Filtered with Conditions I and II)

			$\Delta FX_{((m-1+m-2+m-3)/3)}$		ΔIP_{m-2}		
Period	Months	Sample Size	Estimate	Prob>|T|	Estimate	Prob>|T|	Adj. R^2
Full Sample	'00' – '48'	2484	-10.661012	0.0015	0.067883	0.9936	0.0032
1st year before announcement	'01' – '12'	563	-4.831555	0.2243	-8.497777	0.4328	-0.0001
2nd year before announcement	'13' – '24'	664	-6.859194	0.1773	-4.591616	0.7592	-0.0001
3rd year before announcement	'25' – '36'	645	-23.816557	0.0242	44.382566	0.0864	0.0088
4th year before announcement	'37' – '48'	575	-12.556356	0.0592	22.890157	0.0896	0.0080

Subdividing the sample into periods of less than 12 months did not generate any results that were significant at traditionally acceptable levels. We attribute this lack of significance for the shorter periods to smaller

sample sizes that ranged from 39 observations for one month to 274 for a six month period.

While these results are far from conclusive, they present a different perspective on the relationship between stock market returns and changes in the foreign exchange rate. Perhaps the most striking feature of these results is the significance of the foreign exchange rate in the third and fourth years preceding the bankruptcy announcement and the absence of significance in the first and second years. These results do not necessarily invalidate the thesis of this research, to wit: investors place a value on perceived foreign exchange risk for firms on the road to bankruptcy. To the contrary, the results allow for two possible interpretations.

One interpretation, consistent with our thesis, is the seriousness of the financial problems of a firm are evident as much as four years before the eventual bankruptcy announcement, and investors — recognizing these problems and anticipating the firm's alternatives — may impute a value appropriating the beneficial or detrimental influences of the foreign exchange rate. It is not until it is obvious that filing for bankruptcy will be the only avenue for the firm does the influence of the foreign exchange rate cease to be a factor in the market returns. In brief, prior to the point where investors consider bankruptcy as "fait accomplis", the foreign exchange rate and the overall economy may be factors in determining stock returns; subsequent to that point they are not.

A second interpretation, which runs counter to our supposition, is that *all* firms, not just the financially infirm, are subject to the influences

of the foreign exchange market. Although these results do not conclusively established this relationship, it is a prospect if we consider it unlikely that investors perceive the critical nature of a firm's financial problems four years in advance of the bankruptcy announcement.

While these results simply may be an anomaly peculiar to this particular data set, it also is possible this pattern may be a hint of a broader implication. The implication, as touched upon in the preceding discussion of the alternate explanation for the results, is all firms — except those for which bankruptcy is a foregone conclusion — are sensitive to a definitive trend of changes in the exchange rate as well as changes in the overall economy (for which the industrial production index was the proxy). For the bankruptcy-bound, the potential for bankruptcy overshadows other influencing factors specifically the foreign exchange rate and the overall economy.

VI. Summary and Conclusions

The focus of this research was to examine whether investors place a value on perceived foreign exchange risk for firms on the road to bankruptcy; earlier research has not produced definitive results. Some explanations for this lack of consistent results include: 1) the failure to properly classify and/or filter the sample, and 2) the empirical models should use lagged instead of contemporaneous changes in the foreign exchange rate.

Using a sample of 232 firms that filed for bankruptcy, we examine the relationship between their abnormal stock returns and changes in the foreign exchange rate and economy. Since the gross domestic product, a reflection of the overall economy, is available only a quarterly basis and not monthly as are the abnormal returns and foreign exchange rate, we use the industrial production index as its proxy. The analysis spans a 49 month period — the bankruptcy announcement month and the 48 months immediately preceding the announcement.

Consistent with the earlier research that employed an unconditional model, as did this research, we did not find any evidence of a significant relationship between the firms' abnormal returns and changes in the foreign exchange rate. This absence of significant findings was constant for the overall sample of 49 months as well as various subperiods.

Following through with the suggestions of Bartov and Bodnar, we considered it necessary to refine the sample by: 1) filtering out periods when the exchange rate was vacillating and not presenting a clear indication of either an appreciating or depreciating dollar, and 2) using lagged changes in the exchange rate and industrial production index.

Examining various filtering criteria produced two conditions we imposed upon the foreign exchange rate. The first condition was the mathematical sign of the change in the foreign exchange rate for the current month and the two immediately preceding months must be the same. The second condition was the exchange rate had to change by more than five percent during the immediately preceding three month period. Applying these two conditions to the sample reduced the number of observations from 9,314 to 2,484.

Using these two filters produced consistently significant results for changes in both the foreign exchange rate and the industrial production index. Although there were consistently significant results for the exchange rate, they were irregular in that occasionally the significant relationship was for the contemporaneous change, but more frequently for lags of one, two, and three months. The solution was an average of the lagged change in the exchange rate with the average computed using the preceding three months (that is, lags of one, two, and three months).

The filtered sample, with the averaged lag for the change in the exchange rate, resulted in a more stable and predictable model. The model

displayed a significant relationship for the exchange rate for the overall sample of 49 months and the third and fourth years preceding the bankruptcy announcement, but not the first and second years. Changes in the industrial production index, likewise, were significant only for the third and fourth years preceding the announcement.

These results present two possible interpretations. One interpretation, consistent with the hypothesis, is that investors sense the financial weakness of firms up to four years preceding their bankruptcy announcement, and the stock returns of these financially weakened firms are influenced by changes in the foreign exchange market and overall economy. The second interpretation, contrary to our supposition, is investors do not necessarily anticipate a firm's financial weakness four years before the bankruptcy announcement, and the significant results for the foreign exchange rate and industrial production index indicate all firms — not just the financially infirm — are sensitive to changes in these two economic barometers. In either scenario, when it becomes obvious that bankruptcy is a strong likelihood, the influence of the overall economy and the foreign exchange markets are eclipsed by firm's forthcoming bankruptcy.

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Appendix A
National Bureau of Economic Research
Business-Cycle Chronology for the United States

Peak	Trough	Duration (Months) Contraction	Expansion
Jun 1857	Dec 1858	18	22
Oct 1860	Jun 1861	8	48
Apr 1865	Dec 1867	32	18
Jun 1869	Dec 1870	18	34
Oct 1873	Mar 1879	65	36
Mar 1882	May 1885	38	22
Mar 1887	Apr 1888	13	27
Jul 1890	May 1891	10	20
Jan 1893	Jun 1894	17	18
Dec 1895	Jun 1897	18	24
Jun 1899	Dec 1900	18	21
Sep 1902	Aug 1904	23	33
May 1907	Jun 1908	13	19
Jan 1910	Jan 1912	24	12
Jan 1913	Dec 1914	23	44
Aug 1918	Mar 1919	7	10
Jan 1920	Jul 1921	18	22
May 1923	Jul 1924	14	27
Oct 1926	Nov 1927	13	21
Aug 1929	Mar 1933	43	50
May 1937	Jun 1938	13	80
Feb 1945	Oct 1945	8	37
Nov 1948	Oct 1949	11	45
Jul 1953	May 1954	10	39
Aug 1957	Apr 1958	8	24
Apr 1960	Feb 1961	10	106
Dec 1969	Nov 1970	11	36
Nov 1973	Mar 1975	16	58
Jan 1980	Jul 1980	6	12
Jul 1981	Nov 1982	16	92
Jul 1990	Mar 1991	8	n.a.

Comparative Statistics	Average length of contractions	Average length of expansions
Pre-World War II	21.2	28.9
Post-World War II	10.7	49.9

n.a.—Not available

Note: Length of contraction is the number of months from peak to trough
Length of expansion is the length of the expansion after the trough date

Source: Wynne-Blake (1993), p. 4.

Appendix B
Firms Making Bankruptcy Announcements

Firm	SIC	Date	Firm	SIC	Date
1225 MAPLE CORP	3944	Aug 1978	C V INTERNATIONAL CORP	4841	Jul 1980
A I A INDUSTRIES INC	4522	Feb 1986	CAPEHART CORP	3651	Oct 1979
AERODEX INC	3724	Jul 1976	CARTER HAWLEY HALE STORES IN	5311	Feb 1991
AGUIRRE CO	6500	Sep 1980	CASCADE INTERNATIONAL INC	5621	Dec 1991
ALEXANDER'S INC.	5311	May 1992	CASTLE INDUSTRIES INC		Feb 1990
ALLECO INC.	6153	Jun 1992	CASUAL MALE CORP		Apr 1990
ALLIANT COMPUTER SYSTEMS COR	3571	May 1992	CEDAR GROUP INC.	5072	Sep 1992
ALLIED ARTISTS INDUSTRIES	3716	Apr 1979	CELOTEX CORP		Oct 1990
ALLIED STORES CORP.	5311	May 1991	CENTENNIAL GROUP INC.	6552	Dec 1991
ALLOY COMPUTER PRODUCTS INC.	3566	Jun 1992	CHILD WORLD INC.	5945	May 1992
AMDURA CORP		Apr 1990	CHIPWICH INC.	5140	Aug 1992
AMERECO ENVIRONMENTAL SERVIC		Feb 1990	CIRCLE K CORP		May 1990
AMERICA WEST AIRLINES	4512	Jul 1991	COLOROCS CORP.	3861	Sep 1991
AMES DEPARTMENT STORES INC.	5331	Apr 1990	COLT'S MANUFACTURING CO.		Mar 1992
ANTONOVICH INC.		Jan 1990	COMMONWEALTH MORTGAGE CORP.		Jul 1992
ARCS EQUITIES CORP	7389	Aug 1977	CONCURRENT COMPUTER CORP.	3571	Jan 1991
ARGONAUT ENERGY CORP	1311	Aug 1986	CONSUL RESTAURTANT CORP.	5812	Sep 1991
ARMAC ENTERPRISES INC	3944	Mar 1976	CONTINENTAL AIRLINES	4512	Dec 1990
ASSOCIATED FOOD STORES INC	5141	Jun 1975	CONTINENTAL INFORMATION SYS	7377	May 1990
AT&E CORP.	3661	Jun 1991	CONTINENTAL MTG INVESTORS	6798	Mar 1976
AUTO-TRAIN CORP	4013	Feb 1982	CYTOX CORP	5160	Aug 1986
AUTODIE CORP.	3540	Aug 1992	DAISY SYSTEMS CORP		Aug 1990
BALLY'S GRAND INC.		Feb 1992	DATA ACCESS SYSTEMS INC	3575	Jan 1983
BANCOKLAHOMA CORP	6021	Feb 1992	DATATRON INC	5045	Sep 1987
BANK BUILDING & EQUIPMENT CO		May 1990	DE LAURENTIIS ENTMNT GROUP	7812	Aug 1988
BARRY'S JEWELERS INC.	5944	Feb 1992	DE LAURENTIIS FILM PTRS -LP	7812	Aug 1988
BARTON INDUSTRIES INC	3490	Feb 1991	DELTAUS CORP	1381	Jan 1989
BEKER INDUSTRIES	2870	Oct 1985	DISCOVERY OIL LTD	1311	Jan 1988
BERKEY INC	5040	Mar 1991	DOSKOCIL COS		Mar 1990
BEST PRODUCTS INC.	5399	Jan 1991	EAGLE-PICHER INDUSTRIES	3714	Jan 1991
BRANCH INDS	4213	Mar 1986	EASTERN AIRLINES	4512	Jan 1991
BRANIFF INTERNATIONAL AIRLIN	4512	Aug 1991	EASTERN FREIGHTWAYS INC	4210	Apr 1976
BRENDLE'S INC.		Nov 1992	EECO INC.		May 1990
BRODY (B.) SEATING CO	2510	Jun 1980	EL PASO ELECTRIC CO.	4911	Jan 1992

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Firm	SIC	Date	Firm	SIC	Date
ELBA SYSTEMS CORP	8200	Aug 1975	GRUEN INDS INC	3873	Mar 1977
ENSTAR GROUP INC.		Jun 1991	HARVARD INDUSTRIES INC.	3231	May 1991
EQUITEC FINANCIAL GROUP INC	6282	Apr 1992	HEALTH CONCEPTS IV INC.	8060	Jan 1992
EVEREX SYSTEMS INC	3571	Jan 1993	HEALTHCARE INTERNATIONAL INC		Oct 1992
FABIEN CORP	2200	Nov 1979	HERITAGE ENTERTAINMENT INC		Dec 1990
FAIRFIELD COMMUNITIES INC		Oct 1990	HIGHLAND SUPERSTORES INC.	5731	Aug 1992
FAMILY ENTERTAINMENT CNTRS	5812	Mar 1986	HILLS DEPARTMENT STORES	5331	Feb 1991
FEDERATED STORES INC		Apr 1990	HOME CENTERS INC.	5700	Mar 1992
FINANCIAL CORP-SANTA BARBARA	6036	Mar 1992	HOMEFED CORP	6035	Oct 1992
FINEVEST FOODS INC.	5140	Feb 1991	HOMEFED CORP	6035	Feb 1994
FIRST CAPITAL HOLDINGS CORP.	6311	May 1991	HY-GAIN ELECTRONICS CORP	3663	Jan 1978
FIRST HARTFORD CORP	2200	Feb 1981	IMPERIAL CORP OF AMERICA	6036	Mar 1991
FIRST REPUBLICBANK CORP	6021	Aug 1988	INFORMATION DISPLAYS INC	3571	May 1984
FLAGSHIP EXPRESS SERVICES IN	4512	Dec 1991	INSILCO CORP.	3585	Jan 1991
FLOATING POINT SYSTEMS INC.	3571	Oct 1991	INTEGRA-A HOTEL & RESTAURANT	7011	Jul 1992
FORT HOLDINGS INC	2870	Jul 1980	INTEGRATED RESOURCES INC		Feb 1990
FRIER INDUSTRIES INC	3140	Jul 1978	INTERCO INC.	2510	Jan 1991
FRIES ENTERTAINMENT INC	7812	Nov 1992	INTERMARK INC.		Oct 1992
FRIGITEMP CORP	1700	Mar 1978	INTERNATIONAL AMERICAN HOMES		Apr 1990
G.R.I. CORP.	5961	May 1992	INTERNATIONAL CONSUMER BRAND	3540	Apr 1992
GAC CORP	6500	Apr 1980	IROQUOIS BRANDS INC.	5500	Jun 1991
GARLAND CORP -CL A	2300	Apr 1980	JARMEL FABRICS INC	2250	May 1975
GAYLORD CONTAINER CORP.	2631	Apr 1992	JET AIR FREIGHT	4700	Jun 1979
GEMCRAFT INC	1531	Mar 1989	JIFFY FOODS CORP	5812	Dec 1986
GENERAL DEVELOPMENT CORP		Apr 1990	JONATHAN LOGAN INC		Nov 1990
GF CORP	2522	Apr 1990	JUMPING-JACK SHOES INC.		Feb 1990
GIBRALTAR FINANCIAL CORP	6036	Feb 1990	KENNEDY & COHEN INC	5700	Jan 1976
GILMAN SERVICES INC	5122	May 1982	KEYSTONE CAMERA PRODUCTS	3861	Mar 1992
GLADDING CORP	3663	Apr 1977	KINDER-CARE LEARNING CENTERS	8351	Sep 1992
GLASROCK MEDICAL SERVICES	7350	Jan 1983	KOGER PROPERTIES INC.	1531	Sep 1991
GLOVER INC	2011	Jul 1980	LANDMARK LAND CO	6036	Mar 1993
GRAY MFG CO	3440	Dec 1975	LAWNAMERICA INC		May 1990
GREYHOUND LINES INC.	4100	Jun 1990	LEISURE TECHNOLOGY INC	1531	Jun 1992
GRT CORP	3652	Nov 1979	LIONEL CORP.	5945	Jun 1991

Appendix B
Firms Making Bankruptcy Announcements

Firm	SIC	Date	Firm	SIC	Date
LONE STAR INDUSTRIES INC		Dec 1990	OXFORD ENERGY CO.	4991	Aug 1992
MACGREGOR SPORTING GOODS INC	3949	Mar 1989	PACIFIC FAR EAST LINE INC	4400	Feb 1978
MAGIC MARKER CORP	3950	Jul 1980	PAN AM CORP.	4512	Jan 1991
MALLARD COACH CO.	3716	May 1992	PHARMAKINETICS LABORATORIES		Nov 1990
MARTECH USA INC	4955	Dec 1993	PIPER AIRCRAFT CORP.		Jul 1991
MAULE INDUSTRIES INC	3270	Jan 1978	PIZZA TIME THEATRE INC	5812	Mar 1986
MBI BUSINESS CENTERS INC	5734	Sep 1987	PLAZA GROUP INC	7311	Dec 1974
MCCORY CORP.	5331	Feb 1992	POTTER INSTRUMENT INC	3577	Apr 1975
MCLEAN INDUSTRIES INC	1531	Nov 1986	PRESIDENTS FIRST LADY SPA	7990	Mar 1975
MEGO INTERNATIONAL	3944	Jun 1982	PRIME MOTOR INNS INC		Sep 1990
METRO AIRLINES INC.	4512	Apr 1991	REGINA COMPANY INC	3630	Apr 1989
METROPOLITAN CIRCUITS	3672	May 1991	REVCO DRUG STORES INC		Feb 1992
MIDWAY AIRLINES	4512	Mar 1991	REXENE CORP.	2821	Mar 1992
MIDWEST COMMUNICATIONS CORP.	5065	Aug 1991	RIVERBEND INTERNATIONAL CORP	2033	Jul 1991
MINER INDUSTRIES INC	3944	Aug 1977	RODIME PLC	3572	Aug 1991
MINISCRIBE CORP.		Jan 1990	ROYAL CASTLE SYSTEMS INC	5812	Apr 1975
MISSION INSURANCE GROUP INC	6331	Feb 1987	SAVIN CORP.	5040	Aug 1992
MOHAWK AIRLINES INC.		Aug 1991	SAXON INDUSTRIES	2621	Jul 1984
MONARCH CAPITAL CP/MA	6411	Jan 1993	SEAMAN FURNITURE CO.		Jan 1992
MORSE SHOE INC.		Jan 1991	SHENANDOAH OIL CORP	1311	Nov 1978
MUNSINGWEAR INC.	2320	Jul 1991	SHULMAN TRANSPORT ENTERPRISE	4700	Aug 1978
NATIONAL CONVENIENCE STORES	5412	Dec 1991	SITKIN SMELTING & REFINING	3341	Mar 1978
NATIONAL GYPSUM CO		Oct 1990	SOLITRON DEVICES INC	3674	Jan 1992
NATL BANCSHARES CP TX	6021	May 1993	SORG INC	2750	Jan 1991
NELLY DON INC	2300	May 1978	SOUTHLAND CORP		Oct 1990
NEW AMERICAN SHOE CO	3021	Sep 1991	SPROUSE-REITZ STORES INC.	5331	Nov 1991
NEWMARK & LEWIS INC.	5731	Sep 1991	STANDARD BRANDS PAINT CO.	5200	Feb 1992
NIAGARA SHARE CORP.	2590	Jul 1991	STATEWIDE BANCORP		May 1991
NICKLOS OIL & GAS CO	1381	Sep 1985	STELBER INDUSTRIES INC	3944	Mar 1976
OFFICE PRODUCTS OF AMERICA I	5110	Jul 1991	STERLING OPTICAL CORP	5990	Jan 1992
OLYMPIA BROADCASTING CORP		Jun 1990	STOTLER GROUP INC		Aug 1990
ORION PICTURES CORP.	7812	Jul 1992	STUARTS DEPT. STORES	5331	Apr 1992
ORMONT DRUG & CHEMICAL CO	5122	Jul 1977	SUDBURY INC.	3460	Jan 1992
OVERLAND EXPRESS INC	4213	May 1988	SUN SAVINGS & LOAN-SAN DIEGO	6035	Sep 1986

Appendix B
Firms Making Bankruptcy Announcements

Firm	SIC	Date	Firm	SIC	Date
SUPRONICS CORP	2844	Oct 1976			
TACOMA BOATBUILDING CO.	3730	Feb 1992			
TELESPHERE COMMUNICATIONS IN	4813	Sep 1991			
TELTRONICS SERVICES	5063	May 1980			
TENNESSEE FORGING STEEL CORP	3310	Oct 1978			
TEXAS AMERICAN BANCSHARES	6021	Aug 1989			
TGC INC-OLD	3944	Aug 1978			
TOBIN PACKING CO INC	2011	Sep 1981			
TOTAL ASSETS PROTECTION INC.	8711	Sep 1991			
TRANSCISCO INDUSTRIES INC.	4700	Aug 1991			
TSL HOLDINGS INC	3571	Feb 1994			
UNIMET CORP	3530	Mar 1986			
UNION VALLEY CORP.	1531	Aug 1991			
UNITED MERCHANTS & MANUFACTU		Nov 1990			
UNIVERSAL CONTAINER CORP	3412	Mar 1978			
UNIVERSITY GRAPHICS INC.	2790	Jun 1991			
USG CORP.	3270	May 1992			
VALLEY INDUSTRIES INC.	3317	Sep 1992			
VYQUEST INC	3716	Jan 1991			
WANG LABORATORIES	3570	Aug 1992			
WASHINGTON BANCORP		Aug 1990			
WESTERN HEALTH PLANS	6324	Sep 1989			
WESTERN ORBIS CO	2451	Jun 1976			
WESTMINSTER CORP	3140	Sep 1975			
WILFRED AMERICAN EDUCATION C		May 1990			
WNS INC.	5190	Feb 1992			
ZALE CORP	5944	Jan 1992			
ZIMMER CORP	3716	May 1988			

Autobiographical Statement

J. Terry Ray
Nashville, Tennessee 1948

Education

Old Dominion University	Ph.D.	1998
Old Dominion University	M.B.A.	1974
Tennessee Technological Unversity	B.S.I.E	1971

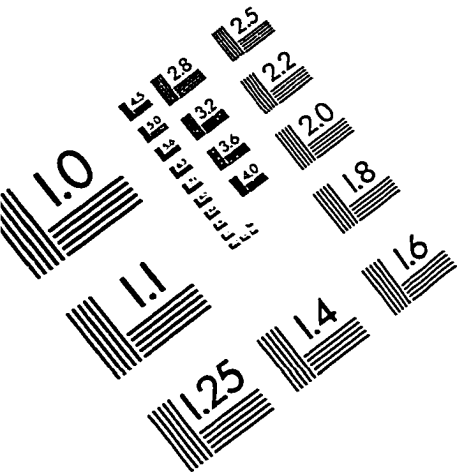
Professional Designations

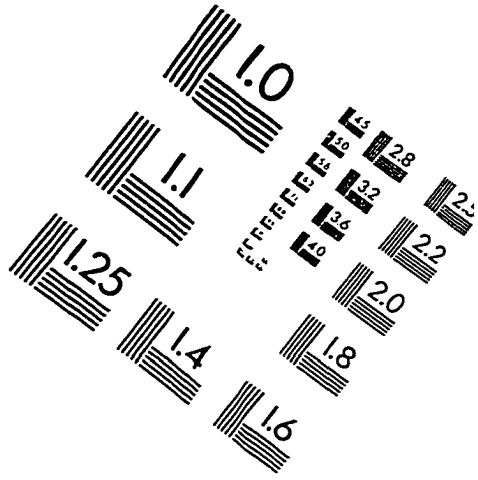
Licensed Professional Engineer
Virginia, 1975 - 1998

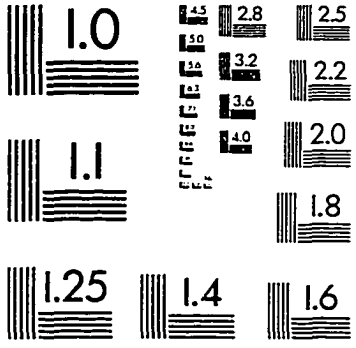
Business Experience

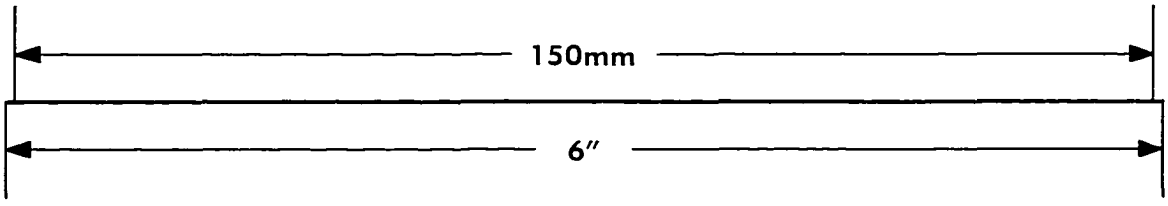
Liberty Associates, Inc.
Firm Principal, 1987 - 1998
Applied Management Engineering, PC
Firm Principal 1979 - 1987
Civilian Employee, U.S. Department of the Navy
Senior Engineer, 1971 - 1979

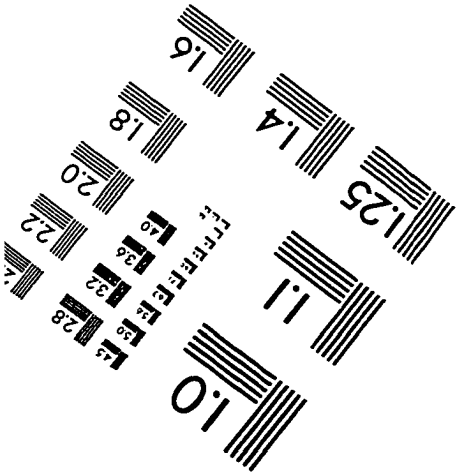
IMAGE EVALUATION TEST TARGET (QA-3)

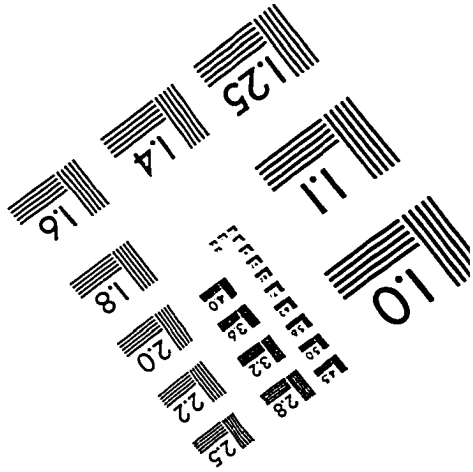












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Phone: 716/482-0300
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