AN EXAMINATION OF THE RELATIONSHIPS BETWEEN STRATEGY, ENVIRONMENT, AND PERFORMANCE IN A FUNDAMENTAL ANALYSIS MODEL

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All things are possible with God.
Mark 10:27

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CHAPTER 1

1. THE RESEARCH PROBLEM

1.1. Introduction

Recently a great deal of financial accounting research has searched for the underlying determinants of firm value, often called intrinsic value. Fundamental analysis is a direction in financial accounting research focusing on firm specific characteristics and their effects on accounting data and firm value. Fundamental analysis tries to determine the value of firms' equity without reference to the prices at which firms' securities trade on the capital markets, embracing instead financial statements data, industry data, and macroeconomic data. Firm value has traditionally been defined as the present value of expected future net cash flows discounted at the appropriate risk-adjusted rate of return. Financial statements are an important source of information about a firm's current performance. This information can be used to assess a firm's future cash flows, and thus a firm's value. This use of financial statement information aligns with the objectives of financial reporting which are (1) to help in assessing the amounts, timing, and uncertainty of future cash flows, (2) to provide information to present and potential investors and creditors for making rational decisions, and (3) to provide information on how management has discharged its stewardship responsibilities [FASB (1978)]. The investigation of the expected relationships between current financial statement information, future cash flows, and future firm value is an important goal of financial accounting research.

Fundamental analysis research attempts to assess these relationships, to forecast earnings, and to identify mis-priced firms on stock exchanges; however, this area of research has traditionally lacked a theoretical foundation. For example, Ou and Penman (1989 a, b) use statistical methods to identify financial measures that are correlated with future returns and to generate abnormal returns. Lev and Thiagarajan (1993) identify a set of 12 fundamental accounting signals based on expert opinion and find statistically significant relationships between accounting data and subsequent earnings growth. Abarbanell and Bushee (1997 and 1998) find significant relationships between accounting-based fundamental signals, contextual variables, future earnings changes, and abnormal returns. Fundamental analysis and contextual studies are fertile areas for future financial accounting research, and the next logical step is to provide theoretical support for the choice of accounting measures used to assess future firm value.

An area rich in potential theories related to the creation of future firm value is strategy. Strategy has traditionally been defined as "the determination of the basic long-term goals and objectives of the enterprise, the adoption of courses of action, and the allocation of resources necessary for carrying out the goals"[Chandler (1962)]. Strategy is the unifying theme that gives consistency and direction to the decisions of a firm's management [Grant (1995)]. The primary concern of managerial strategy is companies' creation of value for their customers and stockholders. Strategic theory describes how a company establishes a profitable position, creates stockholders' value, and differentiates itself from competitors. It links a firm to its external environment and should be a basis for the decisions and actions of management.

In the late 1970's, a framework of strategic theory identified key valuation variables: strategy, structure, environment, and decisions, and defined their interrelationships. The framework describes the patterns of decisions in organizations within certain industries and other groupings. It suggests suitable behaviors and alternative decisions for change in successful organizations. This framework is derived from intensive investigations of hundreds of organizations in several studies. It led to the typology developed by Miles and Snow (1978) which characterizes organizations as defenders, prospectors, analyzers, and reactors. Porter (1981) presents an alternative framework for understanding industries and competitors, and formulating an overall competitive strategy. Porter's framework is derived theoretically and leads to a different strategic typology: cost leaders, differentiators, and stuck-in-the-middle firms [Porter (1985)]. These frameworks and typologies have been used extensively in descriptive research [Miller (1986 and 1988), McArthur and Nystrom (1991), Miller (1992), Miller and Dess (1993) and Duncan et. al. (1998)]. The typologies have been used as contextual variables in several accounting studies including Abernethy and Brownell (1996) and Ittner et. al. (1997). However, there has not been a great deal of direct empirical testing of the creation of market value through the implementation of these strategic theories. The next logical step in this stream of strategic research is to provide empirical support for the theoretical frameworks.

1.2. Statement of Research Question

The research question is, "Can the links between strategy, accounting information, and past firm value be used to develop models that predict future firm value?" This study combines two streams of research: fundamental analysis, which lacks

a theoretical basis, and strategy, which needs more empirical investigation. Strategy addresses how a firm creates value by meeting customers' needs in a manner that distinguishes it from its competitors. Strategy determines how a firm positions itself in the environment to create a competitive advantage. Fundamental analysis research measures firm value using financial statement, industry, and economic information. This study creates models that measure value based on theories about the creation of value.

The models are based on the premise that the actual relevance of accounting information is its ability to allow users to assess risk, to evaluate the performance of managers, and to evaluate managers' strategies within the business environment. Specifically, the models attempt to assess strategic fit, which is defined as the alignment of the firm's environment, goals, and actions. Strategic fit is the source of a firm's future profitability. Strategists believe that the market value of a firm is equal to some multiple of book value plus the intrinsic value created by the strategic fit. This study examines the propositions that, when accounting information is framed within the context of a competitive environment and is used to evaluate strategic fit, it can be used to value firms and to predict firms' future performance.

The models are created based on the relationships between the firms' strategies, the firms' environment, and key performance factors. The firms' business environments are examined with overall economic indicators and with industry performance indicators. The goals of the firms are summarized based on four strategic orientations. Each firm's actions are evaluated based on the relationship of its key performance measures with those of its competition. These constructs and variables are more thoroughly discussed in Chapter 4. The models are a combination of the Ohlson (1995) model of firm value

and the Knight (1999) strategic model of firm value. The data set is made up of single-industry firms and is described in detail in Chapter 5. Cross-sectional accounting data are pooled across strategic types to estimate parameters on each environmental and accounting measure. The models predict that a firm creates value when its strategy aligns with its environment and its actions conform to the constraints of the strategy. In other words, a firm creates value when it has good strategic fit.

1.3. Importance of Research Question

In financial statement analysis, investors and analysts have been given little guidance as to which performance measures are important and why. The recent market shifts and economic crises around the world have caused investors, analysts, fund managers, and others to return to "more fundamentals-driven stock picking" [Bartlett (1998)]. They seek performance measures that have economic meaning and cannot be manipulated by management. This research assists investors and analysts in using publicly available information to create strategy-specific models that have predictive value. These models relate the decisions and actions of management to the value of firms. They are important because they explain current value and provide a basis for predictions of future value even when management decisions and actions change. The results of the study provide information useful to financial statement users when making forecasts for valuation models. The results indicate that the strategic choice changes the value relevance (forecast relevance) of specific accounting measures.

According to Bauman (1996) researchers are also seeking valuation analysis that is based on fundamental principles. Bernard (1989) identifies fundamental analysis as an alternative to prior models based on market prices and average risk factors. Empirical

researchers have used accounting data and financial ratios as inputs for fundamental valuation models based primarily on statistical methods and/or expert opinions. The primary criticism of past studies has been the lack of foundation or theory used in choosing the accounting data input into the valuation models. In addition, prior research has tended to use large, broad samples and has been concerned with overall market results. These points are discussed in Chapter 2. The sample in this study is relatively small which allows more context specific statistical tests, which are further discussed in Chapter 5. The results of the study provide information useful to accounting research. The results indicate that the choice of strategy and the industry structure are related to future firm value and affect the overall value relevance of accounting data.

The remainder of the study consists of seven chapters. The next chapter will review prior research and theories on evaluating business environments and firm strategy. Chapter 2 also includes a review of the research on fundamental analysis and theories on financial and non-financial variables that are value relevant. Chapter 3 develops the theoretical relationship between strategy and accounting information and discusses the primary hypotheses. The empirical model is described and variables are defined in chapter 4. Chapter 5 discusses the sample selection, data sources, and statistical test. The results of the study are presented and analyzed in Chapter 6. Chapter 7 discusses the conclusions and limitations of this study. In the final chapter, the opportunities for future research are discussed.

CHAPTER 2

2. PRIOR RESEARCH

2.1. Business Environment and Strategy Research

The research in strategy that is relevant to this dissertation can be classified in three categories:

(1) General strategic theories on the definition and purpose of strategy

(2) Descriptive studies of the relationship between strategy, industry structure and the business environment

(3) Empirical studies of the effect of strategy, industry structure, and business environment on business performance.

2.1.1. General strategic theories on the definition and purpose of strategy

Contemporary strategic theory is grounded in economic theory. Strategic research (like accounting research) assumes that the primary goal of managers within market-based economies is to maximize shareholder wealth. Managers meet this goal by implementing strategies that are effective within their competitive environments. Strategists believe that managers do not have the ability to think of all possible ways to create value; therefore, managers are unable to make the best decisions. Strategy is the way to limit managers' choices so that they can make the best decision within certain constraints.

In other words, strategists theorize that strategy is necessary because managers operate in a world of bounded rationality. The first-best solution for a firm is for managers to think of all possible approaches to creating wealth and then to choose the

one that generates the most wealth for the shareholders. Managers' bounded rationality does not permit the first-best solution; therefore, strategy is used to establish a set of guidelines, rules, and criteria that will limit the number of potential approaches and allow the implementation of the second-best solution. Strategists define the second-best solution as the decisions that maximize profit within the confines of the firm's environment, strategy, and resources.

Strategic decisions that maximize profit within the firms' environment generate firms' competitive advantage. Competitive advantage is a matter of position, where the firm builds and defends market share. Organizations sustain a competitive advantage only so long as the products and services they deliver and the manner in which they deliver them have attributes that correspond to the key buying criteria of a substantial number of customers [Duncan, Ginter, and Swayne (1998)].

2.1.2. Descriptive studies of the relationship between strategy, industry structure, and the business environment

Working within this context of economic theory, strategic researchers have investigated the relationships between business environment, industry structure, and managerial strategies. One group of theorists (industrial organization theory) suggests that the external environment drives firm's strategic choices, actions, and the creation of value. A second group (resource based theory) argues that firms' unique resources and capabilities determine strategic competitiveness and the creation of value. Traditionally, strategic researchers approach the business environment, industry structure, and managerial strategy in a linear manner. They assume the environment influences the strategies implemented and the strategies influence the industry structure. Chandler (1962), Channon (1973) and others conclude that structure follows strategy.

The work by Miles and Snow (1978) and Miller and Friesen (1977, 1983) describe strategy and structure from a more multidimensional point of view. Miles and Snow (1978) show how their four strategy types -- prospectors, defenders, reactors, and analyzers -- adapt to their environment and influence their structure through their controls and decisions. Miller and Friesen (1977, 1978) derive a typology from empirical investigations of several organizations. Osborn and Glueck (1980), Miller and Friesen (1986), and Miller (1986) use these early typologies to make judgments about strategies that appropriately suit certain business environments. Ittner et. al. (1997) use these typologies to characterize organizations and determine the relative information content of performance measures used in annual bonus contracts.

Michael Porter has written 14 books and numerous articles on strategy and global competition all of which reflect some level of interaction between the business environment, industry structure, and strategies. The 1980 book, *Competitive Strategy,* and the 1985 book, *Competitive Advantage,* have helped to shape the generally accepted definition and application of strategy. Porter defines strategy as the creation of a unique and valuable position that involves a different set of activities than the competition. In other words, strategy is what makes the firm different from its competitors. Porter also describes the five competitive forces that determine a firm's ability to earn a profit within an industry. The five forces -- potential entrants, suppliers, industry competitors, customers, and substitute products -- affect industry profitability because they affect prices, costs, and investments of firms. These forces are summarized within the industry structure (see Table 3).

In *Competitive Advantage* (1985), Porter discusses the viability of three general strategies -- cost leader, differentiator, and stuck in the middle -- and how they affect industry structure. *Competitive Advantage* (1985) addresses the need for a good "strategic fit". "In most companies with good strategies, activities complement one another in ways that create real economic value [Fortune, February 1, 1999, page 135]." Any strategy can be viable in any industry. For example, in the personal computer industry IBM is a differentiator (competing on innovation and quality), Gateway is a cost leader (competing with efficiencies that generate lower cost), and in the early 1990's Compaq was stuck in the middle (trying to compete using innovation and efficiencies). In *Competitive Strategy,* Porter characterizes the five forces of industry competition and links firm performance directly to the positioning of firms within the industry. Porter suggests that competitive strategy should aid in decisions related to every part of a company's value chain from suppliers to customers.

The typologies developed by Miles and Snow (1978) and Porter (1985) contribute to a more detailed analysis of the inter-relationships among environment, structure, and strategy. Miller (1986) describes the similarities among Porter's, Miles and Snow's, and others' typologies and discusses the fit between strategy and environment. He concludes that there are only a limited number of possible strategies feasible in any type of environment. Miller (1986) makes three broad assertions but does not empirically test them. First, successful firms tend to pursue either a cost leadership / defender strategy or a differentiator / prospector strategy. Second, differentiators / prospectors should use asset parsimony because they must be flexible while the cost leadership / defender should invest in assets in order to pursue efficiencies. Third, most

strategies can have various levels of focus depending on economic factors such as economies of scale and resource availability.

2.1.3. Empirical studies of the effect of strategy, industry structure, and business environment on business performance

Miller (1988) argues that strategies (as dichotomized by Porter (1985)) are related to both environment and structure, that all three interact, and that all three affect value directly and indirectly. Miller (1988) used a survey of 89 Canadian firms' CEOs and upper level managers to collect data; he tested the interactions and the effects of these three variables on firm value. Firm value creation is measured with the average return on investment and the average change in net income. Results indicate that innovators and differentiators perform better in uncertain environments and that cost leaders perform better in stable environments. In addition, there is significant interaction between structure and strategy variables. Profitable firms bore out many of the hypothesized relationships while unprofitable firms fail to support the hypotheses.

McArthur and Nystrom (1991) examine the interaction of strategy and environment in determining firm value. The environmental measures are based on organizational theory. Organizational theory defines the environment in terms of dynamism, complexity, and munificence. Dynamism describes the degree of market instability over time and is measured as industry new product innovations. Complexity describes the variations in an organization's activities and is measured with geographic concentration in sales. Munificence is the extent to which an environment can support growth and is measured with sales growth. McArthur and Nystrom (1991) hypothesize that the environment affects the strategy-performance relationship. They performed empirical tests on 100 large manufacturing firms. Finding indicate that the environment

has a direct effect on performance and a moderating effect on performance through its interaction with strategy.

Miller (1993) examines the relationship between managerial strategy and firm performance from a risk assessment perspective. Managerial uncertainty comes from three sources: the general environment (political and macro-economical), the industry structure (input, products, competition, and technology), and firm specific characteristics (operating results, research and development, and employee relations). He surveyed 500 managers in 211 Latin American firms. Thirty-five variables are used to measure the three sources of risk and their effect on performance. Inputs availability, product demand, changes in competitor strategies, entry of new firms, product changes, and new product introduction are most influential statistically. The industry SIC code, although statistically insignificant in the tests, shows more significance when it is more narrowly defined. Miller concludes that firm risk and performance are multi-dimensional and suggests additional research should address the interaction of environment, structure, and firm specific characteristics.

Bell et al (1997) states that in order to gain an accurate understanding of the firm's performance, financial condition, and valuation, one must examine the firm as a piece of the larger economic environment. In addition, one must evaluate management's strategy for creating value. Industry dynamics such as product and process technologies, the availability of critical inputs, product market demand, strategic moves by competitors, and moves by potential entrants are viewed as sources of firm risks, firm opportunities, and determinants of firm performance and value.

Duncan et al. (1998) suggest that greater attention needs to be given to factors that affect the firm internally. The firm's performance should relate to competitive advantage. The evaluation of competitive advantage is collapsed into four steps: survey potential strengths and weaknesses, categorize organizational strengths and weaknesses, investigate the source of competitive advantage, and evaluate competitive advantage. The authors suggest that financial statements are a good source of external information for evaluating internal strengths and weaknesses. They conclude the financial statements can and should be used to evaluate the utilization of resources (strengths) and the effect of costs (weaknesses) as related to competitive advantage.

Contemporary strategic theory and accounting theory when combined indicate that (1) the business environment affects the firm's value, (2) the firm's strategy will affect firm's value, and (3) a firm's competitive advantage (measured with key accounting factors) will affect firm's value. In addition to the direct effect of these constructs, there exist interactions between constructs that ultimately affect firm performance. Figure 1 depicts these relationships. For a firm to be successful (to maximize shareholder value) strategy must be consistent with the firm's goals, with the environment, and with the firm's resources.

2.1.4. Summary

Prior strategic research has emphasized the characterization of strategy and environment. Strategic researchers have tried to assess the interaction between environment, strategy, competitive advantage, and value. Primarily strategic researchers have used surveys to empirically measure and test the relationships among these factors. Strategic research and analysis has concentrated on the manager's use and evaluation of

strategy (an internal perspective). This research adds to the current stream of strategic research by directly testing prominent theories from an external viewpoint. This study incorporates a larger sample size, establishes a theoretical association between managerial strategic decisions and financial statement information, and develops fundamental analysis models that use publicly available information to predict future firm value.

2.2. Fundamental Analysis and Valuation Research

Fundamental analysis research that is relevant to this dissertation can be classified in two categories:

(1) Empirical studies of firm valuation with the intent of identifying mis-priced firms

(2) Studies on the development and application of valuation models.

With Ball and Brown (1968), capital markets accounting research began to concentrate on the "average" relationship between accounting information and stock prices across large samples of firms. This stream of research assumes an efficient market and that market price is sufficient for determining firms' values and can serve as a benchmark for evaluating the information in accounting measures. This approach to accounting research is called the *information perspective.* The *information perspective* does not consider how the market transforms the information into prices; in other words, the valuation model is a "*black box*". It has tended to measure the information value of accounting earnings, cash flows, etc. in isolation (to the exclusion of other information) by examining the correlation between these data and stock prices. [Atiase (1985), Beaver, Clark, & Wright (1979), Foster (1977), Komendi & Lipe (1987), Lipe (1986)]

Lev (1989) observes that research in financial accounting had shown a poor to weak association between earnings and market prices and had yielded little concrete support for the value of accounting information. He concludes that the research agenda should be one that tries to understand the actual use of reported data by investors, creditors, and other financial statement users. In addition, many believe that a change in accounting information quantity and quality, as well as a change in how financial information users evaluate firm performance is necessary. They suggest that financial statement users should evaluate firms by evaluating managers' decision making [The Jenkins Report (1995)]. There is a call for research that examines the effect of fundamental measures, related specifically to firms' characteristics, on firms' values.

Lev and Ohlson (1982), Lev (1989), and Bernard (1989) form the foundation of an approach to using financial accounting information called fundamental analysis. This is an alternative approach in which stock prices can deviate from the intrinsic or fundamental value of the firm derived in an efficient market. Fundamental analysis involves inferring the value of a firm's equity without reference to the prices at which the firm's securities trade on the capital market. The firm's prospects are evaluated through published financial reports, product market information, and the overall economic environment. By using financial reports, market information, and environmental information, a valuation can be established to which market prices are compared. This type of comparison should yield investment strategies that may produce abnormal returns.

2.2.1. Empirical studies of firm valuation with the intent of identifying mis-priced firms

One of the key tasks to the fundamental analysis approach is the analysis of a firm's financial statements. Several researchers have attempted to analyze financial statements and derive a valuation of firms that can be used to predict future profitability. Ou and Penman (1989) originally started with 68 financial statement measures and used purely statistically analysis to narrow the number of measures used down to 30. They combined 30 financial statement items into one summary measure, *Pr*, which indicates the direction of the one-year-ahead earnings change. Using an investment strategy based on the *Pr* measure and a LOGIT model, the probability of earnings increases were forecasted. The financial measures that are related to future performance are identified without attempting to assess predictive ability on the basis of theory or prior experience. Ou and Penman note that traditional financial statement analysis, as described in textbooks, provides little guidance in how to use financial statement data and ratios to establish a valuation.

Stober (1992) builds on the results of Ou and Penman (1989) by examining the properties of analysts' forecasts in relation to the *Pr* measure. He finds that analysts' forecasts are marginally superior to *Pr* as a predictor of the signs of one-year-ahead changes in EPS and that when the analysts' forecast and *Pr* are in agreement the predictive accuracy is about 78%. When the two measures disagree, the accuracy is much lower, about 50%. The *Pr* seems to captures some measure of fundamental value not captured in price or analyst forecast. The results of this research also support the argument that the *Pr* measure has captured some omitted risk factor. Finally, Stober

(1992) indicates that financial statement information may be underutilized because there is little guidance on what information is important and why.

Holthausen and Larcker (1992) examine the profitability of a trading strategy based on a LOGIT model designed to predict the sign of excess returns from accounting ratios. The Ou and Penman (1989) approach is to predict unexpected earnings per share while Holthausen and Larcker (1992) used three measures of excess returns as the dependent variable. When two time frames are examined, 1978-1982 and 1983-1988, the Ou and Penman's *Pr* measures are only successful in the first period. Forty-one of the potential 68 accounting ratios are used in 12 models. The trading strategies earn significant abnormal returns in the 1978-1988 period. The models are purely statistical and the results are surprising considering the total lack of economic foundation. These authors performed several tests and sensitivity checks to support the results of the accounting-based investment methodology.

Several other accounting researchers have also created trading strategies based on accounting information. Harris and Ohlson (1990) and Lev and Thiagarajan (1993) used statistical investment strategies and reach the conclusion that investors do not fully utilize value-relevant accounting information. The studies show that using accounting information such as book value, changes in inventories, changes in sales, etc. one can create models and investment strategies that generate abnormal returns in excess of returns generated using only earnings. In other words, the fundamental measures chosen in the studies improve the explanatory power of earnings with respect to abnormal returns. Efficient market supporters identify other explanations for the abnormal returns generated by the statistical models used in this stream of fundamental analysis research.

Bernard et al. (1997) examined six accounting-based stock price anomalies, including two accounting based trading strategies. They conclude that the abnormal profits from accounting based models of firm value are due to risk compensation. Grieg (1992) suggests that the abnormal returns generated by the accounting based models of future firm value are functions of the model acting as a proxy for size and beta, rather than the direct prediction approach. Grieg (1992) cites the "lack of convincing theory to support both the selection of accounting descriptors used in the prediction models and the timing of subsequent abnormal returns" as a reason to question the returns. All of the authors in this area indicate the need for a theoretical foundation in creating accounting based models.

Lev and Thiagarajan (1993) indicate that the next step in the process is a directed search for fundamentals, guided by theory or by experts' judgment. They identified a set of 12 fundamental signals by searching the Wall Street Journal, Barron's, and Value Line for analysts' opinions on the "quality of earnings". The fundamentals include inventory, accounts receivable, capital expenditures, research and development, gross margin, sales and administrative expenses, provisions for doubtful receivables, effective tax rates, order backlog, labor force, LIFO earnings, and audit quality. Findings indicate that 10 of the 12 signals are statistically significant and associated with unexpected earnings. Lev and Thiagarajan (1993) also show that accounting information should be conditioned (i.e. considered within a context). Three economic variables: the annual change in the Consumer's Price Index (an inflation indicator), the annual change in real GNP (a state of the economy variable) and the annual change in the level of Business Inventories (a business activity indicator) are used to condition the accounting information.

Abarbanell and Bushee (1997) and (1998) examine the relations between accounting-based fundamental signals, future earnings changes, and abnormal returns. Their evidence supports the relevance of some of the measures used by Lev and Thiagarajan (1993) when assessing future firm performance. Abarbanell and Bushee (1997) also find that some of these measures explain long-term earnings growth, structural shifts, and transitory earnings changes. The fundamental measures may be more informative than analysts' forecasts because the analysts' forecasts have short horizons. In addition, they examine inflation, gross national product, and industry variables as a way of conditioning some of the information. Abarbanell and Bushee (1998) attempt to extend prior research by using individual independent signals to test the linkage between abnormal return results and previously identified pricing anomalies. The conclusions indicate a need for additional theory and more contextual research.

2.2.2. Studies on the development and application of valuation models

The discounted dividend model defines market price or value as the present value of expected future dividends discounted at their risk-adjusted rate of return. In this case value depends on the forecast of future dividends and discount rates. Several accounting measures have been used as proxies for forecast of future dividends, including predictions of earnings and cash flows. The earnings capitalization model is developed by substituting future earnings and future investments for future dividends in the dividends discounting model [Fama and Miller (1972)]. This model is based on assumptions of dividend irrelevance and 100% dividend payout ratios. The earnings capitalization model is popular in financial accounting research [Kothari (1999)].

Bernard (1995) describes early efforts at fundamental analysis as being flawed. He suggests that the traditional approach precludes the possibility that researchers could ever discover something that was not already "known" by the market. The focus on explaining price behavior should be shifted to predicting earnings (i.e. predicting future performance). This is supported by Ohlson (1995) and Feltham and Ohlson (1995), which indicate the forecast of earnings (versus returns) can be appropriate if the forecast is consistent with the clean surplus relation.

The Feltham and Ohlson (1995) and Ohlson (1995) studies were a "first step" in a more contemporary approach to fundamental analysis. The Ohlson residual income valuation model has become popular in financial accounting research. This approach moves away from valuation based on the present value of discounted future dividends or discounted future cash flows to valuation based on earnings and book values. This research eliminates the need for assumptions on how earnings relate to dividends or cash flows and emphasizes an approach that links future financial statement data directly to firm value. The Ohlson model accentuates a two-step process where current information is linked to the forecast of future financial statement data and those forecasts are linked to current value. The Ohlson model defines value as the sum of current book value and the discounted present value of abnormal earnings. Abnormal earnings are forecasted earnings minus a charge for capital (book value times the discount rate). This model also makes allowance for the possibility that non-accounting information is value relevant when it affects expectations of future abnormal earnings.

2.2.3 SUMMARY

Investors and analysts try to identify information that forecasts the creation or capture of value. Fundamental analysis researchers claim the information needed for forecasting can be found in financial statements and financial statement analysis. This research is intended to contribute to the current stream of fundamental analysis research by testing the ability of accounting information to predict future earnings and future performance. Additionally, this study will enhance the current stream of research by providing an *a priori* theoretical foundation for the variables used and the models created based on strategy and economics. The models will be examined within a context of the general environment and industry environment. Table 1 shows the accounting fundamentals used as variables in the significant articles in this area and those that will be used in this research. The variables used in this study are discussed in Chapter 4.

Many experts advocate financial accounting research that "gets inside the black box". In other words, they have called for research that examines firms' specific characteristics and their effect on firms' values. Strategy influences firms' resources, capabilities, decisions, and characteristics. This research "gets inside the black box" by characterizing the business environment and the internal and external managerial strategies of a firm and then developing a fundamental model that infers a future value for the firm. The model suggests the fundamental theories and measures used by management to evaluate business performance and to make competitive decisions are the same theories and measures that investors, analysts, and creditors can use to evaluate firm performance.

CHAPTER 3

3. THEORETICAL FRAMEWORK & STATEMENT OF HYPOTHESIS

Chapter three presents a discussion of the levels of strategy and firm-specific factors that affect firm performance. The chapter also describes how strategic theories can affect the interpretation of financial statement information. Finally, the four hypotheses are described and theoretical support for the hypotheses is provided.

3.1. Introduction

There are two basic levels of strategy within a firm: corporate strategy and business strategy. Corporate strategy defines the scope of the business and competition in terms of industries and markets. Corporate strategies assist managers in making decisions about diversification, vertical integration, new ventures, and divestments. It has been described as the strategy of domain selection. Business strategy is concerned with how the firm gains a competitive advantage and helps managers decide how to compete. This study assumes that firms have made the choice of competitive domain or corporate strategy and concentrate on the business strategies and how the firms compete within chosen industries.

Business strategy can be analyzed from four different points of view: strategy as perspective, strategy as position, strategy as plan, and strategy as patterns in actions. Strategy as perspective is disclosed in a business's mission statement. Mission statements refer to the overall purpose for a business's existence. The mission should guide managers' decisions when choosing among competing alternatives. Strategy as

position is about the position of a business within its industry. This is the strategy that addresses how the business creates value and differentiates itself from its competition. Strategy as a plan, addresses the formal communication of the strategy to all stakeholders and the coordination of resources to assure the success of the strategy. The strategy of the firm should be reflected in its operating and financial plans. When the strategy of a firm is planned into the performance measures, it affects the actions of the managers. Strategy as action can emerge over time in the pattern revealed in managers' behavior. Strategy as action can be seen in the financial statement results. For strategy to be successful all four views of strategy should be coordinated. The strategy as perspective can be seen in the management discussion included in the financial statements of most companies [Leuthesser and Kohli (1997)]. The strategy as action can be evaluated with financial statement operating results [Simon (2000)]. The effectiveness of strategy as position and the communication of strategy as plan can be evaluated by the alignment of perspective and action. In order to use these strategic theories empirically, the concept of strategy has to be measured or dichotomized.

Miles and Snow (1978) categorize managerial business strategies, discuss the competitive nature of the firm, and describe the structural issues that fit the strategy classification. Miles and Snow concentrate on the overall operations of the firm and describe the effects of the firm's strategy on its products, operations, administration, and controls. Porter (1985) describes a different category of business strategies. Porter concentrates more on industry attractiveness (so-called five forces framework) and creating competitive advantages by emphasizing internal strengths and minimizing weaknesses. His theories connect strategy to economics and direct attention to different

analytical methods. These typologies provide an excellent vehicle for research since their primary strengths are codification and prediction.

There are a great many underlying similarities between the Miles and Snow (1978) and the Porter (1985) categories. Both visualize the firm as a group of discrete yet related activities and decisions that reveal a pattern in thinking (a strategy). Additionally, both view a firm's success as a matter of creating and sustaining competitive advantages through the firm's strategy. The most successful firms are those with a clear sense of what they are trying to do and how to do it. Porter (1985) calls this "strategic fit". Miles and Snow (1978) describe this as a process of making a plan, taking action, and evaluating the fit or performance of the plan and the actions. Using the four views of strategy, the theoretical framework of Porter (1985), and the framework of Miles and Snow (1978), several observations about the alignment of specific strategic types and financial performance can be developed. Because the levels, types, and measures of risks differ across firm strategies, these relationships can then be used to value the firm.

Miles and Snow (1978) describe firms as having one of four strategic types: defenders, prospectors, analyzers, and reactors while Porter (1985) describes firms as cost leaders, differentiators, and stuck-in-the-middle. Competitive strategy can be broadly conceptualized as a continuum between two strategic orientations: prospectors (differentiators) and defenders (cost leaders) [Ittner, Larcker, and Rajan (1997)]. In this study, hypotheses are developed that relate each strategic type to key accounting measures.

3.2. TYPE1 Firms

Miles and Snow (1978) describe defenders as organizations with narrow product-market domains that devote primary attention to improving the efficiency and reducing the costs of their existing operations. Defenders typically direct their products or services to a segment of the market. Defenders invest financial and managerial resources in improving processes such as quality and inventory control, materials handling, production scheduling, and methods of distribution. They become technologically efficient and rarely make changes to their technology, structure, or operations unless it is to maintain efficiency. Defenders use vertical integration as a protection mechanism to control the flow of materials and to control the costs of production. Their success and growth depend on penetrating deeper into their current markets. These organizations are stable and focused.

Porter (1985) describes the cost leaders as firms that set out to be the low cost producers and to emphasize efficiency. The cost leader typically sells a standard product and places considerable emphasis on reaping scale or absolute costs advantages. They try to generate economies of scale, proprietary technology, and vertical integration. The cost leader product must be similar in characteristic to the competitors' products while maintaining its cost advantage. Usually the cost leader strategy requires that only one or a few firms in an industry are cost leaders. The greatest risk to these types of firms is rapidly changing products or markets. **Firms that compete on the basis of cost minimization and operating efficiencies will be referred to as TYPE1 firms.**

Since TYPE1's strategy is to minimize costs and to improve the efficiency of assets, costs measures and efficiency measures should be of primary importance in

determining firm performance and value. In addition, the sales growth and cash flows of TYPE1 firms are usually consistent and predictable. For this reason increases in debt are considered indications that creditors believe future performance will continue to sustain debt repayment. When TYPE1 firms start to spend more on discretionary expenditures, they are acting contrary to their chosen strategy. They will become stuck in the middle and start to perform poorly; therefore, discretionary expenditures like research and development are negatively related to the performance of TYPE1 firms.

Hypothesis 1_A: The future value of TYPE1 firms is positively related to current cost, efficiency, and debt measures and negatively related to discretionary expenditure measures.

3.3. TYPE2 Firms

Prospectors compete by being among the first to develop new products and thrive in rapidly changing environments. The products of prospectors are broad and constantly changing. The management monitors a wide range of environmental conditions, trends, and events. They maintain a reputation as an innovator by investing heavily (at high costs) in product and market research and development (R&D). Prospectors grow horizontally, in spurts from the development of new products and expansion into related products. A considerable portion of the technology and assets relate to the production of new products. They seldom operate efficiently and are likely to overextend their cash flow in order to take advantage of new opportunities and flexible technologies. Increases in debt financing for prospectors are an indication that current operations are not sustaining future product development.

Differentiators seek to be unique in the industry. They search for new products and new ways to satisfy some market or product uniqueness at a premium price. The

differentiator focuser finds the product or service that will satisfy a target segment of the market. The differentiator aims for cost proximity relative to its competitors yet will incur additional cost as long as the price premium exceeds the excess cost. Typically, there are many differentiators in an industry. Firms differentiate themselves through a variety of ways including policies (using recycled parts), timing (being the first to adopt new standards), location and scale (providing many locations). These firms face more uncertainty than other types because of their willingness to change direction because of environmental trends and events. **Prospectors and differentiators will be referred to as TYPE2 firms.**

TYPE2 firms compete on the basis of innovative products and product changes. These firms grow in spurts driven by new product innovations. The TYPE2 strategy is usually costly. TYPE2 firms invest in research and development and in advertising to distinguish themselves from their competitors. Increases in debt financing for TYPE2 firms are an indication that current operations are not sustaining future product development. The revenue growth measures, discretionary expenditure measures, and debt measures are important in determining performance and value for TYPE2 firms. These firms cannot be efficient and structured because they have to be flexible enough to take advantage of product innovations. When these firms attempt to become efficient and cost effective, they are behaving as TYPE1 firms and will eventually become stuck in the middle.

Hypothesis 2_A: The future value of TYPE2 firms is positively related to current growth and discretionary expenditure measures and negatively related to cost, efficiency, and debt measures.

3.4. TYPE3 Firms

An analyzer is an organization that tries to balance prospectors' risk and defenders' opportunities for profit. Analyzers have matrix organizations where part of the firm is dedicated to stable structured markets and part of the firm is tracking prospectors for the discovery of new products and opportunities to copy. They move into new products and markets only after viability has been demonstrated. They offer a mixture of products and service, some of which are stable and others are changing. The growth pattern of an analyzer is a mixture of constant market penetration growth and unstable product development growth. The organization must develop efficient and prototypical technologies at the same time. To achieve this, analyzers usually invest in applied research that allows the adapting of existing technologies to new product designs. In every area, the analyzer's success is contingent upon maintaining a delicate equilibrium. This is where their risk lies.

Porter (1985) refers to analyzers as "Stuck-in-the-Middle". He says these firms will only be profitable if the industry structure is highly favorable. Miles and Snow's (1978) analyzers are stuck-in-the-middle by choice and do not fit Porter's description absolutely. Porter does admit that when "a firm can achieve cost leadership and differentiation simultaneous, the rewards are great because the benefits are additive – differentiation leads to premium prices at the same time that cost leadership implies lower costs". **Firms that compete in stable markets and in innovative markets at the same time are TYPE3 firms.**

The performance of TYPE3 firms will depend on the balance of revenue growth, cost control, and discretionary expenditure measures. The majority of the TYPE3 firms'

revenues are generated from their stable sets of products and customers. This portion of revenue has consistent growth; however, the portion of revenue related to innovative products increases in spurts. TYPE3 firms invest in efficient and adaptable assets, yet use research and development to copy proven product and market innovations that fit their current assets and technologies. The costs of copying product innovations should be less than the cost of original discovery; therefore, TYPE3 firms should spend less on discretionary expenditures than TYPE2 and have less need for debt financing than TYPE2. Firms that are able to successfully balance the stable markets and the innovative markets will be among the most successful organizations in their respective industries.

Hypothesis 3_A: The future value of TYPE3 firms is positively related to current cost, efficiency, and growth measures and negatively related to debt measures.

3.5. TYPE4 Firms

Miles and Snow's (1978) reactor firms are organizations that adjust to environmental change in inconsistent and unstable patterns. The reactor has failed in the strategy as perspective, strategy as position, or strategy as plan stage of strategic development. In other words they have failed to develop or communicate an organization strategy. Planning and control of reactors occurs in a chaotic manner. These firms are traditionally unsuccessful. There are three primary reasons why firms become reactors. First, top management does not devise or articulate a clear organization's strategy. Second, management does not structure the organization or its processes to fit the strategy. Third, management fails to change the strategy or structure despite significant changes in environmental conditions.

Again, Porter (1985) refers to reactors as "Stuck-in-the-Middle". Porter says firms stuck in the middle fail to have any definitive strategy and possess no competitive

advantage. The reactors are stuck-in-the-middle not by choice and, according to Porter, will eventually fail. Reactors become stuck because they are unwilling or unable to make choices about how to compete or they sacrifice their strategy for the sake of growth that cannot be sustained. When a firm that is stuck-in-the-middle discovers a profitable product it is usually eliminated by the competitive advantage of TYPE2 and TYPE3 firms. **Firms that have no consistent generic strategy are TYPE4 firms.**

The performance of TYPE4 firms will depend on their willingness to change their structure and commit to a strategy. Unless a new strategy is chosen and implemented these firms will fail. The patterns in TYPE4 firms' accounting data will depend on the strategy that dominates at the time the financial statements are produced.

Hypothesis 4_A: For TYPE4 firms, there are no discernable patterns in accounting information. TYPE4 firms are more likely to be negative performers and to eventually fail.

3.6. Summary

Table 2 summarizes the associations between value and the fundamental measures for each strategic type.

CHAPTER 4

4. MODEL DEVELOPMENT & VARIABLES DEFINITION

Investigating the relationships among strategy, environment, accounting information and firm value requires valuation models that specify which firm characteristics affect value. The models used in this study are derived from the combination of a strategic model of firm value and the residual income model developed by Feltham and Ohlson. In strategic research, one group of theorists (industrial organization theory) suggests that the external environment is the primary determinant of firm's strategic actions and the creation of value. A second group (resource based theory) argues that firms' unique resources and capabilities are the link to strategic competitiveness and the creation of value. Earlier research has shown the success of firms can depend on the choice of strategy, the condition of the business environment, and the measurement of the firms' competitive advantages. The flowchart in Figure 2 shows the three root causes of poor performance and the pattern leading to long-term success.

4.1. Model Development

In *Competitive Advantage*, Porter discusses the necessity of "strategic fit" and firms' creation of true economic value through the fit of strategy, resources, and environment. Every firm is a collection of activities that are performed to design, produce, market, deliver, and support its products or services. Porter (1980 and 1985) and Miller (1988) indicate that a firm's economic value depends on the resources the firm

currently owns and the strategic use of these resources to create new value. Strategists describe firm value as some multiple of book value plus the intrinsic value created by the fit between the firm's strategy, its resources, and its environment. Knight (1999) constructs a similar model where firm value is a multiple of book value plus the future earnings potential of the firm called "goodwill" and/or intrinsic value. Traditionally, strategic research links strategy to performance by studying the relationships between strategic choices, environment, structure, and earnings. Return on investment and return on assets are used as proxies for earnings performance in strategy research. Accordingly, the model of value from a strategic viewpoint is as follows:

$$V_{it} = \beta_0 + \beta_1 BV_{it} + \beta_2 IntrinsicValue_{it} + \varepsilon_{it} \qquad \text{(Model 1)}$$

where:

V_{it} = Value of Firm i at time t

BV_{it} = Book Value of Firm i at time t

$IntrinsicValue_{it}$ = Economic Value or Firm i at time t created by good "*Strategic Fit*"

ε_{it} = random error term

i = 1...N

t = 1...T

Ohlson (1995) and Feltham and Ohlson (1995) present an alternative to the information perspective of accounting. They state that the value of the firm can be estimated over a finite horizon with a model of forecasted earnings, book value, and discount rates. Specifically, value is the sum of current book value and the discounted present value of expected abnormal earnings. Abnormal earnings are forecasted earnings minus forecasted book value times the discount rate or a charge for capital. This model of firm value has become popular. Penman and Sougiannis (1998) and Francis et. al. (1999) evaluate the Ohlson model and find that earnings and book values have advantages over forecasted dividends and cash flows in valuing equity.

The Ohlson (1995) model uses linear information dynamics that "(1) specifies an autoregressive time-series decay in the current periods abnormal earnings, and (2) allows for information other that abnormal earnings into prices" [Kothari (2000)]. The model is based on economic theory. The autoregressive process in abnormal earnings is driven by the belief that competition will eventually eliminate positive abnormal earnings or that industry downsizing will eliminate negative abnormal earnings. The allowance for other information relates to the fact that price reflects economic and environmental information in a more timely manner than historically based accounting data. The model derived by Ohlson (1995) is as follows:

$$V_{it} = BV_{it} + \alpha_1 x^a_{it} + \alpha_2 v_t \qquad \text{(Model 2)}$$

where:

V_{it} = Value of firm i at time t
BV_{it} = Book Value of firm i at time t
x^a_{it} = Abnormal Earnings of firm i at time t
v_t = Other information at time t
i = 1...N
t = 1...T

The Feltham and Ohlson (1995) model expresses firm value in terms of current and forecasted accounting data. The forecasted accounting data can follow any process and reflects all available information. This allows several measures to be used as a proxy for future earnings. Prior research has used actual earnings, model predictions of earnings, and analyst forecasts of earnings [Dechow, Hutton, and Sloan (1999), Lee, Myers, and Swaminathan (1999)]. The only assumption required by the model is that these forecasts be consistent with the clean surplus relation.

The Feltham and Ohlson (1995) model indicates that the firm's value is equal to a multiple of book value and discounted future abnormal earnings. Abnormal earnings are

earnings minus a charge for the use of capital measured as the beginning of the period book value multiplied by the estimated cost of capital. With the clean surplus assumption, this model implies that the present value of future abnormal earnings (future earnings potential according to strategic researchers) is equal to "goodwill". Ohlson and Zhang (1999) conclude that value is composed of book value and goodwill (discounted abnormal earnings). They say that these values relate to the true intrinsic value of the firm. The Feltham-Ohlson model is as follows:

$$V_{it} = \beta_0 + \beta_1 BV_{it} + \beta_2 X_{it} + \varepsilon_{it} \qquad \text{(Model 3)}$$

where:

V_{it} = Value of firm i at time t

BV_{it} = Book Value of firm i at time t

$X_{it} = \dfrac{(1+r)^{T}}{(1+r)^{T-1}} \sum_{\tau=1}^{T} (1+r)^{-\tau} \mathrm{E}_{it}[x_{t+\tau} - r bv_{t+\tau-1}]$

ε_{it} = Random error term

r = Discount rate

E_{it} = Expected [abnormal earnings] for firm i at time t

$x_{t+\tau}$ = Earnings for period $t+\tau$

$bv_{t+\tau-1}$ = Beginning of the period Book Value for firm i at time t

i = 1...N

t = 1...T

The strategic model of firm value and the residual income model both indicate that firm value is equivalent to a multiple of book value plus a second component that measures the economic value created by the firm. Assuming that the value of the firm and the book value of the firm's equity are equivalent in both models, one should be able to forecast future value creation or abnormal earnings by measuring the fit between the firm's strategy, environment, and actions. The following model shows how accounting information links to firms' specific characteristics (strategy and competitive advantage) and how these links relate to firms' values.

Assuming V_{it} in Model 1 is equal to V_{it} in Model 3, then

$$\beta_0 + \beta_1 BV_{it} + \beta_2 IntrinsicValue_{it} + \varepsilon_{it} = \beta_0 + \beta_1 BV_{it} + \beta_2 X_{it} + \varepsilon_{it} \qquad \text{(Model 4)}$$

Assuming BV_{it} in Model 1 is equal to BV_{it} in Model 3, then

$$\beta_2 IntrinsicValue_{it} + \varepsilon_{it} = \beta_2 X_{it} + \varepsilon_{it} \qquad \text{(Model 5)}$$

Assuming the $E_t[\varepsilon_{it}] = 0$, then

$$IntrinsicValue_{it} = X_{it} \qquad \text{(Model 6)}$$

The intrinsic value of the firm will be measured using variables that proxy for *Strategy*, the general environment (*GNP*), and the industry environment (*Structure*). In addition, accounting ratios will be used as *Fundamental Measures* (*FMs*) of the competitive advantage of the firms and the interaction of *Strategy* with the *Fundamental Measures* will be used to measure the success or failure of the overall strategic fit. The functional form of the strategic fundamental analysis model that will be tested in this study is as follows: [1]

$$X_{it} = f[Strategy_{it}, GDP_{it}, Structure_{it}, FM_{it}, (Strategy_{it} * FM_{it})] \qquad \text{(Model 7)}$$

$$X_{it} = \frac{(1+r)^T}{(1+r)^{T-1}} \sum_{\tau=1}^{T} (1+r)^{-\tau} E_{it}[x_{t+\tau} - rbv_{t+\tau-1}]$$

r = Discount rate = 10%

E_{it} = Expected [abnormal earnings] for firm i at year t

$x_{t+\tau}$ = Earnings for period $t+\tau$

$bv_{t+\tau-1}$ = Beginning of the period Book Value for firm i at year t

i = 1...N

t = 1...T

$Strategy_{it}$ = Strategic type of firm i at year t

GDP_{it} = Change in US gross domestic product for year t

$Structure_{it}$ = Concentration ratio of the industry of firm i at year t

FM_{it} = Fundamental Measure of firm i at year t, see Table 5 on page 55

[1] The linear form of Model 7 would appear as follows:

$$X_{it} = \varphi_0 + \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \varphi_{4k} FMs_{it} + \varphi_{5sk} (Strategy * FMs)_{it}$$

$k = 1...9$ and $s = 1...3$ (Model 8)

A discount rate of 10% will be used to calculate abnormal earnings. This is the accepted norm in financial research. To assure model validity, the rate will be varied between 8% and 12%. Eight percent is the historical average realized risk premium [Ibbotson Associates (1999)]. Each of the variables used in measuring the intrinsic value of the firm are discussed in the following sections.

4.2. Strategy Variable ($Strategy_{it}$)

The strategy variable will be represented by three 0-1 dummy variables for TYPE1, TYPE2, and TYPE3 firms. The TYPE4 firms will fall out to the constant term. The categorization of each firm by strategy is determined by using analysts' reports. Financial analysts typically discuss the competitive advantage and strategies of the firm in their reports. Perrott-Humphrey (2000) describes strategy as one of the primary determinates of analyst forecasts. Katz et. al. (2000) examined the accuracy of analysts' forecasts and found that business strategies affect the analysts' performance estimates. According to Dempsey et. al. (1997), analysts have been interested in non-financial and financial measures as strategic performance indicators since the early 1980's. For each firm, strategy is measured by reading the narrative description of the business in 3 to 5 analysts' reports.

To improve the validity of the strategy variable, the management discussions from financial statements for a sample of the firms are analyzed. The firm's annual report is its most visible formal communication with its stakeholders and an effective vehicle for conveying the firm's strategy [Leuthesser and Kohli (1997)]. Management's discussion of the firm's goals in the financial statements can be a good articulation of the relationship between the firm's strategy and management decisions. Leuthesser and

Kohli (1997) study 393 annual reports randomly chosen from the *Business Week 1000* from 1988 to 1994. They find that in most annual reports a careful reader can often infer the firm's mission and overall strategy. They also find that about 81% of mission statements are directed at the firm's target market and differentiating the firm from its competitors. The following exerts from two firms' management discussion give an idea of clarity of communications.

> ***Firm 1:***
> *The Company's business strategy is to develop the concept by providing an affordable and attractive lodging alternative for value-conscious travelers looking for extended stay accommodations. The Company's goal is to provide its guests with the level of amenities needed to optimize room and occupancy rates while maintaining high operating margins at its facilities.*
>
> *The Company attempts to achieve this goal through the following:*
>
> - *Appeal to Value Conscious Guests.*
> - *Lodging Facility Features. The Company's facilities contain a variety of non-labor intensive features*
> - *Standardized Concept. The Company has developed standardized plans and specifications for its facilities which should lower construction and purchasing costs and establish uniform quality and operational standards.*
> - *Operating Efficiencies. The Company believes that the design and price level of its facilities attract guest stays of several weeks, which should result in a more stable revenue stream and which, coupled with low-labor amenities, could in turn lead to lower relative administrative and operational costs and higher operating margins.*
>
> ***Firm 2:***
> *The company is a high-volume, casual, upscale seafood restaurant located in . The restaurants concept is designed to appeal to a broad range of guests by serving generous portions of premium-quality seafood and other menu items and by combining a grand dining experience with friendly and efficient service in a high-energy environment. The Company opened in , approximately 16 years after the original restaurant closed. The Company's strategy is to initially develop and operate a limited number of additional restaurants. The Company has limited experience in expanding its operations and there can be no assurance that it will be able to successfully do so.*

The Company's strategy is to capitalize on what it perceives to be a high consumer recognition of the restaurants name in markets where there is a significant percentage of the population which remembers and had visited the old restaurant. The Company anticipates that future restaurants will incorporate the concept into the existing building architecture to give each location the atmosphere of a long-standing restaurant.

The Company's long-term plans include seeking to capitalize upon the name by marketing food and related products by mail, such as chowders, sauces, pies, cookbooks, lobster bibs, crackers and forks, hats, plates and coffee and beer mugs. In addition, in connection with its strategy, the Company may seek to open additional, high-volume landmark type restaurants as appropriate opportunities arise.

Accordingly, strategy is also measured in the following way:

1. Descriptions of the four strategy types and the firm's management discussion are given to three individuals. (business school faculty, financial analysts, and investors).

2. After reading the mission statements and management discussion, each person categorizes each firm according to the strategy types.

3. The strategy chosen by the majority of the experts is the assigned value for the strategy variable. This strategy type is compared to the strategy type derived from the analyst reports.

For the examples above, all individuals classify the first firm as a TYPE1 and the second as a TYPE2.

4.3 Business Environment Variables (GDP_{it} and $Structure_{it}$)

Several authors have found that the relationship between performance measures and firm value are statistically different when contextual variables are included in the model. This study uses three contextual variables to describe the firm's business environment. The business environment can be examined from two aspects: the macro-environment and the industry environment. Macro-environmental factors affect the full spectrum of business firms and proxy for the risks associated with fluctuations in the level of economic activities. The industry environmental factors affect the operations of

firms competing in similar product markets and proxy for industry or product specific risks.

4.3.1. Macro-Environment

The growth of gross domestic product (*GDP*) and inflation are found to be significant for predicting the future performance of firms in fundamental analysis research. This research considers *GDP* and inflation to be measures of the macro-environment. Because this study covers one time period during which inflation has been relatively low and constant, inflation is not a relevant variable. However, the change in gross domestic product (*GDP*) should be significant in determining firm value and is relevant [Abarbanell and Bushee (1998), Lev and Thiagarajan (1993), Miller (1993), and McArthur and Nystrom (1991)]. Abarbanell and Bushee (1997) find that partitioning the sample into low and high inflation and low and high gross domestic product (*GDP*) periods leads to more statistically significant variables especially for poor performers. Accordingly, growth in gross domestic product will be used to assess the overall economic productivity of the business environment. The change in gross domestic product will be measured as follows:

$$GDP_{it} = \frac{GrossDomestic\,\mathrm{Pr}\,oduct_{t} - GrossDomestic\,\mathrm{Pr}\,oduct_{t-1}}{GrossDomestic\,\mathrm{Pr}\,oduct_{t-1}}$$

4.3.2. Industry Environment

In the industry environment, suppliers, competitors, and customers are the key participants. Traditional strategic research has examined the industry environment in two primary ways. First, SIC codes have been used as industry measures. Ting (1988), Lessard (1988) and Miller (1992) find that SIC codes are not significant variables in modeling firm performance because they fail to capture the unique environmental

circumstances of the industry and the firms. Second, the industry environment is described with an industry structure variable developed along a continuum from monopoly to free competition. In accounting research, SIC codes are used as the industry variable. Abarbanell and Bushee (1997) uses a single digit SIC code and find that the significance of inventory, gross margin, and accounting method variables for predicting future firm value can vary with industry sector. They conclude that their single digit measure of industry was too crude.

In this study, the industry environment is described with a measure of the industry structure. The industry *concentration ratio* is used as a continuous measure of the spectrum of industry structures ($Structure_{it}$). The industry concentration ratio has been recognized as a summary measure of the distribution of market shares within an industry. Prior studies indicate a positive relationship between industry concentration and profitability possibly due to collusion or to firms with efficiency advantages earnings rents and obtaining large market shares [Bain (1956) and Demsetz (1973, 1974)].

Grant 1993 suggests that the industry structure type captures the effect of Porter's five competitive forces of industry profitability: the entry of new competitors, the threat of substitute products, the bargaining power of buyers, the bargaining power of suppliers, and the rivalry among the existing competitors. Table 3 reveals how some factors that relate to Porter's forces vary by industry structures. For example, the entry of new competitors should be lower when there are high barriers to entry and exit (duopoly and monopoly structures) and the threat of substitutes should be less when there is extensive product differentiation (oligopoly structures).

The industry concentration ratio has traditionally been calculated with one of two methods, m-firm concentration ratios or the Herfindahl index. The Herfindahl index, as defined below, will be used in the model; however, the analysis will be run with the 4 & 8 firm concentration ratio to assure there is no measurement bias.

$$\text{Herfindahl index} = \sum_{i=1}^{n}[s_i/S]^2$$

$$m\text{-firm concentration ratio} = \sum_{i=1}^{m}[s_i/S]$$

where:

s_i = firm i's sales

S = the sum of sales, s_i, for all firms in the industry

s_i/S = firms i's market share

m = the largest m firms in the industry = 4 or 8

n = the number of firms in the industry

4.4. Fundamental Measures

Financial statement users attempt to gain insights into a firm's current performance and future profitability by analyzing financial ratios. Effective ratio analysis involves relating the financial numbers to the underlying business factors in as much detail as possible. This study attempts to relate the ratios to a firm's economic environment and to its business strategy. Palepu, Bernard, and Healy (1996) suggest additional insight can be gained by benchmarking financial ratios against one of three indicators: the firm's past (time series analysis), the industry averages, or the industry leaders (cross sectional analysis). A cross sectional analysis facilitates examining the relative performance of the firm within its competitive environment or industry, holding industry-level factors constant. The financial ratios used in the model are accounting measures benchmarked against the industry measures. These ratios will be referred to as fundamental measures and are grouped as costs, efficiency, growth, capital expenditures,

debt, and control variables. The measurement and evaluation of these variables are discussed below.

4.4.1. Cost Measures

The cost structure of the firms will be measured and evaluated with two variables: cost of goods sold to sales and selling and administrative expenses to sales. The costs of goods sold to sales ratio is related to the firm's purchasing and production process. Cost of goods sold is linked to the costs of inventory. The costs of goods sold to sales ratio should vary across industry and strategy type. The variance in this measure will relate to the variety of distinguishing characteristics in the products or services being offered by the firm. If the ratio of inventory costs to sales is greater for the firm than its competitors, then the firm is less efficient in buying or manufacturing its products. This lack of efficiency may be driven by the variety of inventory classes. The costs of goods sold to sales fundamental measure will be calculated as follows:

$$CofGS_{it} = \frac{1 - \frac{\text{Cost of Goods Sold}_{it}}{\text{Sales}_{it}}}{1 - \frac{\text{Costs of Goods Sold}_{indt}}{\text{Sales}_{indt}}} .$$

Selling and administrative costs are affected by the activities a firm performs to implement its strategy. TYPE2 firms distinguishing themselves on the basis of quality, innovation, or image will have to invest in advertising, research & development, skilled employees, after-sale services, distribution channels etc. On the other hand, TYPE1 firms competing on the basis of cost will try to manage their operating activities and control costs. The selling and administrative expense to sales fundamental measure will be calculated as follows:

$$S\&A_{it} = \frac{1 - \frac{\text{Selling \& Admin. Expenses}_{it}}{\text{Sales}_{it}}}{1 - \frac{\text{Selling \& Admin Expenses}_{indt}}{\text{Sales}_{indt}}}.$$

4.4.2. Efficiency Measure

The firm's efficiency will be measured and evaluated with a variable that compares the firm's return on assets to the industry's average return on assets. Return on assets indicates how much profit a company is able to generate for each dollar of assets invested. Some firms generate profit by investing in assets and managing their efficiency. For example, TYPE1 firms could minimize costs by using automation to mass-produce a product efficiently. TYPE2 firms invest capital in activities that are traditionally not recorded as assets (i.e. research & development and advertising). In addition, the strategic activities of TYPE2 firms do not attempt to maximize asset utilization. A return on assets that is less than that of competitors would be an indication that the firm is less efficient in generating profits with its assets than its competition. The ROA variable will be calculated as shown below:

$$ROA_{it} = \frac{\frac{\text{Income from Operations}_{it}}{\text{Total Assets}_{it}}}{\frac{\text{Income from Operations}_{indt}}{\text{Total Assets}_{indt}}}.$$

4.4.3. Growth Measure

Revenue is a key indicator of the customers' acceptance of a firm's product or services. It is the ultimate measure of customer satisfaction. Revenue growth is usually the result of price changes, volume changes, and acquisitions/ divestitures. The persistence or trends of revenues are important to valuation analysis. Revenue trends are sensitive to business conditions and rely on the ability of management to anticipate

demand with new products and service. Sales growth will be measured by the change in total sales scaled by the changes in total industry sales. When a firm experiences sales growth at a rate greater than the industry, the firm is expected to be more successful than its competition. TYPE2 firms are expected to see significant increases in sales as new innovations are discovered. TYPE1 firms are expected to have consistent sales and perform according to industry averages. The growth will be calculated as shown below:

$$Sales_{it} = \frac{\frac{Sales_{it} - Sales_{it-1}}{Sales_{it-1}}}{\frac{Sales_{ind} - Sales_{indt-1}}{Sales_{indt-1}}}.$$

If contradictory results are found related to the sales growth variable, then a sensitivity check will be performed to evaluate the quality of sales. Firms could establish less stringent credit terms to increase revenue without a comparable increase in operating cash flows. When the growth of accounts receivable (AR_{it}) is greater than the growth of sales ($Sales_{it}$), the sales variable should be negatively related to the performance of all TYPEs of firms.

$$AR_{it} = \frac{\frac{AcctRec_{it} - AcctRec_{it-1}}{AcctRec_{it-1}}}{\frac{AcctRec_{ind} - AcctRec_{indt-1}}{AcctRec_{indt-1}}}.$$

4.4.4. Discretionary Expenditures Measures

Discretionary expenditures are costs that management can vary to conserve resources or influence operations. Maintenance, advertising, research and development (R&D), training, and capital expenditures are discretionary items. Change in R&D/ advertising expenditures and the change in capital expenditure will be used as discretionary measures in the model. Research and development costs are expenditures

made to discover new knowledge or to translate knowledge into new products and services. Advertising expenditures are costs incurred to inform and entice customers to purchase products and services. Research and development/ advertising are important expenditures because of their effect on future performance. These expenditures are often positively linked to sales growth, new product introductions, plant asset acquisition, and profitability. Increases in R&D and advertising for TYPE2 firms indicate attempts to develop and promote new products or to improve current ones. This is an essential activity for innovators and differentiators. On the other hand, a decrease may be an indication that management is doubtful about future earnings and/or future cash flows. Increases in these types of discretionary spending are not in accordance with the strategy for TYPE1 firms and could result in a loss of competitive advantage. The R&D/ advertising measure will be calculated as follows.

$$R\&D_{it} = \frac{\dfrac{(\mathrm{R\&D_{it}} + Adv_{it}) - (\mathrm{R\&D_{it\text{-}1}} + Adv_{it-1})}{(\mathrm{R\&D_{it\text{-}1}} + Adv_{it-1})}}{\dfrac{(\mathrm{R\&D_{indt}} + Adv_{indt}) - (\mathrm{R\&D_{indt\text{-}1}} + Adv_{it-1})}{(\mathrm{R\&D_{indt\text{-}1}} + Adv_{it-1})}}.$$

Timing and amount of capital expenditures are also at the discretion of management. Capital expenditures are costs incurred to acquire and maintain long-lived assets; land, buildings, equipment, legal rights, etc. Capital expenditures must support the firm's strategy because they limit the firm's strategic choices. Decisions about capital expenditures can affect a firm's organizational structure, growth, and operational risk. Capital expenditures will be measured as the change in investing cash flows for the firm scaled by the change in investing cash flows for the industry. TYPE1 firms are expected to invest in long-lived assets and to use the assets to create a scale advantage. TYPE2 firms should use these capital expenditures to maintain technology advantages and to

make acquisition for new products production needs. The capital expenditure measure will be calculated as follows:

$$CapEx_{it} = \frac{\dfrac{\text{Cash Outflows for Investing}_{it} - \text{Cash Outflows for Investing}_{it\text{-}1}}{\text{Cash Outflows for Investing}_{it\text{-}1}}}{\dfrac{\text{Cash Outflows for Investing}_{indt} - \text{Cash Outflows for Investing}_{indt\text{-}1}}{\text{Cash Outflows for Investing}_{indt\text{-}1}}}$$

4.4.5. Debt Measure

An analysis of a firm's capital structure has implications for the firm's overall risk. There are several potential benefits of debt financing: debt is cheaper than equity financing, the interest on debt is tax deductible, and debt imposes discipline on firms. In addition, debt allows firms to communicate their proprietary information on their strategies and prospects to private lenders rather than to public markets. However, too much debt can be costly to shareholders if it leads to financial distress. In addition, debt holders impose covenants on firms that restrict the firm's business decisions. The optimal capital structure considers a firm's competitive advantages and risks. Firms operating in stable markets with little innovation (TYPE1 firms) can predict cash flows and can rely heavily on debt financing. TYPE2 and TYPE3 firms operate in highly volatile environments and have intense capital expenditure needs. They may have to rely on equity financing to limit risk. The debt measure used in this study will be calculated as shown below:

$$DEBT_{it} = \frac{\dfrac{\text{Total Debt}_{it}}{\text{Shareholders' Equity}_{it}}}{\dfrac{\text{Total Debt}_{indt}}{\text{Shareholders' Equity}_{indt}}}$$

4.4.6. Accounting Quality Measures

The appropriateness of any model depends on the quality of the information used. All of the fundamental measures used in this model are based on financial statement data. Financial statement information should capture the firm's underlying business reality. Bernard, Palepu, and Healy (1996) suggest that financial statement users should prepare an accounting analysis that examines the appropriateness of the firm's accounting numbers. Several authors have used the LIFO/ FIFO choice to evaluate the quality of the firm's accounting based on its reporting choices [Lev and Thiagarajan (1993) and Abarbanell & Bushee (1997)]. LIFO results in costs that are a closer proxy to current cost of goods sold than FIFO, average costs, or other inventory methods. The use of LIFO is considered a conservative choice and a positive signal of earnings quality. A dummy variable will represent this accounting choice; the measure will be 1 if the firm chooses to use LIFO and 0 otherwise.

In addition, external auditing is a verification of the integrity of the reported financial statements by an independent party. Auditing ensures that managers use accounting rules consistently over time [(Bernard, Palepu, and Healy (1996)]. A qualified, adverse, or going concern audit opinion sends a negative message to investors. To account for the audit opinion signal a dummy variable will be assigned a value of 1 if the firm receives an unqualified opinion and 0 if the firm receives unqualified with additional language, qualified, adverse, or going concern audit opinions. The coefficients on these variables are expected to be positive for all firms.

CHAPTER 5

5. RESEARCH DESIGN

5.1. Sample Selection

The primary goal of this study is to understand the effect of strategic choices and fundamental accounting measures on firm valuation. Strategy can vary by product line; therefore, the firms chosen are single product line or single SIC code firms. The Disclosure database contains firm specific data including a listing of all firm reported SIC codes and a description of the business. Thirty industries are randomly selected, then the Disclosure firm profiles of every firm with the industry SIC code as a primary and/ or secondary code is reviewed. All firms are labeled as multiple industry, single industry, and single SIC code. Multiple industry firms are firms with two or more dissimilar 3-digit SIC codes. Single industry firms are firms with two or more codes with the same first 3-digits. The original sample of Disclosure data includes 2,443 firms. Of these firms 1,073 are single industry and 480 are single SIC code firms. The primary source for the financial statement data is the COMPUSTAT database. Of the single industry firms only 225 are also included in the COMPUSTAT database and have all other necessary data available. Firms included in the sample meet the following data constraints:

(1) The firms are reported as a single SIC code firm in the 1994-1998 Disclosure database.

(2) Annual report data is available for 1993-1999 to calculate the fundamental measures.

(3) At least three analyst reports are available on the Info-trac and / or INVESTEXT database for each year.

(4) Annual financial statements with management discussions are available on the SEC Edgar database for each year.

Table 4 shows a breakdown of the sample by industry. Firms are not required to have complete data and consistent strategy over the entire time period to be included in the sample. However to be included as an observation, firms are required to have a consistent strategy for the relevant abnormal earnings interval.

5.2. Data Sources

COMPUSTAT data are used to compute the dependent variable (abnormal earnings) the industry environmental variable (structure), the fundamental measures, and the accounting quality measures. Table 5 lists the COMPUSTAT data items that are used to define the variables. The firm fundamental measures are scaled by the industry equivalents. The industry measures are calculated by summing the COMPUSTAT data items for all firms with the same SIC code. As a sensitivity check, the industry information from COMPUSTAT is compared with industry information from Value-Line Industry Summaries. The differences in industry totals do not cause significant differences in the test variables. In addition, Value Line does not report all of the data items needed for the tests. The strategy variable is based on analyst reports from Info-trac and INVESTEXT as well as the firm's financial statement filings with the SEC as found on the Edgar database. The GDP data is derived from the "Summary National Income and Product Series" tables that are published in the *Survey of Current Business*.

5.3. Statistical Tests

Multiple regression analysis is used to examine the relationships between strategy, the environment, and the fundamental measures. Multiple regression analysis

is the most widely used statistical method for analyzing the relationship between a single metric dependent variable and several metric independent variables. The regression coefficients' values and signs will allow an assessment of hypotheses 1-3. There were not enough TYPE4 firms to draw conclusions about Hypothesis4.

The sample size can have a direct effect on statistical power in multiple regression analysis. The sample sizes range between 170-580 data points in the full model. This is sufficient to create enough statistical power to draw conclusions at the .01 significance level. The primary assumptions in multiple regression analysis are normality, homoscedasticity, and linearity. Normality of the residuals (error terms) and the dependent variables is checked with standard tests and residual plots. The Kolmogorov-Smirnov tests results for the dependent variable are reported in Table 6. The tests using the untransformed abnormal earnings measures appear to violate the normality assumption; however, the natural log transformation of abnormal earnings results in a normal distribution. The scatterplots of the residuals against the dependent variable and the model predictions are reviewed for homoscedasticity and linearity. The regressions are run with the natural log transformation of abnormal earnings to assure normality and linearity. There are five data points that appear to be outliers using the Cook's distances (greater than 1) and Mahalanobis distances. Three of these firms were IPO's with little or no revenue. Two were research firms in the drug industry. The models are tested with and without the outliers. No significant differences in the results are apparent. These data points were dropped from the final samples.

CHAPTER 6

6. EMPIRICAL RESULTS

6.1. Descriptive Statistics

The means, standard deviations, and quartile distributions for the raw data, the variable components, and the test variables of the total sample (225 firms) are reported by abnormal earnings period in Table 7, Table 8, and Table 9. The standard deviations of the raw data and variable components are typically three to four times greater than the mean. Because the sample is so diverse, the median (2^{nd} Quartile) may be a better indication of the sample's central tendency than the mean. The differences in mean and median for the raw data and the variables' components indicate that their distributions are skewed to the right. For example, the mean sales amount for the sample used in the 1-year ahead abnormal earnings regression is $1,422.9 million and the standard deviation is 2.2 times the mean, $3,151.1 million. The median sales value is only $240.7 million. This pattern in mean and median is typical of a distribution with a long right tail. In summary, the descriptive statistics indicate that the sample is composed of firms with wide-ranging financial characteristics.

The use of the natural log of abnormal earnings as the dependent variable limits the skewedness of the distribution and normalizes this variable. The Kolmogorov-Smirnov Normality Test (Table 6) and the equivalence of the means and medians of the log of abnormal earnings indicate that these variables have a normal distribution. The fundamental measures are the financial ratios scaled by the industry averages. The use of

scaled measures should limit the effect of the sample diversity on the statistical results. There are significantly smaller differences in the means and medians of the independent variables, which indicate that there is less skewedness in these variables' distributions. In addition, the standard deviations are significantly less than those of the raw data and variable components. For example the Cost of Goods Sold / Sales scaled by the industry average has a mean of 1.07 and a median (2^{nd} quartile) of 1.01. The standard deviation of this variable is 0.51. The sales growth, change in research and development, change in capital expenditures, and debt to equity measures show some dramatic variation across quartiles even after the variables are scaled.

Multiple regression analysis is used to estimate the relationship between the strategy variables, environmental variables, accounting measures, and abnormal earnings. Least-squares regression is used to estimate the regression coefficients in model 8 (page 35). One problem that can occur with this type of analysis is multicollinearity: a situation where two or more variables are related. Multicollinearity makes it difficult to obtain accurate estimates of the individual effects of variables. Tables 10-12 show the correlation coefficients matrices for the data in the 1-year, 3-years, and 5-years abnormal earnings models. The majority (77%) of the correlation coefficients in Table 10 are below .10 and statistically insignificant. Eighty seven percent of the coefficients are below .20. Eleven percent of the coefficients above .20 are related to the 21 interaction variables where high correlations are expected. Multicollinearity does not appear to be a significant problem. However, there is some level of correlation among the strategic type variables. The TYPE1, TYPE2, and TYPE3 dummy variables are negatively correlated with each other and the variance inflation factors are greater than 5. This is reasonable

since these firms are competing within industries for the same pool of earnings. To assure appropriate interpretation of the model coefficients, a separate regression will be run for each strategic type. Using separate models and three measures of abnormal earnings should allow enough variation in the independent variables to estimate each fundamental measure's effect. There are also significant levels of correlation among the cost and efficiency variables as well as the related interaction variables. The individual effects of these variables will have to be interpreted with caution. The same patterns in the correlation coefficients are consistent in Table 11 and Table 12.

6.2. Test of the Model

To determine whether the fundamental analysis model described in Chapter 4 has any explanatory power, a regression including three dummy variables for strategy, the change in GDP, the Herfindahl index, seven financial measures, two accounting quality measures, and 21 interactions variables is performed. The overall significance of the model will be evaluated with a F-test. Table 13 reports the F-statistics results for the models of three measures of abnormal earnings. The F-statistics range from 3.82 to 5.76 and all are significant at the .01 level. This outcome means that, considering the sample used for estimation, 3.8 to 5.8 times more variation is explained by the model than would be explained using averages.

The principle improvement made with this strategic fundamental analysis model is the addition of the strategy variables and the interaction variables (strategy with the fundamental measures). The argument is the strategy choice directly affects a firms' ability to create value. In addition, strategy choice has a moderating effect on how accounting information relates to firm value. If this is true, a fundamental analysis model

including strategy and the interaction variables should have more predictive power than a model without these variables. A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components of the 1-year ahead abnormal earnings model is 2.597, which is significant at the .01 level. The partial F statistics are significant in the 3-year and 5-year ahead abnormal earnings model. This result is important. It supports the premise that strategy is an important addition to a fundamental analysis model and improves the model's predictive power.

The combination of the 14 main variables and 21 interaction variables may account for 21 to 35 percent of the variation in the abnormal earnings measures. The adjusted R-squares increase monotonically as the timeframe for measuring abnormal earnings increases from 1 year to 5 years. This implies that the effect of strategy on firm performance is stronger when the firm applies a strategy consistently over time. These adjusted R-squares are consistent with those reported by Lev and Thiagarajan (1993) and Abarbanell and Bushee (1997). L&T (1993) regressed excess stock returns on 12 fundamental measures and reported adjusted R-squares between 13 and 39 percent. The average adjusted R-square reported by A&B (1997) is 16 percent.

The industry concentration ratio is consistently significant and negatively related to performance. This implies that as the industry becomes less competitive or more monopolistic, abnormal earnings will decrease. This is counter-intuitive since prior studies have found a positive relationship between industry concentration and profitability. This result may be related to the small size of the majority of the firms in

the sample. Traditionally as one firm becomes dominant in an industry (i.e. industry concentration increases), the smaller firms' performance is negatively affected.

The unqualified audit opinion is consistently significant and negatively related to performance. The negative coefficient on the audit opinion variable is counter-intuitive and implies that the unqualified audit opinion should not be relied upon as adequate assurance of accounting information quality. However, the majority of the sample has an unqualified opinion. In the one-year ahead model, 76% of the firms received unqualified opinions. The unqualified opinion indicates that the external auditor has no significant exceptions as to the accounting principles, the consistency of their application, and the adequacy of the information disclosed. Twenty one percent of the firms received unqualified opinions with additional language. The additional language explained or clarified issues that were beyond the language of a standard audit report. Most of the additional language in the audit opinions relates to changes in accounting principles or to early adoptions of FASB pronouncements. This variable distinguishes an unqualified opinion from an unqualified opinion with additional language and to lesser extent it distinguishes early adopters of new Generally Accepted Accounting Principles from late adopters. Therefore, the negative coefficients imply that early adopters are more likely to have positive future abnormal earnings.

The interaction of the cost of goods sold measure with the TYPE1 strategy is positive in two of the three timeframes. This indicates that the mean abnormal earnings of TYPE1 firms are positively affected by having a cost structure that is better than the industry average. The coefficients of the interactions of selling and administrative expense measure and the return on assets measures with the TYPE1 strategy are negative

in all three abnormal earnings periods. This indicates that on average firms that have selling and administrative costs that are higher than the industry average and lower than average asset efficiency will generate more abnormal earnings. The interaction of the sales growth measure with the TYPE1 strategy is positively related to abnormal earnings, as predicted. The interaction of the discretionary expenditure measure (R&D / Advertising) with TYPE1 strategy is negatively related to firm performance in two of the three timeframes. This implies that higher than average R&D/Advertising spending will reduce abnormal earnings of TYPE1 firms. The capital expenditure measure has significant positive interactions with TYPE1 strategy. The significant positive interaction of the capital expenditure measure with the TYPE1 strategy is consistent with the argument made by Miller (1986) that cost leader / defender should invest in assets to improve efficiencies. The debt measures have significant negative interactions with TYPE1 strategy.

There is partial support for Hypothesis 1_A. The coefficients on the costs of goods sold measure and the selling and administrative expense are significant and positive; however, the coefficients on the interactions with TYPE1 strategy are not significant and only in the predicted direction for costs of goods sold. The results on the efficiency measure contradict Hypothesis 1_A. The discretionary expenditure measure for R&D / Advertising is not significant but does support Hypothesis 1_A. The results for the capital expenditure measures are significant in the five-year ahead model but contradict Hypothesis 1_A. As it relates to debt, this hypothesis is based on the premise that TYPE1 firm have more consistent cash flow and should be able to acquire more debt financing.

The actual results for the debt measure may be related to the ability of TYPE1 firms to generate lower amounts of cash relative to other strategic types.

The interactions of the cost of goods sold measure and selling and administrative measure with the TYPE2 strategy are negative in all three timeframes. This indicates that having a cost structure that is better than the industry average has an adverse effect on the earnings of TYPE2 firms. This is reasonable since TYPE2 firms are supposed to be incurring expenses to distinguish themselves from the competition. The coefficients of the interactions of the return on assets measures with the TYPE2 strategy are negative in all three abnormal earnings periods. This indicates that on average firms that have less asset efficiency will generate more abnormal earnings. The interactions of the sales growth measure with the TYPE2 strategy are negatively related to abnormal earnings in the five-year ahead model and unrelated in the other two models. The interaction of the discretionary expenditure measure (R&D / Advertising) with TYPE2 strategy is negatively related to firm performance. This implies that higher than average R&D/Advertising spending will reduce abnormal earnings of TYPE2 firms. The capital expenditure measure has significant positive interactions with TYPE2. The debt measures have significant positive interactions with TYPE2.

There is partial support for Hypothesis 2_A. The coefficients on the interactions with the costs of goods sold measure and the selling and administrative expense measure are negative as predicted; however, the coefficients on the interactions are insignificant. The results on the efficiency measure support Hypothesis 2_A. The discretionary expenditure measure for R&D / Advertising are not significant and contradict Hypothesis 2_A. The results for the capital expenditure measures are significant in the five-year ahead

model and support Hypothesis 2_A. A portion of hypothesis 2 is based on the premise that TYPE2 firm have inconsistent patterns in cash flow and should not be able to acquire high levels of debt financing. The actual results for the debt measure may be related to the ability of TYPE2 firms to generate more cash flow relative to other strategic types.

The interaction of the cost of goods sold measure with the TYPE3 strategy is positive in two of the three timeframes. This indicates that the mean abnormal earnings of TYPE3 firms is positively affected by having a lower than average cost structure. The coefficients of the interactions of selling and administrative expense measure with the TYPE3 strategy are negative in all three abnormal earnings periods. This indicates that on average firms with selling and administrative costs that are higher than the industry average will generate more abnormal earnings. The coefficients of the interactions of the return on assets measures with the TYPE3 strategy are positive in all three abnormal earnings periods. This indicates the more efficient TYPE3 firms are; the more abnormal earnings they are going to be able to generate. The interaction of the sales growth measure with the TYPE3 strategy is negatively related to abnormal earnings in the five-year ahead model. The interaction of the R&D / Advertising with the TYPE3 strategy is negatively related to firm performance in the 1-year ahead model and positively related in the 3-year and 5-year models. This implies that higher than average R&D/Advertising spending will improve abnormal earnings of TYPE3 firms in the long-run. The capital expenditure measure has positive interactions with TYPE3. There is a positive interaction of the capital expenditure measure with the TYPE3 strategy as expected. The debt measures have negative interactions with the TYPE3 strategy.

There is partial support for Hypothesis 3_A. The only significance in the TYPE3 interactions is the efficiency measure in the one-year ahead model. The results on the efficiency measure support Hypothesis 3_A. The signs on the interactions of the costs of goods sold measure, the research and development measure, and the capital expenditure measure with TYPE3 strategy support Hypothesis 3_A. The remaining results contradict the Hypothesis.

Finally, when reviewing the coefficients across periods it appears that some measures have informativeness in the short-term (1-year ahead model) versus the long-term (5-years ahead model). The selling and administrative expense variable appears to be more informative in the short-run models. On the other hand, the capital expenditure variable and debt variable are more informative in the long-run models.

6.2.1. Industry Sector Analysis

The regressions are also run on the 1-year ahead abnormal earnings sample segregated based on industry sector defined by the single digit SIC code (Table 14). This definition of the industry sector will allow for adequate sample sizes while still allowing some rudimentary industry differences that may affect the informativeness of the strategy variable and fundamental measures. The 2000 SIC codes are manufacturing firms that produce foods, chemicals, and textiles (primary products). The 3000 SIC codes are manufacturers of equipment and machinery. The 4000 SIC codes are transportation firms, 5000 SIC codes are retailers, and 7000 SIC codes are service firms.

The results in Table 14 must be interpreted with caution because sample sizes, although adequate, are small. All of the industry models appear to be significant at the .01 alpha level. The adjusted R-squares range from 19% to 62%. For the service sector

the R-square is 89%; however, the sample is so small any inferences from this test are questionable.

Industry concentration is significant and negatively related to future abnormal earnings for manufacturers (2000). This implies that manufacturers will perform better in less concentrated industries. The use of LIFO inventory valuation versus other methods is significant and positively related to future abnormal earning for the manufacturing and retail industries and insignificant for all other industries. This is reasonable since inventory should represent a significant investment for manufacturers and retailers more so than for transportation and service firms. The audit opinion is not significant for any industry; this is contrary to the results for the sample as a whole.

The importance of the fundamental measures to the different strategic types varies by industry. For TYPE1 manufacturing firms, the interactions with the costs of goods sold measures (2000 sector) and the selling and administration expense measure (3000 sector) is significant and positively related to future abnormal earnings. The efficiency measure (ROA for 5000 sector) is positively related and the discretionary expenditure measure (R&D/Adv. for 5000 sector) is negatively related to future abnormal earnings for TYPE1 retail firms. This all supports Hypothesis 1_A. Contrary to Hypothesis 1_A, the discretionary expenditure measure (change in capital expenditure for 3000 sector) is positively related to future abnormal earnings.

Sales growth is positively related to future abnormal earnings for TYPE2 firms in the transportation sector (4000) and negatively related to TYPE2 firms in the retail sector (5000). The debt to equity measure is significant and positively related to TYPE2 firms in the manufacturing sector (2000). The discretionary expenditure measure (change in

capital expenditures) has a significant positive effect on future abnormal earnings for TYPE2 firms in the retail sector (4000). The discretionary expenditure measure (R&D/Adv.) has a significant negative effect on abnormal earnings for all strategy types in the retail sector. It appears to have less of a negative effect on TYPE2 firms than on TYPE1 and TYPE3. Sales growth is negatively related to abnormal earnings for TYPE3 firms in the manufacturing sector (2000). For TYPE3 firms in the retail sector (5000), the return on assets measure is positively related to abnormal earnings. These results do not provide clear support for either Hypothesis 2_A or 3_A. In summary, the effect of the main variables and interaction variables show significant differences across industry sectors.

6.2.2. Yearly Analysis

The relationships between strategy, environment, accounting information, and abnormal earnings are also investigated on a yearly basis. Regressions are run on the three abnormal earnings measures segregated by the year of the financial report (Tables 15-18). The change in GDP variable is dropped from the models because there is no variation in the variable within year. The models for 1994 are not significant and the sample sizes are too small to make any inferences. The results are strongest in 1995. All of the models appear to be significant at the .01 alpha level. The adjusted R-squares range from 45% to 53% in 1995. The unqualified audit opinion is consistently significant and negative. The interactions of the selling and administrative expense measure and debt measure with the TYPE2 variable are significant and in the predicted directions for the 1-year and 3-years ahead abnormal earnings models. The interactions of the selling

and administrative expense measure with the TYPE3 variable are significant and positive for all three abnormal earnings periods.

In 1996, the 1-year ahead abnormal earnings model is significant with a R-square equal to 23%. Several of the variables are significant in the 1-year ahead abnormal earnings model. The concentration is negatively related to 1-year ahead abnormal earnings. In addition, the interactions of the TYPE1 strategy with the costs, efficiency, and discretionary expenditure measures is significant and in the expected direction. The interactions of the TYPE2 strategy with the costs, efficiency, and growth measures are significant and in the expected direction. The TYPE3 variable's interactions with the costs and efficiency measures are significant and positive while the relationship with debt is significant and negative. The models for 1997 and 1998 are only marginally significant and explain only a low level of variation in abnormal returns. Both adjusted R-squares are at or below 15 percent. Overall, there does not appear to be any consistent patterns in the annual regression results. There is a significant drop in the number of firms in the sample from 1995 to 1998. This could be causing the variance in results across years.

6.3. Test of Hypotheses

The statistical results from the test of the model are difficult to interpret for each Hypothesis because the results are not consistent across abnormal earnings measures, industries, or years. Because the analysis is cross-sectional, there are enough data points to run a regression on each strategic type. The results of the individual regressions will be simpler to interpret and the number of variables will drop from 35 to 11, which will

reduce the necessary number of data points to make statistical inferences at the same power level.

6.3.1. Hypothesis 1

Hypothesis 1_A: The future value of TYPE1 firms is positively related to current cost, efficiency, and debt measures and negatively related to discretionary expenditure measures.

The first hypothesis addresses how accounting measures relate to the future abnormal earnings (value) of firms that compete based on lower cost and higher levels of efficiency. This is done by regressing the abnormal earnings of TYPE1 firms on several accounting measures, as well as conditioning variables for the environment and accounting quality. If the accounting measures are significant in explaining the variance in abnormal earnings, the signs of the coefficients will indicate whether the predictions in Hypothesis 1 are correct. All three models of TYPE1 firms are significant at the .01 level and the accounting measures are statistically significant in explaining 11% to 43% of the variation in abnormal earnings. Table 19 reports the model results and the regression coefficients for TYPE1 firms.

The cost of goods sold to sales measure is significant at the .01 level in the 1-year and 3-years ahead abnormal earnings model and at the .05 level in the 5-years ahead model. The selling and administration expense to sales measure is significant at the .10 level in the 1-year ahead model and at the .01 level in the other two models. The cost variables are positively related to abnormal earnings (value) of TYPE1 firms. This supports Hypothesis 1_A. The coefficients of the return on assets variable (efficiency measure) are positive in two of the three time frames but the variable is not significant. The coefficients of the change in R&D/ advertising expense is negative as predicted.

Neither of the discretionary expenditure measures is significant. The debt to equity measure is negatively related to abnormal earnings in all three models and significant at the .01 level in the 3-years and 5-years models. This contradicts Hypothesis 1_A. The LIFO variable and the audit opinion variable are significant in two of the three models. The results on the LIFO variable are as predicted. The models indicate that the performance of TYPE1 firms is positively related to lower than average costs, higher than average efficiency, and higher than average debt measures and is negatively related to higher than average R&D/ advertising expenditures. This provides partial support for Hypothesis 1_A.

6.3.2. Hypothesis 2

Hypothesis 2_A: The future value of TYPE2 firms is positively related to current growth and discretionary expenditure measures and negatively related to cost, efficiency, and debt measures.

Hypothesis 2 addresses how accounting measures relate to the future abnormal value of firms that compete based on differentiation and innovation. This is done by regressing the abnormal earnings of TYPE2 firms on several accounting measures, as well as conditioning variables for the environment and accounting quality. The models of TYPE2 firms are significant at the .01 level and the accounting measures are statistically significant in explaining 32% to 40% of the variation in abnormal earnings. Table 20 reports the model results and the regression coefficients for TYPE2 firms.

The cost of goods sold to sales measure is significant at the .01 level in the 1-year and 5-years ahead abnormal earnings model and at the .05 level in the 3-years ahead model. The selling and administration expense to sales measure is significant at the .01 level in all three models. The cost variables are negatively related to abnormal earnings

(value) of TYPE2 firms. This means that having a cost structure higher than the industry average has a positive effect on the abnormal earnings or value of TYPE2 firms and this supports Hypothesis 2_A. The coefficients of the return on assets variable (efficiency measure) are positive in all three time frames. In the 1-year and 3-years ahead abnormal earnings models the return on assets measure is significant at the .01 and .10 level respectively. It is not significant in the 5-years ahead abnormal earnings model. The efficiency results indicates that TYPE2 firm's value improves when efficiency improves and this contradicts Hypothesis 2_A. The growth measure is significant (.05) and negatively related to 5-years ahead abnormal earnings. This also contradicts Hypothesis 2_A. The coefficient of the change in R&D/ advertising expense is positive and significant at the .10 level. None of the other coefficients on the discretionary expenditure measures are significant. The debt to equity measure is positively related to abnormal earnings and significant at the .05 and .10 level in the 3-years and 5-years models respectively. This contradicts Hypothesis 2_A. The LIFO variable is insignificant in all three models of TYPE2 firms. The audit opinion is significant and positively related to abnormal earnings in two of the three models. The results indicate that the performance of TYPE2 firms is positively related to higher than average costs, higher than average efficiency, higher than average R&D/ advertising expenditures, and higher than average debt measures and is negatively related to higher than average sales growth. This provides some support for Hypothesis 2_A.

6.3.3. Hypothesis 3

Hypothesis 3_A: The future value of TYPE3 firms is positively related to current cost, efficiency, and growth measures and negatively related to debt measures.

Hypothesis 3 relates accounting measures to the future abnormal value of firms that compete by having efficient operations and copying innovative products. The valuation models of TYPE3 firms are significant at the .01, .05, and .10 level for the 1-year, 3-years, and 5-years ahead abnormal earnings measures, respectively. The models explain 11% to 17% of the variation in abnormal earnings. The adjusted R-squares are significantly less for TYPE3 firms than for TYPE1 or TYPE2 firms. This may be driven by the hybrid nature of TYPE3 firms. Some TYPE3 firms generate income primarily from its cost minimizing and efficient operations while other TYPE3 firms generate income primarily from its innovative and differentiating operations. The mixture of the different varieties of TYPE3 firms may be affecting the explanatory power of the model. Table 21 reports the model results and the regression coefficients for TYPE3 firms.

The cost of goods sold to sales measure is not significant in any of the models. The selling and administration expense to sales measure is significant at the .01 level in all three models. The S&A expense to sales measure is positively related to the abnormal earnings of TYPE3 firms. This means that having a cost structure lower than the industry average has a positive effect on the abnormal earnings or value of TYPE3 firms and this supports Hypothesis 3_A. The coefficients of the efficiency measure are positive in all three time frames. In the 1-year and 3-years ahead abnormal earnings models, the return on assets measure is significant at the .01 level and in the 5-years ahead model at the .05 level. Higher efficiency improves the value of TYPE3 firms. This result supports Hypothesis 3_A. The growth, discretionary expenditure, and debt to equity measures are insignificant in all three models of TYPE3 firms. This contradicts Hypothesis 3_A. The LIFO variable is significant at the .05 level and negatively related to TYPE3 firms in the

3-years ahead abnormal earnings. The audit opinion is significant and negatively related to abnormal earnings in two of the three models. The models indicate that the value of TYPE3 firms is positively related to lower than average costs and higher than average efficient. The overall results provide some support for Hypothesis 3_A.

6.3.4. Hypothesis 4

Hypothesis 4_A: For TYPE4 firms, there are no discernable patterns in accounting information. TYPE4 firms are more likely to be negative performers and to eventually fail.

There are not enough TYPE4 firms to run a regression and draw conclusions on Hypothesis 4. There are only five TYPE4 firms and only 16 data points. At a minimum 55 data points are need to make reasonable statistical inferences with the 11 independent variables. However, it should be noted that three of the five TYPE4 firms fail over the test period. A summary of the first three hypotheses test results is shown in Table 22.

6.4. Sensitivity Analysis

6.4.1. Discount Rates

In the prior tests, the dependent variable (abnormal earnings) is calculated with a discount rate of 10%. The discount rate of 10% is used because it is the accepted norm in financial research. As a sensitivity check, the full model is rerun with abnormal earnings based on 8% and 12% discount rates. Eight percent is the historical average realized risk premium [Ibbotson Associates (1999)]. The coefficients of the 1-year ahead abnormal earnings model are reported in Table 23. All three versions of the model are significant at the .01 level and they explain an average of 20% of the variation in abnormal earnings. The significance and signs on the coefficients are consistent across all three models.

These results imply that as long as the discount rate is within reasonable limits the choice of discount rate does not affect the results of the analysis.

6.4.2. Sample Composition

The test sample is composed of 225 firms that meet the data constraints listed on page 48. More than 50% of the sample comes from just four industries: the drug industry, the airline industry, the restaurant industry, and the apparel retail industry. In a sample largely composed of a few industries, the overall results could be affected by an individual industry. A sensitivity analysis is completed that drops each one of these four industries from the sample and reruns the 1-year ahead abnormal earnings model. By dropping out the industries that represent 10% or more of the total sample from the model one at a time, the effect of each individual industry on the overall results can be assessed. The results of these regressions are reported in Table 24.

The strategy type variables become significant when the drug industry or the airline industry is dropped from the sample. These variables are not significant in the prior test. The TYPE variables are highly correlated in these industries. This correlation may be affecting the overall results of the TYPE variables in the full models. Regardless of the sample composition, the industry concentration and audit opinion variables are significant and negatively related to abnormal earnings. The cost measures are also significant across all the samples; however, the composition of the sample does affect the sign of the cost measures. The coefficient on the selling and administrative expense to sales variable is negative when the drug industry or the restaurant industry is dropped from the total sample. There are some consistent patterns in the significance and signs of the interaction variables related to the cost and efficiency measures. The TYPE1

interactions with costs variables are consistently negative and the TYPE2 interactions are positive. This provides support for the prior results related to these variables. When the top 4 industries are all dropped from the sample, the interactions of the return on assets measures are significant and positive for three TYPEs.

6.4.3. Concentration Measures

The industry concentration ratio has traditionally been calculated by one of two methods, m-firm concentration ratios or the Herfindahl index. The Herfindahl index is used in all of the prior regressions as the industry structure measure. The coefficients of the industry concentration variable have been consistently negative and significant in most of the models. To test measurement bias in the industry structure variable, the full model is rerun with the four & eight firm concentration ratios. The result of the model of 1-year ahead abnormal earnings did not change. The coefficients on the concentration measures are negative and significant at the .01 level.

6.4.4. Environment by Strategy Interactions

As depicted in Figure 1, strategic theory indicates that the business environment, the firm's strategy, and its competitive advantage, as where as the interactions between these constructs affect firm performance. Several strategic researchers have suggested an interaction between environment and strategy can affect the firm's value. McArthur and Nystrom (1991) find that the environment has a direct effect on performance and a moderating effect on performance through its interaction with strategy. Miller (1988) results indicate that innovators and differentiators perform better in uncertain environments and that cost leaders perform better in stable environments.

The effect of the interaction between the environment and strategy variables is assessed by adding six additional interaction variables to the model. The coefficients on the gross domestic product with TYPE interactions are all positive and the coefficients on the concentration with TYPE interactions are all negative. This indicates that as the economy as a whole improves, the abnormal earnings of all firms with definite strategies should improve. The negative interaction of TYPE with concentration may be attributable to the moderating effect firm size is having on the concentration results. None of the added interaction variables show any significance.

6.4.5. Accounts Receivable Measure (Sales Growth Measure)

The results related to the sales growth variable are inconclusive. The only time the sales growth variable shows significant results is in the TYPE2 firms' regression. The coefficient for sales growth by TYPE2 interaction is significant and in the predicted direction only once, for the transportation sector (4000). All other coefficients on the sales growth by TYPE interaction variables are insignificant or contrary to the predictions. One financial measure that is directly coordinated with the interpretation of sales growth is accounts receivable growth. An increase in accounts receivable growth can suggest a change in credit terms in order to manipulate earnings. It can also be an indication of difficulties in selling the firm's products which leads to credit extensions. In either case, the growth in accounts receivable and thus sales will not lead to future earnings. On the contrary, these patterns indicate low earnings persistence.

Two additional regressions of 1-year ahead abnormal earnings are analyzed. One regression includes the growth in sales and the growth in accounts receivables and the second only includes the growth in accounts receivables. Both models are significant at

the .01 level; however, neither growth measure is significant. Finally, as noted in Section 4, when the growth of accounts receivable is greater than the growth of sales, the sales variable should be negatively related to the performance of all TYPEs of firms. An additional variable, the difference in sales growth and accounts receivable growth, and its interactions are included in the full regression. The inclusion of these variables does not cause any significant changes in the regression results.

6.4.6. Debt Measures

The results related to the debt variable contradict both Hypothesis 1_A and Hypothesis 2_A. The interaction of debt by TYPE variables show significant results in the full models, in the models of TYPE1 firms, and the models of TYPE2 firms. However, the results are not in the predicted directions. All other coefficients on the debt by TYPE interaction variables are insignificant. There are several measures used to evaluate a business' use of and risk associated with debt financing. In the prior tests, debt to equity is used as the measure of the mix of debt and equity financing. Two additional measures of the use and relative risks of debt financing are debt to assets and the change in debt levels. The debt to assets ratio shows what proportion of the firms assets are financed by debt. On the other hand, the change in debt shows whether the firm is increasing or decreasing its use of debt over time.

Additional regressions of 1-year, 3-year, and 5-year ahead abnormal earnings are analyzed. One set of regressions included the debt to assets measure and the other included the change in debt measure. The interactions of debt to assets with TYPE1 and TYPE2 are significant at the .05 and .10 levels respectively. The coefficients on both interactions are positive. This supports Hypothesis 1_A and contradicts Hypothesis 2_A.

The coefficients on the interactions of debt to assets with TYPE3 are positive but insignificant. The interaction of the change in debt with TYPE1 is positive and significant in the 1-year ahead regression and positive and insignificant in the other models. The interactions of the change in debt with TYPE3 are positive and significant in the 3-year and 5-year ahead regressions. This interaction is positive but insignificant in the 1-year model. The interactions of change in debt with TYPE 2 are consistently negative and insignificant. Overall, the significance of the models and the R-squared are not significantly affected by the variable changes. The results related to the debt to asset measure provide the best support for the hypotheses. This suggests that the level of debt may be related to the volume of cash flow. While the change in debt may have a relationship with the consistency of cash flow.

CHAPTER 7

7. CONCLUSIONS & LIMITATIONS

7.1. Conclusions

This dissertation examines the relationships between strategy, environment, accounting information, and value. The relationships among these constructs are tested by regressing abnormal earnings on 3 strategic type variables, 2 environmental variables, 7 accounting measures, 2 accounting quality measures, and 21 interaction variables. In addition, individual regressions were run for each strategy group. The primary contribution of this research is the addition of strategic theory to the Ohlson model of firm value. A secondary contribution is the allowance for firms to have different models based on firm specific decisions and characteristics.

The results of the study support other fundamental analysis research. The results indicate that strategic choice and industry structure affect the information content of accounting measures. Financial statement analysis textbooks give some general guidelines to the interpretation of financial statement information and financial ratios. Lev and Thiagarajan (1993) identify a set of variables that financial analysts claim to be useful in valuation analysis. This study uses strategic theory as a basis for the determination of value relevant financial measures. The results of this study imply that financial ratios and other financial statement information that have previously been identified as value relevant could be more useful when they are framed within a firm specific context. Specifically, the effect (on future firm value) of increasing (decreasing)

certain costs and expenses can change depending on the strategic choices of a firm's management.

This study provides some additional support for strategic researchers' conclusion that firms' risk and performance are multi-dimensional and affected by the interaction of environment, structure, and firm specific characteristics. The strategic choices of managers have a direct impact on a firm's risk factors and thus have a direct impact on a firm's future value. The results indicate the alignment of strategy with the environment and with the managers' decisions is more value relevant than strategy alone and more value relevant than accounting measures alone. Additionally, the results of the study imply that once a firm has committed to a strategy maintaining the strategy has a positive effect on firm value.

The results also show that other firm specific characteristics can also affect the interpretation of financial information. In the study, the models are run by industries and the results indicate that the significance of accounting measures and the interaction of the accounting measures with strategy can vary by industry. This is reasonable since risk factors can vary by industry. Other factors that may affect the results of this study include firm size, disclosure policies, and information quality. For example, the coefficients on the industry concentration measure are negative and this result is counterintuitive. However, the effect of high concentration on firm value could be negative for small firms, which comprise a large proportion of this sample. The results of the study support the view that the value (or forecast) relevance of financial information should be interpreted contextually after considering factors such as strategy, industry structure, and environmental changes.

7.2. Limitations

This research is a first step toward understanding the role of strategic fit in an accounting valuation model of a firm. As with most empirical research, some measurement and data issues could affect the generality and validity of the research results. First, the sample is limited to single SIC code firms because business strategies can vary across product line within multi-product firms. As mentioned above, a large proportion of these firms are small when compared to their industry competitors. This will limit the inferences of the results to single product-line or single strategy businesses. However, the conclusions of the study could be expanded to larger, multi-industry firms if the financial disclosures and strategies of the firms are reported by product-line. In addition, the amount these small firms spend on discretionary expenditures even for TYPE2 and TYPE3 firms is extremely small in proportion to the industry as a whole. This may be the cause of the very limited results related to the discretionary expenditure measures. The size of the firms also affects the availability of firm specific factors that could be used to proxy for value relevant environmental constructs (i.e. technology).

Second, in the typical strategic research study accounting information is used to establish the firm's strategic type. This study uses financial analysts reports to classify the firms according to strategy types so that predictions can be made based on accounting information. The use of financial analysts' opinions may result in measurement error. In order to limit the potential measurement error in the strategy variable, descriptions of the strategic types (as shown in Chapter 3) and the management discussion section of the financial statements were sent to several individuals (financial analyst, business school faculty, and individual investors). Three individuals classified each firm by TYPE. This

was done for a sample of 15 firms and in each case the majority of the individuals classification matched the classification derived from the analyst reports. In addition, the TYPE3 classification is very broad because the primary source of earnings could be either cost minimizing/ efficient operations or differentiation/ innovative operations. This makes interpreting results for this variable and its interactions complicated.

Third, the model is complex and there are some significant correlations among the variables, especially the strategy variables. This violates the assumptions of multiple regression and confuses the interpretation of the coefficients. In financial accounting research, some correlation is expected among the financial measures. In order to limit the effect of multicollinearity, separate models were run by strategic type to address Hypotheses 1-3.

CHAPTER 8

8. FUTURE RESEARCH

8.1. Using Investment Strategies to Generate Abnormal Returns

There are several areas of potential future research associated with strategy-based fundamental analysis. One area for future research would be to use the models to identify firms that are mis-priced in the capital markets. Since Ou & Penman (1989), several studies have documented abnormal earnings generated by statistics-driven accounting based models. This study indicates that there may be patterns in a firm's financial results that are driven by strategic decisions. Firms can be classified by strategy and then segregated into portfolios based on patterns of good strategy fit in the financial results. The returns calculated from going long in the portfolios of firms that have the predicted patterns and short in the portfolios of firms that do not have the predicted patterns could be compared to returns from random investments or to returns from investments based on analyst reports. If the models can generate profitable trading strategies (abnormal earnings), it would provide more support for the contention that current accounting measures provide insight into future firm performance. A study that measures the abnormal returns of this strategy model would be important to investors and analysts.

8.2. Examining Firms that Change Strategies

The regression results showed a distinct pattern of increasing R-squares as the abnormal earnings measurement period increased from 1-year to 5-years. This result implies that when a strategy is consistently applied the strategic fundamental analysis

model has more explanatory power and the firms generate more abnormal earnings. In the sample of firms, there was a small set of firms that changed their strategy between 1995 and 1999. Simon (2000) indicates that strategic changes can be costly to firms and can adversely affect short-term earnings if they are not implemented quickly. An empirical study of firms that change strategies might reveal some causes for and leading indicators of strategic change. This study would be important to managers dealing with a changing environment and to investors and analyst that are evaluating firms that make strategic changes.

8.3. Developing an Strategic Change Pricing Model

The model in this study inherently assumes that a firm's strategy will not change over time. However, a small number of firms in the sample did change strategies. Strategy researchers describe implementing a strategy as a continuous process. At any point in time the management could decide to shift or change the generic strategy of a firm. An investigation of the causes and indicators of strategic change could be used as a foundation for the development of a strategic change pricing model for equity securities. Cox et al. (1979) and Rendleman and Bartter (1979) developed a binomial option-pricing model. Barth et al (1998 and 2000) used their model to develop and implement an option pricing-based bond valuation model for corporate debt. The principals of these models can be applied to the continuous process of strategy implementation in order to predict future firm value.

8.4. Other Potential Future Research

The current study concentrated on single product-line firms that implement one generic strategy. The generality of the study can be expanded if the findings could be

applied to conglomerates and large multi-product firms. The FASB requires segment reporting by industry and by geographic area. Firms must report revenues, assets and profits by segments. This segment data could be used to value multi-strategy firms.

TYPE4 firms are described as firms that have no consistent generic strategy. The value of TYPE4 firms depends on their willingness to change their structure and commit to a strategy. Unless a new strategy is chosen and implemented these firms fail. A study of the strategies of financial distress and failed firms could be used to determine leading signals of future failures. The strategic choices, environmental factors, and managerial decisions for these firms could show discernable and important patterns for firms that fail and for firms that recover.

Finally, more industry specific and environmental analysis can be completed. Porter (1985) suggests that any strategy can be profitable in any industry and Miller (1988) suggests that certain strategies conform better to certain environments. An empirical investigation that includes more industry specific variable and / or varied time periods could be analyzed to determine if technological improvements and the increasing speed of market adjustments have affected the viability of certain strategic types more than others.

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Figure 1
Model of Environment, Strategy, and Firm Value Relationships

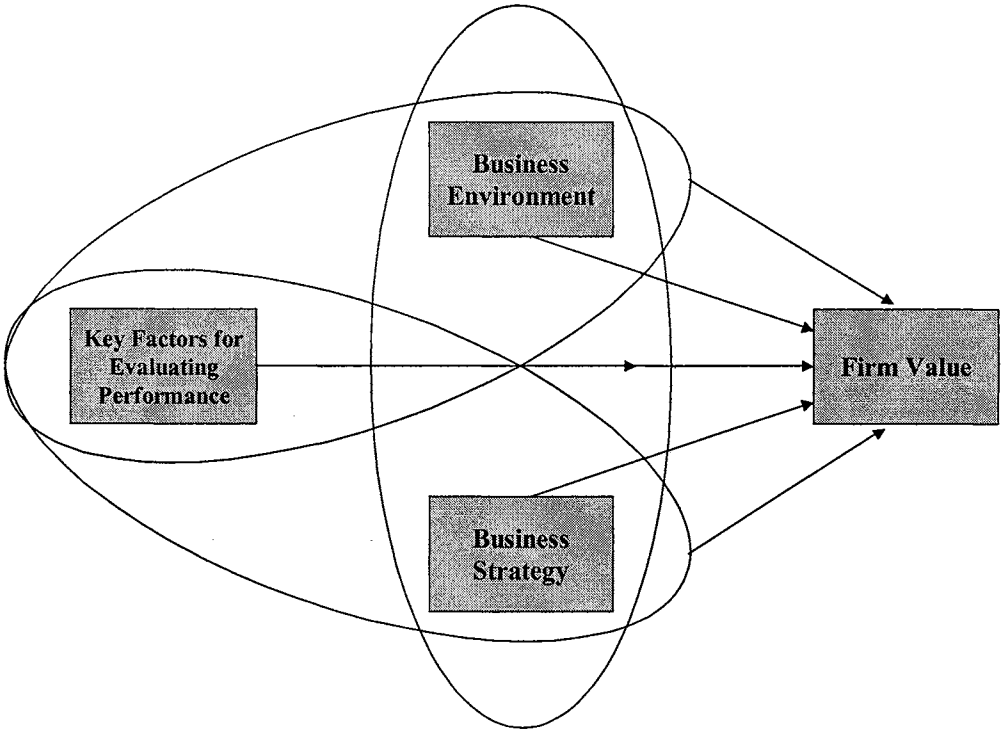

Figure 2
Flowchart of Strategy Link to Long-term Success

Flowchart of the decision patterns that lead to long-term success or failure.

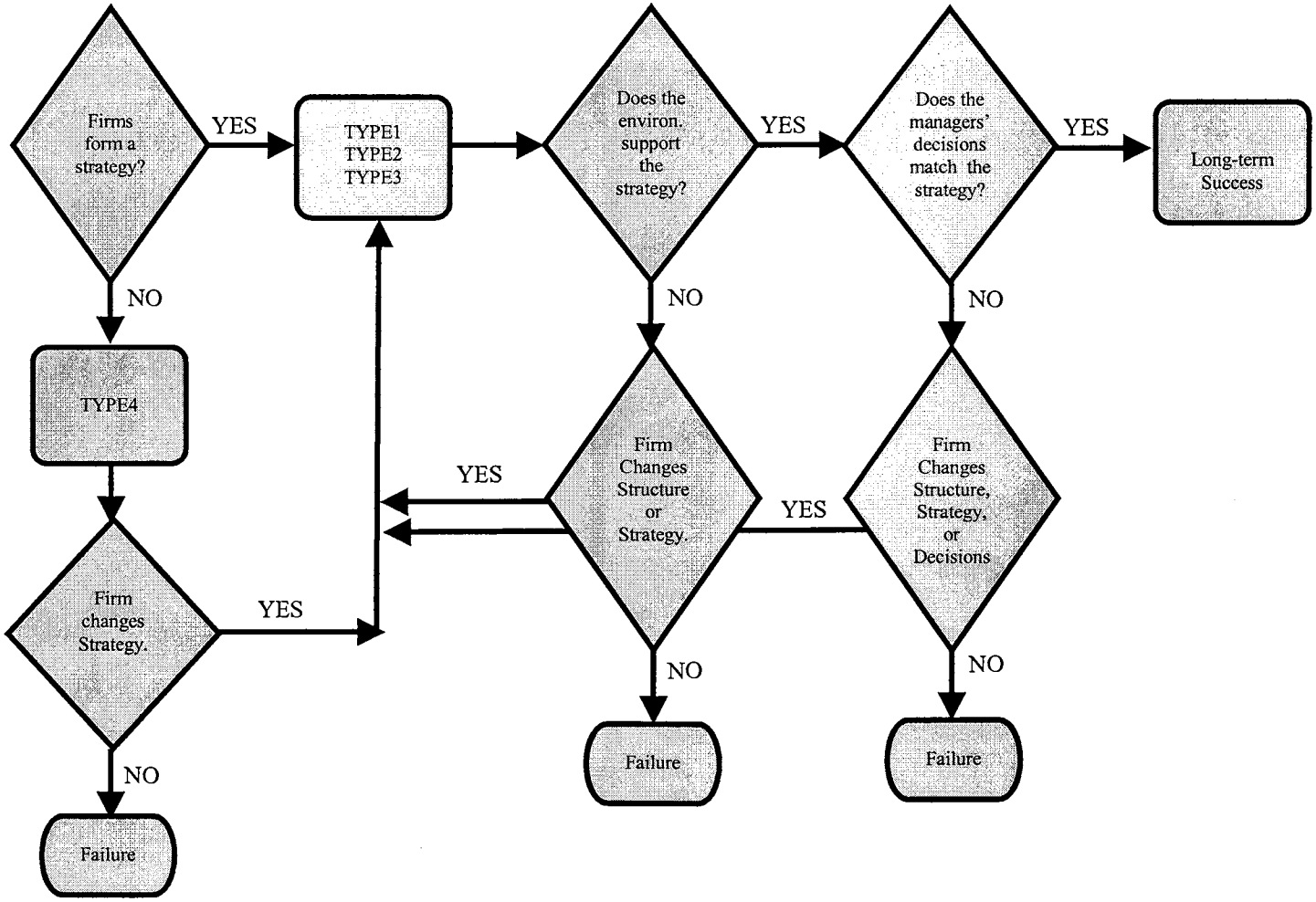

Table 1
Fundamental Signals[1]

Financial statement information and financial ratios used in prior fundamental analysis research to estimate future abnormal earnings and/ or abnormal returns (firm value).

Articles	This Research	Abarbanell & Bushee 1998	Abarbanell & Bushee 1997	Lev & Thiagarajan 1993	Grieg 1992	Holthausen & Larcker 1992	Stober 1992	Ou & Penman 1989
Accounting Methods	*	--	--	--				
Accounts Receivable	*	+	+	--	X	X	X	X
Advertising					X	X	X	X
Audit Qualification	*	--	--	--				
Capital Expenditures	*	+	+	--	X	X	X	X
Cash Flow to Debt					X	X	X	X
Debt to Equity	*				X	X	X	X
Depreciation					X	X	X	X
Dividends					X	X	X	X
Doubtful Receivables				--				
Effective Tax Rate		--	--	--				
Gross Margin	*	--	--	--	X	X	X	X
Inventory	*	--	--	--	X	X	X	X
Issuance of Debt					X	X	X	X
Labor Force Productivity		--	+	--				
Liquidity					X	X	X	X
Operating Inc. to Assets	*				X	X	X	X
Operating Inc. to Sales					X	X	X	X
Order Backlog				--				
Pretax Income to Sales				+	X	X	X	X
Production					X	X	X	X
Profit Margin					X	X	X	X
R&D	*			+	X	X	X	X
Repayment of Debt					X	X	X	X
Return on Assets	*				X	X	X	X
Return on Equity					X	X	X	X
Sales	*				X	X	X	X
Sales to Accts. Rec.					X	X	X	X
Sales to Assets					X	X	X	X
Sales to Cash					X	X	X	X
Sales to Inventory					X	X	X	X
Selling & Admin Exp.	*	--	--	--				
Treasury Stock					X	X	X	X
Working Cap. to Assets					X	X	X	X

X = means the measure was used as a part of a summary measure in the study
-- = means the measure is negatively associated with firm performance
+ = means the measure is positively associated with firm performance
* = means the sign and association is expected to vary cross-sectionally

[1] Abarbanell & Bushee (1998) defined their variable such that the expected relationships with the change in earnings are positive. This is contrary to the definitions of the signals used by Lev & Thiagarajan (1993) and Abarbanell & Bushee (1997). In order to improve the comparability of the table, the signs assigned to the signals in A&B (1998) have been reversed to reflect the differences in definitions.

Table 2

Association between Value, Strategy Types, and the Fundamental Measures

Predicted signs of the coefficients of the fundamental measures used to predict future abnormal earnings.

STRATEGY	**TYPE1:** Competitive advantage is derived by improving efficiencies and minimizing costs.	**TYPE2:** Competitive advantage is derived by being the first to the market with innovative products and product changes.	**TYPE3:** Competitive advantage is derived by having efficient operations and copying the products of TYPE2 firms.	**TYPE4:** These firms have no consistent strategy and are expected to eventual fail.
FUNDAMENTAL MEASURES				
Cost Measures	+	-	+	No Prediction
Efficiency Measure	+	-	+	No Prediction
Growth Measure	No Prediction	+	+	No Prediction
Capital Expenditures Measure	-	+	No Prediction	No Prediction
R&D and Advertising Measure	-	+	No Prediction	No Prediction
Debt Measure	+	-	-	No Prediction

Table 3
Spectrum of Industry Structures

Four structural variables that influences the intensity of competition and the level of profitability for an industry and how they vary across industry structure.

Structural Features	Perfect Competition	Oligopoly	Duopoly	Monopoly
Number of Competitors	Many	Few	Two	One
Entry & Exit Barriers	None	Significant	High	High
Product Differentiation	None	Extensive	Moderate	Low
Information	Perfect Availability	Restricted	Highly Restricted	Highly Restricted

Source: Robert Grant, Contemporary Strategy Analysis; Concepts, Techniques, Applications (Cambridge: Blackwell Publishers, 1995), p. 59.

Table 4
Sample Composition by Industry

Breakdown of the sample by industry segregated according to data collection stages.

	Industry	3 Digit SIC Code	Original Number of Firms	Single Industry Firms	Single SIC Firms	Data Issues	Final Sample
1	Advertising Services	731	19	10	8	2	6
2	Agricultural Chemical	287	55	21	6	4	2
3	Aircraft	372	78	20	7	4	3
4	Airline Transportation	451	97	62	48	17	31
5	Apparel	233	160	80	17	12	5
6	Apparel Retail Stores	561-565	88	64	33	11	22
7	Appliance	363	45	12	3	2	1
8	Audio Video Equipment	365	62	32	21	14	7
9	Beverage	208	97	47	21	10	11
10	Commercial Printing	275	64	27	8	3	5
11	Cutlery	342	54	10	5	3	2
12	Dairy Products	202	17	5	3	1	2
13	Drug	283	354	174	86	48	38
14	Fabric	222	83	39	10	5	5
15	Farm & Garden	352	39	11	4	0	4
16	Footwear	314	34	22	4	2	2
17	Furniture	251	38	22	7	2	5
18	Furniture Stores	571	20	9	3	3	0
19	Glass Production	322	27	5	4	1	3
20	Hardware Stores	525	28	14	5	2	3
21	Hotels	701	187	43	31	22	9
22	Lighting	364	65	15	6	1	5
23	Luggage	316	9	2	2	1	1
24	Meat Production	201	41	11	5	3	2
25	Motor Vehicle	371	185	71	39	22	17
26	Paper	267	167	73	28	21	7
27	Pet Care	204	10	6	4	4	0
28	Rental Services	751	26	5	3	2	1
29	Restaurants	581	259	150	54	30	24
30	Sugar & Confections	206	35	11	5	3	2
	Total Sample		2,443	1,073	480	255	225

Table 5
Variable Definitions

Descriptions of the COMPUSTAT data used to compute the variables employed in the model.

Variable & Formula		COMPUSTAT Data Item	COMPUSTAT Data Description
Abnormal Earnings $(X_{it}) =$ $\frac{(1+r)^T}{(1+r)^{T-1}} \sum_{\tau=1}^{T} (1+r)^{-\tau} \mathrm{E}_{it}[x_{t+\tau} - rbv_{t+\tau-1}]$	$x_{t+\tau}$	EBIT	Operating income after depreciation
	$bv_{t+\tau-1}$	SEQ	Common stockholders' interest in the company
	r		Discount Rate 10%
Structure $Structure_{it} = \sum_{i=1}^{n} [s_i / S]^2$	s_i	SALES (Net)	Gross sales reduced by cash discounts, trade discounts, and returned sales and allowances
	S	SALES (Net)	Gross sales for the industry reduced by cash discounts, trade discounts, and returned sales and allowances
Cost of Goods Sold to Sales $CofGS_{it} = \frac{1 - \frac{\text{Cost of Goods Sold}_{it}}{\text{Sales}_{it}}}{1 - \frac{\text{Costs of Goods Sold}_{indt}}{\text{Sales}_{indt}}}$	Cost of Goods Sold$_{it}$	COGS	Costs directly allocated by the company to production; materials, labor, and overhead
	Sales$_{it}$	SALES (Net)	Gross sales reduced by cash discounts, trade discounts, and returned sales and allowances

Table 5 (continue)
Variable Definitions

Descriptions of the COMPUSTAT data used to compute the variables employed in the model.

Variable & Formula		COMPUSTAT Data Item	COMPUSTAT Data Description
Selling & Administrative Expense to Sales $S\&A_{it} = \frac{1 - \frac{\text{Selling \& Admin. Expenses}_{it}}{\text{Sales}_{it}}}{1 - \frac{\text{Selling \& Admin Expenses}_{indt}}{\text{Sales}_{indt}}}$	Selling & Admin Expenses$_{it}$	XSGA	All commercial expenses of operations incurred in the regular course of business
	Sales$_{it}$	SALES (Net)	Gross sales reduced by cash discounts, trade discounts, and returned sales and allowances
Return on Assets $ROA_{it} = \frac{\frac{\text{Income from Operations}_{it}}{\text{Total Assets}_{it}}}{\frac{\text{Income from Operations}_{indt}}{\text{Total Assets}_{indt}}}$	Income from Operations$_{it}$	EBIT	Operating income after depreciation
	Total Assets$_{it}$	AT	Current assets, net property plant and equipment, and other non-current assets
Growth in Sales $Sales_{it} = \frac{\frac{\text{Sales}_{it} - \text{Sales}_{it-1}}{\text{Sales}_{it-1}}}{\frac{\text{Sales}_{ind} - \text{Sales}_{indt-1}}{\text{Sales}_{indt-1}}}$	Sales$_{it}$	SALES (Net)	Gross sales reduced by cash discounts, trade discounts, and returned sales and allowances
Growth in Accounts Receivable (AR_{it}) $AR_{it} = \frac{\frac{\text{AcctRec}_{it} - \text{AcctRec}_{it-1}}{\text{AcctRec}_{it-1}}}{\frac{\text{AcctRec}_{ind} - \text{AcctRec}_{indt-1}}{\text{AcctRec}_{indt-1}}}$	AcctRec$_{it}$	RECTR	Open accounts owed by customers for goods and services sold during the ordinary course of business

Table 5 (conclude)
Variable Definitions

Descriptions of the COMPUSTAT data used to compute the variables employed in the model.

Variable & Formula		COMPUSTAT Data Item	COMPUSTAT Data Description
Change in Research & Development and Advertising $R\&D_{it} = \frac{\frac{(R\&D_{it} + Adv_{it}) - (R\&D_{it-1} + Adv_{it-1})}{(R\&D_{it-1} + Adv_{it-1})}}{\frac{(R\&D_{indt} + Adv_{indt}) - (R\&D_{indt-1} + Adv_{it-1})}{(R\&D_{indt-1} + Adv_{it-1})}}$	$R\&D_{it}$	XRD	Costs related to the development of new products and services
	Adv_{it}	XAD	Costs of advertising media such as radio, television, periodicals, and promotional expense
Change In Capital Expenditures $CapEx_{it} = \frac{\frac{\text{Cash Outflows for Investing}_{it} - \text{Cash Outflows for Investing}_{it-1}}{\text{Cash Outflows for Investing}_{it-1}}}{\frac{\text{Cash Outflows for Investing}_{indt} - \text{Cash Outflows for Investing}_{indt-1}}{\text{Cash Outflows for Investing}_{indt-1}}}$	Cash Outflow from $Investment_{it}$	IVNCF	Net cash received or paid for all transactions classified as investing activities on the Statement of Cash Flows
Debt to Equity ($Debt_{it}$) $DEBT_{it} = \frac{\frac{\text{Total Debt}_{it}}{\text{Shareholders' Equity}_{it}}}{\frac{\text{Total Debt}_{indt}}{\text{Shareholders' Equity}_{indt}}}$	Total $Debt_{it}$	DLTT	Debt obligations due more than one year from the company's Balance Sheet date
	Shareholder 's $Equity_{it}$	SEQ	Common stockholders interest in the company
Inventory Method	$LIFO_{it}$	INVVAL	A code which represents the method used to value inventory
Audit Opinion	$Audit_{it}$	AUOP	A code which indicates whether the auditor's opinion is qualified or unqualified

Table 6

Kolmogorov-Smirnov Normality Test

The One-Sample Kolmogorov-Smirnov Test procedure compares the observed cumulative distribution function for a variable with a specified theoretical distribution, which may be normal. The Kolmogorov-Smirnov Z is computed from the largest difference (in absolute value) between the observed and theoretical cumulative distribution functions. This goodness-of-fit test tests whether the observations could reasonably have come from the specified distribution.

	Variables					
	1-Year Ahead Abnormal Earnings (X_{it})	3-Year Ahead Abnormal Earnings (Xit)	5-Year Ahead Abnormal Earnings (Xit)	LN 1-Year Ahead Abnormal Earnings (Xit)	LN 3-Year Ahead Abnormal Earnings (Xit)	LN 5-Year Ahead Abnormal Earnings (Xit)
N	580	298	180	580	277	170
Normal Parameters						
Mean	131.65	398.40	535.01	2.89	4.13	4.36
Std. Deviation	420.06	1,248.28	1,637.24	2.15	2.13	2.16
Most Extreme Differences						
Absolute	0.377	0.361	0.352	0.025	0.031	0.042
Positive	0.331	0.339	0.339	0.018	0.023	0.039
Negative	-0.377	-0.361	-0.352	-0.025	-0.031	-0.042
Kolmogorov-Smirnov Z	9.079	6.227	4.728	0.609	0.513	0.549
Asymp. Sig. (2-tailed)	0.000	0.000	0.000	0.853	0.955	0.924

Table 7

Descriptive Statistics for Model of 1-Year Ahead Abnormal Earnings

Mean, standard deviations, and quartile distribution for the raw data, variable components, and test variables for the model of one-year ahead abnormal earnings.

	Mean	Std. Deviation	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Raw Data (in millions of dollars)						
Sales	1,422.91	3,151.08	83.00	240.66	806.09	17,561.00
Costs of Sales	1,107.97	2,649.88	56.23	164.31	587.33	15,395.00
Selling & Admin. Expense	143.75	592.81	9.27	29.74	75.43	6,038.37
Advertising Expense	11.48	35.75	0.00	0.00	2.04	273.00
Research & Development	18.43	167.25	0.00	0.00	0.35	1,932.53
Earnings Before Int. & Taxes	137.12	424.95	6.13	19.50	75.50	4,886.00
Total Assets	1,237.61	2,958.31	58.08	156.23	655.36	18,945.58
Long-Term Debt	335.95	989.52	2.46	24.68	179.70	8,329.35
Total Equity	327.32	777.93	21.76	66.84	236.77	7,766.00
Capital Expenditure	(136.61)	447.38	(76.18)	(17.78)	(4.34)	1,915.00
Variables Components (in percentages)						
CofGS to Sales	0.71	0.18	0.61	0.72	0.83	2.40
S&A to Sales	0.20	0.18	0.09	0.18	0.26	3.09
Return on Assets	0.12	0.14	0.07	0.11	0.17	0.75
Sales Growth	0.25	0.46	0.07	0.14	0.28	4.95
Change in R&D and Advert.	0.22	1.29	(0.05)	0.09	0.28	15.35
Change in Cap. Expenditures	0.29	16.23	(0.38)	0.19	1.074	42.24
Debt to Equity	0.65	3.98	0.05	0.33	0.85	59.49
Test Variables						
1-Year Abnormal Earnings	131.65	420.06	4.63	18.66	70.51	4,820.63
LN 1-Year Abn. Earnings	2.89	2.15	1.53	2.93	4.26	8.48
TYPE1	0.25	0.44	0.00	0.00	1.00	1.00
TYPE2	0.41	0.49	0.00	0.00	1.00	1.00
TYPE3	0.30	0.46	0.00	0.00	1.00	1.00
Concentration	0.13	0.13	0.06	0.08	0.11	0.72
Change in GDP	0.06	0.01	0.06	0.06	0.06	0.06
CofGS to Sales / Industry	1.07	0.51	0.91	1.01	1.09	7.90
S&A to Sales / Industry	1.17	1.63	0.40	0.86	1.28	15.58
Return on Assets / Industry	1.32	2.09	0.74	1.19	1.89	14.52
Sales Growth / Industry	(45.94)	542.63	0.00	1.44	3.83	2,779.04
Change in R&D / Industry	0.77	11.79	0.00	0.00	0.53	116.21
Change in Cap. Ex. / Industry	3.46	132.01	(1.75)	0.34	3.57	1,611.25
Debt to Equity / Industry	1.39	8.84	0.06	0.38	1.15	198.38
LIFO	0.14	0.35	0.00	0.00	0.00	1.00
AUDIT (Unqualified Opinion)	0.76	0.43	1.00	1.00	1.00	1.00

Table 8

Descriptive Statistics for Model of 3-Year Ahead Abnormal Earnings

Mean, standard deviations, and quartile distribution for the raw data, variable components, and test variables for the model of three-year ahead abnormal earnings.

	Mean	Std. Deviation	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Raw Data (in millions of dollars)						
Sales	1,472.97	3,153.54	76.78	228.20	742.28	16,362.00
Costs of Sales	1,166.12	2,694.32	51.54	156.98	566.40	14,480.00
Selling & Admin. Expense	140.29	616.84	8.72	27.31	68.09	6,038.37
Advertising Expense	13.12	38.34	0.00	0.00	2.47	273.00
Research & Development	19.81	172.28	0.00	0.00	0.31	1,932.53
Earnings Before Int. & Taxes	130.60	399.36	6.35	18.54	74.93	4,886.00
Total Assets	1,223.39	2,814.31	52.58	151.56	614.86	15,324.57
Long-Term Debt	339.13	979.83	2.09	20.33	176.60	7,348.64
Total Equity	290.45	716.52	19.06	58.85	232.59	7,766.00
Capital Expenditure	(136.93)	505.34	(79.10)	(15.66)	-4.58	198.00
Variables Components (in percentages)						
CofGS to Sales	0.71	0.17	0.61	0.73	0.83	1.94
S&A to Sales	0.21	0.23	0.09	0.18	0.26	3.09
Return on Assets	0.12	0.13	0.08	0.11	0.17	0.42
Sales Growth	0.24	0.41	0.07	0.14	0.27	3.74
Change in R&D and Advert.	0.08	1.01	(0.07)	0.08	0.24	11.12
Change in Cap. Expenditures	0.75	4.44	(0.37)	0.20	1.07	25.52
Debt to Equity	0.55	4.90	0.03	0.30	0.81	59.49
Test Variables						
3-Year Abnormal Earnings	398.40	1,248.28	11.15	51.15	210.02	12,267.20
LN 3-Year Abn. Earnings	4.13	2.13	2.77	4.13	5.54	9.41
TYPE1	0.29	0.45	0.00	0.00	1.00	1.00
TYPE2	0.41	0.49	0.00	0.00	1.00	1.00
TYPE3	0.27	0.44	0.00	0.00	1.00	1.00
Concentration	0.12	0.12	0.06	0.09	0.12	0.59
Change in GDP	0.06	0.01	0.05	0.06	0.06	0.06
CofGS to Sales / Industry	1.06	0.45	0.92	1.00	1.08	6.21
S&A to Sales / Industry	1.11	1.39	0.40	0.88	1.27	8.79
Return on Assets / Industry	1.37	2.37	0.84	1.22	2.08	8.24
Sales Growth / Industry	(88.94)	754.77	0.25	1.48	3.50	2,779.04
Change in R&D / Industry	0.21	10.56	0.00	0.00	0.46	116.21
Change in Cap. Ex. / Industry	(5.00)	148.79	(1.52)	0.25	2.26	508.61
Debt to Equity / Industry	1.57	11.73	0.05	0.31	1.04	198.38
LIFO	0.16	0.37	0.00	0.00	0.00	1.00
AUDIT (Unqualified Opinion)	0.65	0.48	0.00	1.00	1.00	1.00

Table 9

Descriptive Statistics for Model of 5-Year Ahead Abnormal Earnings

Mean, standard deviations, and quartile distribution for the raw data, variable components, and test variables for the model of five-year ahead abnormal earnings.

	Mean	Std. Deviation	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Raw Data (in millions of dollars)						
Sales	1533.60	3152.42	92.44	242.83	1158.18	14943.00
Costs of Sales	1232.43	2744.60	61.26	164.04	801.15	13390.00
Selling & Admin. Expense	143.51	622.74	8.65	27.63	73.87	6038.37
Advertising Expense	15.14	42.86	0.00	0.00	2.90	273.00
Research & Development	20.73	174.96	0.00	0.00	0.29	1932.53
Earnings Before Int. & Taxes	122.05	319.40	6.60	19.50	75.00	2733.00
Total Assets	1279.80	2841.27	53.21	154.58	630.94	14650.33
Long-Term Debt	373.18	1052.06	3.14	22.99	177.10	7348.64
Total Equity	294.55	781.93	19.50	60.25	231.07	7766.00
Capital Expenditure	(148.71)	613.91	(86.28)	(15.62)	(4.60)	198.00
Variables Components (in percentages)						
CofGS to Sales	0.72	0.16	0.63	0.74	0.84	1.05
S&A to Sales	0.19	0.13	0.08	0.17	0.25	0.59
Return on Assets	0.12	0.08	0.08	0.12	0.18	0.42
Sales Growth	0.26	0.48	0.07	0.13	0.26	3.74
Change in R&D and Advert.	(0.04)	0.57	(0.22)	0.07	0.24	2.32
Change in Cap. Expenditures	0.68	4.34	(0.36)	0.20	1.08	22.07
Debt to Equity	0.19	4.22	0.03	0.27	0.78	27.90
Test Variables						
5-Year Abnormal Earnings	535.01	1,637.24	12.29	74.84	321.02	15,354.37
LN 5-Year Abn. Earnings	4.36	2.16	2.87	4.36	5.86	9.64
TYPE1	0.31	0.46	0.00	0.00	1.00	1.00
TYPE2	0.37	0.48	0.00	0.00	1.00	1.00
TYPE3	0.29	0.45	0.00	0.00	1.00	1.00
Concentration	0.12	0.11	0.06	0.09	0.13	0.57
Change in GDP	0.06	0.01	0.05	0.05	0.06	0.06
CofGS to Sales / Industry	1.06	0.36	0.93	1.01	1.10	2.67
S&A to Sales / Industry	1.06	1.38	0.38	0.84	1.25	8.79
Return on Assets / Industry	1.41	2.77	0.85	1.24	2.13	8.24
Sales Growth / Industry	4.31	12.65	0.60	1.78	3.96	138.69
Change in R&D / Industry	(0.43)	8.79	0.00	0.00	0.51	19.48
Change in Cap. Ex. / Industry	(13.04)	186.70	(1.35)	0.34	2.65	214.45
Debt to Equity / Industry	0.84	2.92	0.05	0.28	1.00	20.69
LIFO	0.17	0.38	0.00	0.00	0.00	1.00
AUDIT (Unqualified Opinion)	0.56	0.50	0.00	1.00	1.00	1.00

Table 10

Correlation Statistics for Model of 1-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 1-year ahead abnormal earnings.

	Abnormal Earnings	TYPE1	TYPE2	TYPE3	GDP	CONCEN
Abnormal Earnings	1.000	-0.040	-0.016	0.009	0.043	-0.112
TYPE1		1.000	-0.488	-0.385	-0.030	-0.047
TYPE2			1.000	-0.553	0.007	0.087
TYPE3				1.000	0.029	-0.037
GDP					1.000	0.009
CONCEN						1.000
CofGS						
S&A						
ROA						
GROWTH						
R&DADV						
Capital Expend.						
DEBT						
LIFO						
Audit Opinion						
T1CofGS						
T1S&A						
T1ROA						
T1Growth						
T1R&DADV						
T1Cap.Exp.						
T1DEBT						
T2CofGS						
T2S&A						
T2ROA						
T2Growth						
T2R&DADV						
T2Cap.Exp.						
T2DEBT						
T3CofGS						
T3S&A						
T3ROA						
T3Growth						
T3R&DADV						
T3Cap.Exp.						
T3DEBT						

Table 10 (continued)
Correlation Statistics for Model of 1-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 1-year ahead abnormal earnings.

	CofGS	S&A	ROA	GROWTH	R&D ADV	Capital Expend.	DEBT
Abnormal Earnings	-0.088	-0.322	0.204	0.005	0.006	0.007	0.014
TYPE1	0.047	0.048	-0.021	0.050	0.005	-0.024	-0.038
TYPE2	-0.037	0.090	0.056	-0.049	0.006	0.024	-0.008
TYPE3	-0.005	-0.095	-0.025	-0.001	-0.003	-0.007	0.057
GDP	0.028	-0.013	0.015	0.034	0.016	-0.028	-0.005
CONCEN	-0.141	-0.016	0.161	0.027	0.080	0.017	-0.043
CofGS	1.000	-0.220	-0.249	0.027	0.039	-0.036	0.061
S&A		1.000	-0.185	-0.039	0.060	0.004	-0.020
ROA			1.000	-0.066	-0.060	0.012	-0.013
GROWTH				1.000	-0.027	0.008	0.011
R&DADV					1.000	-0.010	0.188
Capital Expend.						1.000	-0.006
DEBT							1.000
LIFO							
Audit Opinion							
T1CofGS							
T1S&A							
T1ROA							
T1Growth							
T1R&DADV							
T1Cap.Exp.							
T1DEBT							
T2CofGS							
T2S&A							
T2ROA							
T2Growth							
T2R&DADV							
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 10 (continued)
Correlation Statistics for Model of 1-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 1-year ahead abnormal earnings.

	LIFO	Audit Opinion	T1CofGS	T1S&A	T1ROA	T1Growth	T1R&D ADV
Abnormal Earnings	0.039	-0.117	-0.070	-0.092	0.065	0.000	0.035
TYPE1	0.108	-0.124	0.898	0.480	0.536	0.087	0.053
TYPE2	-0.044	0.127	-0.438	-0.235	-0.262	-0.042	-0.026
TYPE3	-0.028	-0.004	-0.345	-0.185	-0.206	-0.033	-0.020
GDP	-0.015	0.059	-0.025	0.002	-0.046	0.005	-0.004
CONCEN	0.099	0.139	-0.090	-0.006	0.019	-0.005	0.058
CofGS	0.021	-0.066	0.247	-0.062	-0.050	0.099	0.005
S&A	-0.046	0.042	-0.015	0.579	-0.261	-0.041	0.073
ROA	0.088	0.059	-0.053	-0.202	0.333	-0.060	-0.041
GROWTH	-0.051	0.018	0.046	0.024	0.026	0.013	0.004
R&DADV	0.041	0.002	0.006	0.062	-0.048	0.085	0.609
Capital Expend.	-0.043	0.041	-0.017	-0.015	-0.008	-0.012	-0.002
DEBT	-0.015	0.019	-0.021	-0.024	-0.042	0.037	-0.015
LIFO	1.000	-0.116	0.134	0.025	0.100	-0.024	0.098
Audit Opinion		1.000	-0.127	-0.057	-0.032	0.009	0.029
T1CofGS			1.000	0.352	0.411	0.168	0.050
T1S&A				1.000	-0.138	-0.021	0.122
T1ROA					1.000	-0.074	-0.055
T1Growth						1.000	0.142
T1R&DADV							1.000
T1Cap.Exp.							
T1DEBT							
T2CofGS							
T2S&A							
T2ROA							
T2Growth							
T2R&DADV							
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 10 (continued)
Correlation Statistics for Model of 1-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 1-year ahead abnormal earnings.

	T1Cap. Exp.	T1DEBT	T2CofGS	T2S&A	T2ROA	T2Growth	T2R&D ADV
Abnormal Earnings	0.004	-0.052	-0.044	-0.273	0.135	0.029	-0.026
TYPE1	-0.031	0.267	-0.376	-0.255	-0.180	0.043	-0.026
TYPE2	0.015	-0.130	0.772	0.520	0.370	-0.088	0.054
TYPE3	0.012	-0.103	-0.426	-0.287	-0.204	0.049	-0.030
GDP	-0.018	0.041	0.028	-0.024	0.035	0.029	0.042
CONCEN	0.053	-0.038	0.020	-0.014	0.131	0.024	0.029
CofGS	0.020	0.111	0.503	-0.170	-0.214	0.020	0.044
S&A	-0.016	-0.013	-0.020	0.617	-0.048	-0.036	0.011
ROA	0.012	-0.074	-0.099	-0.068	0.826	-0.049	-0.061
GROWTH	-0.002	0.016	-0.027	-0.054	-0.056	0.795	-0.005
R&DADV	-0.001	-0.050	0.027	0.008	-0.043	-0.002	0.655
Capital Expend.	0.202	-0.027	-0.006	0.004	0.016	0.005	-0.002
DEBT	-0.014	0.128	-0.021	-0.002	-0.010	0.010	0.003
LIFO	0.033	0.074	-0.041	-0.074	0.027	0.028	-0.012
Audit Opinion	0.074	-0.051	0.070	0.077	0.086	0.017	-0.025
T1CofGS	-0.008	0.333	-0.338	-0.229	-0.162	0.039	-0.024
T1S&A	-0.035	0.092	-0.181	-0.123	-0.087	0.021	-0.013
T1ROA	0.007	0.003	-0.202	-0.137	-0.097	0.023	-0.014
T1Growth	-0.053	0.294	-0.033	-0.022	-0.016	0.004	-0.002
T1R&DADV	-0.004	-0.071	-0.020	-0.014	-0.010	0.002	-0.001
T1Cap.Exp.	1.000	-0.113	0.012	0.008	0.005	-0.001	0.001
T1DEBT		1.000	-0.101	-0.068	-0.048	0.012	-0.007
T2CofGS			1.000	0.286	0.133	-0.055	0.077
T2S&A				1.000	0.088	-0.082	0.036
T2ROA					1.000	-0.080	-0.049
T2Growth						1.000	-0.007
T2R&DADV							1.000
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 10 (continued)
Correlation Statistics for Model of 1-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 1-year ahead abnormal earnings.

	T2Cap. Exp.	T2DEBT	T3CofGS	T3S&A	T3ROA	T3Growth	T3R&D ADV
Abnormal Earnings	0.004	0.054	0.000	-0.088	0.093	-0.030	0.005
TYPE1	-0.041	-0.124	-0.369	-0.233	-0.299	0.025	0.004
TYPE2	0.085	0.254	-0.530	-0.334	-0.430	0.036	0.009
TYPE3	-0.047	-0.140	0.959	0.604	0.778	-0.066	-0.006
GDP	0.005	-0.025	0.024	0.018	0.037	0.018	0.019
CONCEN	-0.004	-0.035	-0.059	-0.003	0.073	0.013	0.079
CofGS	-0.105	-0.077	0.076	-0.098	-0.065	0.017	0.039
S&A	-0.014	0.031	-0.133	0.219	-0.018	-0.017	0.062
ROA	0.028	-0.008	-0.045	0.030	0.120	-0.043	-0.061
GROWTH	0.013	0.014	0.009	-0.033	-0.078	0.605	-0.026
R&DADV	-0.006	0.010	0.005	0.021	-0.002	-0.043	0.998
Capital Expend.	0.318	0.010	-0.013	0.028	-0.005	0.007	-0.010
DEBT	0.003	0.266	0.121	-0.005	0.045	0.005	0.179
LIFO	0.037	-0.013	-0.039	-0.018	0.057	-0.121	0.036
Audit Opinion	0.031	-0.004	-0.008	0.044	-0.008	0.008	0.004
T1CofGS	-0.037	-0.111	-0.331	-0.210	-0.269	0.023	0.005
T1S&A	-0.020	-0.060	-0.177	-0.112	-0.144	0.012	0.067
T1ROA	-0.022	-0.066	-0.198	-0.125	-0.160	0.014	-0.054
T1Growth	-0.004	-0.011	-0.032	-0.020	-0.026	0.002	0.086
T1R&DADV	-0.002	-0.007	-0.020	-0.012	-0.016	0.001	0.609
T1Cap.Exp.	0.001	0.004	0.011	0.007	0.009	-0.001	-0.002
T1DEBT	-0.011	-0.033	-0.099	-0.062	-0.080	0.007	-0.049
T2CofGS	-0.012	0.145	-0.409	-0.258	-0.332	0.028	0.030
T2S&A	0.017	0.143	-0.275	-0.174	-0.223	0.019	0.007
T2ROA	0.056	0.070	-0.196	-0.123	-0.159	0.013	-0.040
T2Growth	0.013	0.011	0.047	0.030	0.038	-0.003	-0.002
T2R&DADV	-0.006	0.027	-0.029	-0.018	-0.023	0.002	0.644
T2Cap.Exp.	1.000	0.033	-0.045	-0.028	-0.037	0.003	-0.006
T2DEBT		1.000	-0.134	-0.085	-0.109	0.009	0.010
T3CofGS			1.000	0.485	0.685	-0.046	0.002
T3S&A				1.000	0.598	-0.093	0.019
T3ROA					1.000	-0.177	-0.006
T3Growth						1.000	-0.041
T3R&DADV							1.000
T3Cap.Exp.							
T3DEBT							

Table 10 (concluded)
Correlation Statistics for Model of 1-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 1-year ahead abnormal earnings.

	T3Cap. Exp.	T3DEBT
Abnormal Earnings	0.007	0.013
TYPE1	-0.022	-0.038
TYPE2	0.026	-0.009
TYPE3	-0.011	0.057
GDP	-0.028	0.005
CONCEN	0.018	-0.043
CofGS	-0.036	0.062
S&A	0.005	-0.021
ROA	0.013	-0.014
GROWTH	0.007	0.012
R&DADV	-0.009	0.188
Capital Expend.	0.999	-0.007
DEBT	-0.006	0.999
LIFO	-0.046	-0.017
Audit Opinion	0.044	0.020
T1CofGS	-0.016	-0.020
T1S&A	-0.014	-0.025
T1ROA	-0.007	-0.043
T1Growth	-0.012	0.042
T1R&DADV	-0.002	-0.015
T1Cap.Exp.	0.208	-0.016
T1DEBT	-0.028	0.143
T2CofGS	-0.005	-0.021
T2S&A	0.005	-0.003
T2ROA	0.017	-0.010
T2Growth	0.004	0.011
T2R&DADV	-0.002	0.004
T2Cap.Exp.	0.302	0.003
T2DEBT	0.010	0.264
T3CofGS	-0.017	0.122
T3S&A	0.027	-0.005
T3ROA	-0.006	0.044
T3Growth	0.006	0.005
T3R&DADV	-0.009	0.179
T3Cap.Exp.	1.000	-0.007
T3DEBT		1.000

Table 11

Correlation Coefficients for Model of 3-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 3-year ahead abnormal earnings.

	Abnormal Earnings	TYPE1	TYPE2	TYPE3	GDP	CONCEN
Abnormal Earnings	1.000	-0.094	-0.024	0.043	-0.050	-0.077
TYPE1		1.000	-0.509	-0.389	-0.006	-0.049
TYPE2			1.000	-0.522	-0.028	0.139
TYPE3				1.000	0.026	-0.088
GDP					1.000	-0.008
CONCEN						1.000
CofGS						
S&A						
ROA						
GROWTH						
R&DADV						
Capital Expend.						
DEBT						
LIFO						
Audit Opinion						
T1CofGS						
T1S&A						
T1ROA						
T1Growth						
T1R&DADV						
T1Cap.Exp.						
T1DEBT						
T2CofGS						
T2S&A						
T2ROA						
T2Growth						
T2R&DADV						
T2Cap.Exp.						
T2DEBT						
T3CofGS						
T3S&A						
T3ROA						
T3Growth						
T3R&DADV						
T3Cap.Exp.						
T3DEBT						

Table 11 (continued)
Correlation Coefficients for Model of 3-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 3-year ahead abnormal earnings.

	CofGS	S&A	ROA	GROWTH	R&D ADV	Capital Expend.	DEBT
Abnormal Earnings	-0.111	-0.330	0.141	0.044	0.010	0.000	0.016
TYPE1	0.072	-0.010	0.021	0.075	0.026	0.000	-0.054
TYPE2	-0.083	0.157	0.019	-0.070	-0.058	0.067	-0.013
TYPE3	0.015	-0.103	-0.008	-0.007	0.035	-0.085	0.083
GDP	0.015	-0.038	0.049	-0.005	-0.027	-0.059	-0.004
CONCEN	-0.157	-0.005	0.051	0.034	0.087	0.058	-0.048
CofGS	1.000	-0.276	-0.144	0.040	0.016	-0.039	0.098
S&A		1.000	-0.085	-0.071	0.057	0.028	-0.031
ROA			1.000	-0.079	-0.040	0.025	0.001
GROWTH				1.000	-0.048	0.001	0.013
R&DADV					1.000	0.005	0.288
Capital Expend.						1.000	-0.003
DEBT							1.000
LIFO							
Audit Opinion							
T1CofGS							
T1S&A							
T1ROA							
T1Growth							
T1R&DADV							
T1Cap.Exp.							
T1DEBT							
T2CofGS							
T2S&A							
T2ROA							
T2Growth							
T2R&DADV							
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 11 (continued)
Correlation Coefficients for Model of 3-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 3-year ahead abnormal earnings.

	LIFO	Audit Opinion	T1CofGS	T1S&A	T1ROA	T1Growth	T1R&D ADV
Abnormal Earnings	0.010	-0.175	-0.144	-0.113	-0.009	-0.055	0.033
TYPE1	0.125	-0.146	0.896	0.572	0.775	0.408	0.032
TYPE2	-0.058	0.159	-0.456	-0.294	-0.395	-0.208	-0.016
TYPE3	-0.029	-0.019	-0.349	-0.222	-0.302	-0.159	-0.013
GDP	-0.001	-0.110	-0.014	-0.005	0.019	0.018	-0.032
CONCEN	0.124	0.151	-0.097	0.010	0.016	-0.042	0.118
CofGS	0.045	-0.068	0.305	-0.097	-0.054	0.170	-0.029
S&A	-0.041	0.061	-0.078	0.402	0.015	0.009	0.033
ROA	0.082	0.017	-0.013	0.024	0.157	0.001	-0.007
GROWTH	-0.061	-0.001	0.067	0.043	0.058	0.034	0.003
R&DADV	0.126	0.022	0.001	0.061	0.002	0.152	0.853
Capital Expend.	-0.088	0.091	0.007	-0.008	0.005	-0.019	0.001
DEBT	-0.017	0.046	-0.037	-0.035	-0.058	-0.007	-0.013
LIFO	1.000	-0.157	0.152	0.067	0.113	0.100	0.108
Audit Opinion		1.000	-0.150	-0.056	-0.087	-0.121	0.062
T1CofGS			1.000	0.399	0.605	0.481	0.003
T1S&A				1.000	0.480	0.255	0.073
T1ROA					1.000	0.295	0.004
T1Growth						1.000	0.179
T1R&DADV							1.000
T1Cap.Exp.							
T1DEBT							
T2CofGS							
T2S&A							
T2ROA							
T2Growth							
T2R&DADV							
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 11 (continued)
Correlation Coefficients for Model of 3-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 3-year ahead abnormal earnings.

	T1Cap. Exp.	T1DEBT	T2CofGS	T2S&A	T2ROA	T2Growth	T2R&D ADV
Abnormal Earnings	-0.006	-0.172	-0.049	-0.246	0.106	0.092	-0.092
TYPE1	-0.061	0.336	-0.415	-0.274	-0.153	0.064	0.034
TYPE2	0.031	-0.171	0.815	0.531	0.301	-0.125	-0.066
TYPE3	0.024	-0.131	-0.426	-0.277	-0.157	0.065	0.035
GDP	-0.059	-0.018	-0.014	-0.028	0.040	-0.006	0.013
CONCEN	0.042	-0.154	0.072	0.008	0.041	0.030	0.001
CofGS	0.029	0.242	0.384	-0.184	-0.112	0.030	0.033
S&A	-0.021	-0.031	0.033	0.734	-0.087	-0.066	0.098
ROA	0.005	-0.084	-0.048	-0.135	0.895	-0.059	-0.128
GROWTH	-0.005	0.026	-0.045	-0.077	-0.067	0.793	-0.028
R&DADV	0.001	-0.149	-0.040	0.013	-0.066	-0.008	0.376
Capital Expend.	0.243	-0.049	0.035	0.036	0.030	0.000	0.001
DEBT	-0.009	0.037	-0.021	-0.016	-0.008	0.012	0.011
LIFO	0.029	0.114	-0.045	-0.087	0.022	0.045	0.057
Audit Opinion	0.086	-0.169	0.111	0.104	0.064	0.001	-0.087
T1CofGS	-0.027	0.479	-0.372	-0.245	-0.137	0.057	0.030
T1S&A	-0.070	0.147	-0.240	-0.157	-0.089	0.037	0.020
T1ROA	-0.028	0.002	-0.322	-0.212	-0.119	0.049	0.026
T1Growth	-0.104	0.372	-0.169	-0.112	-0.063	0.026	0.014
T1R&DADV	0.001	-0.174	-0.013	-0.009	-0.005	0.002	0.001
T1Cap.Exp.	1.000	-0.222	0.025	0.017	0.009	-0.004	-0.002
T1DEBT		1.000	-0.140	-0.092	-0.052	0.021	0.011
T2CofGS			1.000	0.329	0.181	-0.087	-0.034
T2S&A				1.000	0.013	-0.117	0.084
T2ROA					1.000	-0.096	-0.150
T2Growth						1.000	-0.033
T2R&DADV							1.000
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 11 (continued)
Correlation Coefficients for Model of 3-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 3-year ahead abnormal earnings.

	T2Cap. Exp.	T2DEBT	T3CofGS	T3S&A	T3ROA	T3Growth	T3R&D ADV
Abnormal Earnings	0.004	0.150	0.043	-0.067	0.083	-0.047	0.012
TYPE1	-0.053	-0.172	-0.375	-0.255	-0.309	0.037	0.021
TYPE2	0.105	0.337	-0.503	-0.342	-0.415	0.050	-0.054
TYPE3	-0.055	-0.176	0.963	0.652	0.795	-0.096	0.034
GDP	0.047	-0.074	0.033	-0.004	0.055	-0.001	-0.030
CONCEN	0.020	-0.040	-0.107	-0.043	-0.004	0.017	0.080
CofGS	-0.129	-0.114	0.094	-0.109	-0.036	0.025	0.014
S&A	0.016	0.011	-0.147	0.185	-0.007	-0.030	0.058
ROA	0.046	-0.015	-0.021	0.048	0.112	-0.052	-0.039
GROWTH	0.022	0.024	0.008	-0.059	-0.105	0.604	-0.047
R&DADV	0.002	0.002	0.060	0.016	0.044	-0.069	0.998
Capital Expend.	0.228	0.048	-0.096	0.001	-0.033	0.002	0.005
DEBT	0.018	0.149	0.171	0.005	0.087	0.006	0.280
LIFO	0.101	0.005	-0.042	-0.010	0.070	-0.160	0.123
Audit Opinion	0.021	0.003	-0.023	-0.016	-0.028	-0.002	0.025
T1CofGS	-0.048	-0.154	-0.336	-0.229	-0.277	0.033	-0.003
T1S&A	-0.031	-0.099	-0.214	-0.146	-0.176	0.021	0.060
T1ROA	-0.041	-0.133	-0.291	-0.198	-0.240	0.029	-0.006
T1Growth	-0.022	-0.070	-0.153	-0.104	-0.126	0.015	0.160
T1R&DADV	-0.002	-0.006	-0.012	-0.008	-0.010	0.001	0.863
T1Cap.Exp.	0.003	0.010	0.023	0.015	0.019	-0.002	0.001
T1DEBT	-0.018	-0.058	-0.126	-0.086	-0.104	0.013	-0.144
T2CofGS	-0.003	0.211	-0.410	-0.279	-0.339	0.041	-0.037
T2S&A	0.055	0.133	-0.267	-0.183	-0.220	0.027	0.015
T2ROA	0.077	0.080	-0.152	-0.103	-0.125	0.015	-0.062
T2Growth	0.024	0.018	0.063	0.043	0.052	-0.006	-0.008
T2R&DADV	0.015	0.035	0.034	0.023	0.028	-0.003	0.353
T2Cap.Exp.	1.000	0.147	-0.053	-0.036	-0.044	0.005	0.003
T2DEBT		1.000	-0.170	-0.115	-0.140	0.017	0.001
T3CofGS			1.000	0.521	0.722	-0.068	0.059
T3S&A				1.000	0.689	-0.153	0.016
T3ROA					1.000	-0.239	0.043
T3Growth						1.000	-0.068
T3R&DADV							1.000
T3Cap.Exp.							
T3DEBT							

Table 11 (concluded)
Correlation Coefficients for Model of 3-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of 3-year ahead abnormal earnings.

	T3Cap. Exp.	T3DEBT
Abnormal Earnings	0.000	0.014
TYPE1	0.001	-0.054
TYPE2	0.066	-0.015
TYPE3	-0.085	0.084
GDP	-0.060	0.002
CONCEN	0.057	-0.047
CofGS	-0.036	0.099
S&A	0.028	-0.032
ROA	0.024	0.002
GROWTH	0.000	0.013
R&DADV	0.005	0.289
Capital Expend.	1.000	-0.004
DEBT	-0.003	1.000
LIFO	-0.090	-0.018
Audit Opinion	0.091	0.046
T1CofGS	0.007	-0.037
T1S&A	-0.008	-0.035
T1ROA	0.005	-0.057
T1Growth	-0.019	-0.008
T1R&DADV	0.001	-0.013
T1Cap.Exp.	0.244	-0.011
T1DEBT	-0.049	0.037
T2CofGS	0.036	-0.022
T2S&A	0.035	-0.017
T2ROA	0.029	-0.008
T2Growth	-0.001	0.012
T2R&DADV	0.001	0.010
T2Cap.Exp.	0.210	0.018
T2DEBT	0.045	0.139
T3CofGS	-0.095	0.172
T3S&A	0.002	0.006
T3ROA	-0.033	0.088
T3Growth	0.001	0.006
T3R&DADV	0.005	0.281
T3Cap.Exp.	1.000	-0.004
T3DEBT		1.000

Table 12

Correlation Coefficients for Model of 5-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of five-year ahead abnormal earnings.

	Abnormal Earnings	TYPE1	TYPE2	TYPE3	GDP	CONCEN
Abnormal Earnings	1.000	-0.107	0.074	-0.053	-0.042	-0.045
TYPE1		1.000	-0.516	-0.426	0.011	-0.067
TYPE2			1.000	-0.482	-0.034	0.185
TYPE3				1.000	0.023	-0.121
GDP					1.000	-0.014
CONCEN						1.000
CofGS						
S&A						
ROA						
GROWTH						
R&DADV						
Capital Expend.						
DEBT						
LIFO						
Audit Opinion						
T1CofGS						
T1S&A						
T1ROA						
T1Growth						
T1R&DADV						
T1Cap.Exp.						
T1DEBT						
T2CofGS						
T2S&A						
T2ROA						
T2Growth						
T2R&DADV						
T2Cap.Exp.						
T2DEBT						
T3CofGS						
T3S&A						
T3ROA						
T3Growth						
T3R&DADV						
T3Cap.Exp.						
T3DEBT						

Table 12 (continued)
Correlation Coefficients for Model of 5-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of five-year ahead abnormal earnings.

	CofGS	S&A	ROA	GROWTH	R&D ADV	Capital Expend.	DEBT
Abnormal Earnings	-0.084	-0.362	0.116	-0.111	0.010	-0.013	-0.009
TYPE1	0.113	0.057	0.011	-0.056	-0.032	-0.111	-0.076
TYPE2	-0.191	0.116	0.024	-0.005	0.006	0.037	0.200
TYPE3	0.085	-0.128	-0.025	0.082	0.008	0.024	-0.035
GDP	0.000	0.005	0.071	0.137	-0.042	0.035	-0.035
CONCEN	-0.189	-0.016	0.015	-0.108	-0.060	0.094	-0.046
CofGS	1.000	-0.351	-0.099	0.041	-0.033	0.012	-0.014
S&A		1.000	-0.050	-0.043	0.099	-0.027	0.019
ROA			1.000	-0.004	-0.104	0.054	-0.034
GROWTH				1.000	-0.001	-0.026	0.084
R&DADV					1.000	0.027	0.013
Capital Expend.						1.000	-0.085
DEBT							1.000
LIFO							
Audit Opinion							
T1CofGS							
T1S&A							
T1ROA							
T1Growth							
T1R&DADV							
T1Cap.Exp.							
T1DEBT							
T2CofGS							
T2S&A							
T2ROA							
T2Growth							
T2R&DADV							
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 12 (continued)
Correlation Coefficients for Model of 5-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of five-year ahead abnormal earnings.

	LIFO	Audit Opinion	T1CofGS	T1S&A	T1ROA	T1Growth	T1R&D ADV
Abnormal Earnings	-0.006	-0.238	-0.128	-0.221	-0.049	-0.083	0.079
TYPE1	0.117	-0.087	0.891	0.536	0.759	0.506	-0.051
TYPE2	-0.064	0.111	-0.459	-0.281	-0.391	-0.261	0.027
TYPE3	-0.018	0.006	-0.379	-0.228	-0.323	-0.216	0.022
GDP	-0.022	-0.172	-0.007	0.009	0.036	0.032	-0.054
CONCEN	0.189	0.189	-0.114	-0.013	-0.011	-0.045	-0.047
CofGS	0.034	-0.139	0.433	-0.141	-0.063	0.257	-0.046
S&A	-0.016	0.056	-0.042	0.553	0.067	0.010	0.032
ROA	0.074	0.031	-0.020	0.015	0.146	-0.008	-0.037
GROWTH	-0.035	0.060	-0.021	-0.038	-0.053	0.146	0.076
R&DADV	0.052	-0.009	-0.050	0.024	-0.123	0.253	0.866
Capital Expend.	0.074	0.014	-0.066	-0.091	-0.072	-0.119	0.001
DEBT	0.014	0.020	-0.032	-0.056	-0.109	0.044	0.009
LIFO	1.000	-0.179	0.129	0.046	0.081	0.140	0.028
Audit Opinion		1.000	-0.108	0.016	-0.056	-0.031	0.058
T1CofGS			1.000	0.352	0.584	0.575	-0.071
T1S&A				1.000	0.439	0.245	0.020
T1ROA					1.000	0.341	-0.153
T1Growth						1.000	0.284
T1R&DADV							1.000
T1Cap.Exp.							
T1DEBT							
T2CofGS							
T2S&A							
T2ROA							
T2Growth							
T2R&DADV							
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 12 (continued)
Correlation Coefficients for Model of 5-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of five-year ahead abnormal earnings.

	T1Cap. Exp.	T1DEBT	T2CofGS	T2S&A	T2ROA	T2Growth	T2R&D ADV
Abnormal Earnings	-0.002	-0.152	0.059	-0.146	0.116	-0.030	-0.134
TYPE1	-0.085	0.360	-0.478	-0.280	-0.136	-0.172	0.023
TYPE2	0.044	-0.186	0.927	0.533	0.264	0.333	-0.046
TYPE3	0.036	-0.153	-0.447	-0.256	-0.127	-0.161	0.022
GDP	-0.061	0.006	-0.022	-0.009	0.043	0.052	0.021
CONCEN	0.065	-0.139	0.141	0.038	0.019	-0.098	-0.055
CofGS	0.051	0.300	0.021	-0.259	-0.074	-0.082	0.010
S&A	-0.031	-0.011	0.014	0.653	-0.053	0.008	0.163
ROA	0.003	-0.071	0.005	-0.089	0.930	0.027	-0.161
GROWTH	-0.012	0.066	-0.011	-0.022	0.008	0.427	-0.018
R&DADV	-0.002	0.010	0.006	0.091	-0.068	-0.015	0.433
Capital Expend.	0.865	-0.292	0.032	0.040	0.027	-0.001	0.010
DEBT	-0.059	0.166	0.150	0.070	0.027	0.136	0.052
LIFO	0.052	0.106	-0.046	-0.078	0.024	-0.039	0.030
Audit Opinion	0.095	-0.137	0.052	0.049	0.058	-0.041	-0.102
T1CofGS	-0.039	0.482	-0.426	-0.249	-0.121	-0.153	0.021
T1S&A	-0.082	0.150	-0.261	-0.151	-0.074	-0.094	0.013
T1ROA	-0.051	0.041	-0.363	-0.212	-0.103	-0.130	0.018
T1Growth	-0.116	0.553	-0.242	-0.142	-0.069	-0.087	0.012
T1R&DADV	-0.002	0.006	0.025	0.014	0.007	0.009	-0.001
T1Cap.Exp.	1.000	-0.323	0.041	0.024	0.012	0.015	-0.002
T1DEBT		1.000	-0.172	-0.101	-0.049	-0.062	0.008
T2CofGS			1.000	0.381	0.227	0.295	-0.042
T2S&A				1.000	0.040	0.141	0.177
T2ROA					1.000	0.107	-0.173
T2Growth						1.000	-0.054
T2R&DADV							1.000
T2Cap.Exp.							
T2DEBT							
T3CofGS							
T3S&A							
T3ROA							
T3Growth							
T3R&DADV							
T3Cap.Exp.							
T3DEBT							

Table 12 (continued)
Correlation Coefficients for Model of 5-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of five-year ahead abnormal earnings.

	T2Cap. Exp.	T2DEBT	T3CofGS	T3S&A	T3ROA	T3Growth	T3R&D ADV
Abnormal Earnings	0.052	0.180	-0.052	-0.174	0.020	-0.089	0.019
TYPE1	-0.054	-0.172	-0.410	-0.294	-0.323	-0.102	-0.037
TYPE2	0.105	0.334	-0.464	-0.333	-0.366	-0.115	0.010
TYPE3	-0.050	-0.161	0.963	0.685	0.759	0.238	0.009
GDP	0.143	-0.085	0.028	0.039	0.070	0.118	-0.044
CONCEN	-0.042	-0.029	-0.133	-0.098	-0.009	-0.055	-0.066
CofGS	-0.031	-0.126	0.187	-0.081	-0.016	0.023	-0.033
S&A	0.081	0.006	-0.160	0.112	-0.036	-0.053	0.097
ROA	0.071	-0.024	-0.040	0.026	0.099	-0.017	-0.098
GROWTH	-0.027	0.041	0.081	0.001	0.026	0.857	-0.001
R&DADV	0.020	0.036	0.011	0.015	-0.002	-0.061	0.998
Capital Expend.	0.249	-0.032	0.008	0.016	0.139	-0.002	0.027
DEBT	-0.121	0.769	-0.024	-0.026	-0.077	0.013	0.015
LIFO	-0.053	-0.020	-0.046	0.032	0.102	-0.053	0.049
Audit Opinion	-0.125	-0.023	0.007	-0.017	-0.025	0.100	-0.002
T1CofGS	-0.048	-0.153	-0.365	-0.262	-0.288	-0.090	-0.055
T1S&A	-0.029	-0.094	-0.219	-0.158	-0.173	-0.055	0.024
T1ROA	-0.041	-0.131	-0.311	-0.223	-0.245	-0.077	-0.130
T1Growth	-0.027	-0.087	-0.208	-0.149	-0.164	-0.051	0.258
T1R&DADV	0.003	0.009	0.021	0.015	0.017	0.005	0.889
T1Cap.Exp.	0.005	0.015	0.035	0.025	0.028	0.009	-0.002
T1DEBT	-0.019	-0.062	-0.148	-0.106	-0.116	-0.037	0.009
T2CofGS	0.089	0.265	-0.430	-0.308	-0.339	-0.107	0.010
T2S&A	0.138	0.139	-0.247	-0.179	-0.195	-0.062	0.090
T2ROA	0.096	0.056	-0.122	-0.088	-0.097	-0.030	-0.060
T2Growth	-0.021	0.199	-0.155	-0.111	-0.122	-0.038	-0.016
T2R&DADV	0.041	0.063	0.021	0.015	0.017	0.005	0.381
T2Cap.Exp.	1.000	-0.145	-0.049	-0.035	-0.038	-0.012	0.022
T2DEBT		1.000	-0.155	-0.111	-0.122	-0.038	0.033
T3CofGS			1.000	0.562	0.675	0.232	0.013
T3S&A				1.000	0.681	0.102	0.016
T3ROA					1.000	0.141	-0.002
T3Growth						1.000	-0.063
T3R&DADV							1.000
T3Cap.Exp.							
T3DEBT							

Table 12 (concluded)
Correlation Coefficients for Model of 5-Year Ahead Abnormal Earnings

Correlation coefficient matrix for the regression model of five-year ahead abnormal earnings.

	T3Cap. Exp.	T3DEBT
Abnormal Earnings	-0.012	-0.021
TYPE1	-0.113	-0.077
TYPE2	0.038	0.198
TYPE3	0.027	-0.031
GDP	0.032	-0.007
CONCEN	0.090	-0.044
CofGS	0.012	-0.006
S&A	-0.026	0.017
ROA	0.053	-0.033
GROWTH	-0.026	0.089
R&DADV	0.027	0.015
Capital Expend.	1.000	-0.092
DEBT	-0.081	0.995
LIFO	0.073	0.010
Audit Opinion	0.015	0.018
T1CofGS	-0.069	-0.033
T1S&A	-0.092	-0.057
T1ROA	-0.074	-0.111
T1Growth	-0.120	0.044
T1R&DADV	0.001	0.009
T1Cap.Exp.	0.868	-0.070
T1DEBT	-0.292	0.176
T2CofGS	0.033	0.153
T2S&A	0.039	0.067
T2ROA	0.026	0.027
T2Growth	0.000	0.133
T2R&DADV	0.010	0.053
T2Cap.Exp.	0.243	-0.122
T2DEBT	-0.029	0.751
T3CofGS	0.010	-0.020
T3S&A	0.022	-0.023
T3ROA	0.141	-0.078
T3Growth	-0.003	0.019
T3R&DADV	0.027	0.016
T3Cap.Exp.	1.000	-0.088
T3DEBT		1.000

Table 13

Full Model by *T*-Year Ahead Abnormal Earnings

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, interactions of strategy with fundamental measure.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		.21	.23	.35
F-Statistic		5.76***	3.82***	3.88***
N		580	277	170
Constant	φ_0	4.38***	10.05***	10.07***
		(4.14)	(6.70)	(4.34)
TYPE1	φ_{11}	-0.91	-1.97***	-2.47
		(-1.15)	(-2.66)	(-1.13)
TYPE2	φ_{12}	-0.49	-1.94**	-1.64
		(-0.94)	(-2.07)	(-0.75)
TYPE3	φ_{13}	-1.35	-1.56	-1.74
		(-1.34)	(-1.03)	(-1.10)
GDP	φ_2	18.27	-36.14*	-13.23
		(1.14)	(-1.64)	(-0.59)
Concentration	φ_3	-3.16***	-2.08**	-1.56
		(-5.02)	(-2.18)	(-1.16)
Cost of Goods Sold to Sales	φ_{41}	0.57***	1.10**	2.15**
		(2.78)	(2.08)	(1.97)
Selling & Admin. Exp. to Sales	φ_{42}	1.29***	1.76	1.93
		(2.38)	(1.47)	(1.24)
Return on Assets	φ_{43}	0.26	0.20	0.91
		(1.16)	(0.81)	(0.88)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 13 (continued)
Full Model by *T*-Year Ahead Abnormal Earnings

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, interactions of strategy with fundamental measure.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	φ_{44}	22.26	-94.50	-0.01
		(0.06)	(-0.40)	(-0.82)
Change in R&D / Advertising	φ_{45}	0.13	-0.05	-0.26
		(1.11)	(-0.02)	(-0.62)
Change in Capital Expenditures	φ_{46}	0.00	-2.73	-0.11
		(-0.11)	(-0.50)	(-1.20)
Debt to Equity	φ_{47}	0.01	0.18	0.00
		(0.03)	(0.35)	(0.01)
Inventory Valuation (LIFO)	φ_{48}	0.06	-0.04	-0.10
		(0.24)	(-0.13)	(-0.26)
Audit Opinion (Unqualified)	φ_{49}	-0.47**	-0.80***	-1.17***
		(-2.41)	(-3.37)	(-4.00)
T1 by CofGS	φ_{511}	0.43	3.68	-1.14
		(1.01)	(0.72)	(-0.91)
T1 by S&A	φ_{512}	-1.14	-1.40	-1.35
		(-1.22)	(-1.17)	(-0.87)
T1 by ROA	φ_{513}	-0.11	-0.07	-0.95
		(-0.41)	(-0.20)	(-0.89)
T1 by Growth	φ_{514}	0.01	0.03	0.05
		(0.75)	(0.66)	(0.75)
T1 by R&D Adv.	φ_{515}	0.00	-0.01	-0.01
		(-0.06)	(-0.22)	(-0.15)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 13 (continued)
Full Model by *T*-Year Ahead Abnormal Earnings

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, interactions of strategy with fundamental measure.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T1 by Cap. Exp.	φ_{516}	0.00	0.00	0.02***
		(0.43)	(-0.51)	(3.05)
T1 by Debt	φ_{517}	-0.03	-0.42**	-0.53*
		(-0.38)	(-2.09)	(-1.72)
T2 by CofGS	φ_{521}	-2.42	-0.50	-0.54
		(-0.03)	(-0.81)	(-0.40)
T2 by S&A	φ_{522}	-0.63	-1.22	-1.35
		(-0.67)	(-1.02)	(-0.87)
T2 by ROA	φ_{523}	-0.13	-0.14	-0.86
		(-0.59)	(-0.55)	(-0.83)
T2 by Growth	φ_{524}	0.00	0.00	-0.03
		(0.74)	(1.56)	(-1.34)
T2 by R&D Adv.	φ_{525}	-0.02	-0.04	-0.05
		(-1.12)	(-0.67)	(-0.52)
T2 by Cap. Exp.	φ_{526}	0.00	0.00	0.03***
		(-0.64)	(-0.42)	(2.74)
T2 by Debt	φ_{527}	0.04	0.11*	0.18**
		(1.23)	(1.74)	(2.62)
T3 by CofGS	φ_{531}	0.30	0.28	-6.05
		(0.44)	(0.24)	(-1.05)
T3 by S&A	φ_{532}	-0.59	-0.73	0.19
		(-0.62)	(-0.59)	(0.11)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 13 (concluded)
Full Model by *T*-Year Ahead Abnormal Earnings

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, interactions of strategy with fundamental measure.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T3 by ROA	φ_{533}	0.64**	0.47	0.30
		(2.17)	(1.30)	(0.27)
T3 by Growth	φ_{534}	0.00	0.00	-7.91
		(0.26)	(-0.32)	(-1.32)
T3 by R&D Adv.	φ_{535}	-1.91	1.24	4.79
		(-1.00)	(0.33)	(0.69)
T3 by Cap. Exp.	φ_{536}	0.03	0.00	1.44
		(0.13)	(0.26)	(0.93)
T3 by Debt	φ_{537}	-0.24	-3.28	-1.08
		(-0.05)	(-0.35)	(-0.11)

A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components are shown below.

Partial F-Statistic	2.597***	2.122***	1.374*

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector		
Independent Variables		Manufacturing (2000)	Manufacturing (3000)	Transportation (4000)
Adjusted R^2		0.35	0.19	0.62
F-Statistic		3.79***	1.95***	5.60***
N		170	120	99
Constant	φ_0	5.56	2.52	19.16
		(0.78)	(0.60)	(1.15)
TYPE1	φ_{11}	-0.97	9.11	7.89
		(-0.14)	(1.23)	(0.46)
TYPE2	φ_{12}	-2.13	0.00	-4.82
		(-0.32)	(0.00)	(-0.30)
TYPE3	φ_{13}	-0.95	0.34	9.75
		(-0.14)	(0.06)	(0.58)
GDP	φ_2	5.67	22.37	-20.07
		(0.18)	(0.69)	(-0.51)
Concentration	φ_3	-6.87***	-0.81	-101.18
		(-3.55)	(-0.93)	(-1.59)
Cost of Goods Sold to Sales	φ_{41}	-0.29	-0.58	5.24
		(-0.49)	(-0.17)	(0.36)
Selling & Admin. Exp. to Sales	φ_{42}	-4.56	0.54	0.08
		(-0.29)	(1.38)	(0.10)
Return on Assets	φ_{43}	0.15	-0.10	-0.33
		(0.06)	(-0.72)	(-0.78)
Sales Growth	φ_{44}	0.50	0.00	0.71**
		(0.02)	(0.11)	(2.08)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14 (continued)

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector		
Independent Variables		Manufacturing (2000)	Manufacturing (3000)	Transportation (4000)
Change in R&D / Advertising	φ_{45}	-0.10	0.05	0.24
		(-0.19)	(0.24)	(0.56)
Change in Capital Expenditures	φ_{46}	-0.03	0.14	0.20
		(-0.52)	(1.39)	(1.52)
Debt to Equity	φ_{47}	-1.27**	1.74	0.93*
		(-2.08)	(1.06)	(1.90)
Inventory Valuation (LIFO)	φ_{48}	1.10***	-0.06	0.00
		(2.79)	(-0.17)	(0.00)
Audit Opinion (Unqualified)	φ_{49}	-0.34	-0.51	0.00
		(-0.99)	(-1.09)	(0.01)
T1 by CofGS	φ_{511}	1.25*	7.65	8.38
		(1.64)	(1.20)	(0.52)
T1 by S&A	φ_{512}	5.42	1.73*	0.52
		(0.34)	(1.79)	(0.65)
T1 by ROA	φ_{513}	0.17	-0.01	-0.38
		(0.06)	(-0.01)	(-0.73)
T1 by Growth	φ_{514}	0.01	0.00	0.72
		(0.32)	(0.01)	(1.61)
T1 by R&D Adv.	φ_{515}	-0.01	0.04	-0.11
		(-0.13)	(1.28)	(-1.25)
T1 by Cap. Exp.	φ_{516}	0.00	0.03*	0.02
		(-0.28)	(1.82)	(0.42)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14 (continued)

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector		
Independent Variables		Manufacturing (2000)	Manufacturing (3000)	Transportation (4000)
T1 by Debt	φ_{517}	-0.10	0.11	-0.84
		(-0.56)	(0.74)	(-0.39)
T2 by CofGS	φ_{521}	0.42	0.59	-3.03
		(1.38)	(0.12)	(-0.20)
T2 by S&A	φ_{522}	4.98	0.00	0.59
		(0.31)	(0.00)	(0.72)
T2 by ROA	φ_{523}	-0.02	0.00	0.46
		(-0.01)	(0.00)	(1.00)
T2 by Growth	φ_{524}	-0.01	-1.92	0.66 *
		(-0.87)	(-0.12)	(1.90)
T2 by R&D Adv.	φ_{525}	0.03	0.00	-0.12
		(0.63)	(-0.07)	(-1.55)
T2 by Cap. Exp.	φ_{526}	0.00	-0.01	0.01
		(-0.27)	(-1.43)	(0.57)
T2 by Debt	φ_{527}	0.33 ***	0.18	0.08
		(3.53)	(0.73)	(0.89)
T3 by CofGS	φ_{531}	0.83	0.00	8.18
		(1.05)	(0.00)	(0.52)
T3 by S&A	φ_{532}	7.24	0.56	0.86
		(0.45)	(0.51)	(1.06)
T3 by ROA	φ_{533}	0.51	0.08	-1.17
		(0.20)	(0.21)	(-1.60)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14 (continued)

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector		
Independent Variables		Manufacturing (2000)	Manufacturing (3000)	Transportation (4000)
T3 by Growth	φ_{534}	-0.02 *	0.00	0.51
		(-1.67)	(-1.18)	(1.47)
T3 by R&D Adv.	φ_{535}	1.62	-1.17	-3.50
		(0.17)	(-0.35)	(-0.48)
T3 by Cap. Exp.	φ_{536}	0.45	-2.35	-3.36
		(0.54)	(-1.31)	(-1.50)
T3 by Debt	φ_{537}	23.18 **	-28.41	-18.62 **
		(2.10)	(-1.09)	(-2.17)

A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components are shown below.

Partial F-Statistic	2.891 ***	1.497	2.822 ***

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14 (continued)

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector	
Independent Variables		Retail (5000)	Services (7000)
Adjusted R^2		0.45	0.89
F-Statistic		5.21 ***	12.87 ***
N		149	42
Constant	φ_0	4.48	10.82
		(0.94)	(1.23)
TYPE1	φ_{11}	-4.27	-13.15
		(-0.42)	(-1.53)
TYPE2	φ_{12}	-4.46	-4.80
		(-0.78)	(-0.50)
TYPE3	φ_{13}	0.00	0.00
		(0.00)	(0.00)
GDP	φ_2	41.19	59.82 *
		(1.61)	(1.83)
Concentration	φ_3	1.54	1.05
		(0.46)	(0.28)
Cost of Goods Sold to Sales	φ_{41}	5.82	6.62
		(1.49)	(1.02)
Selling & Admin. Exp. to Sales	φ_{42}	0.87 ***	0.08
		(2.92)	(0.08)
Return on Assets	φ_{43}	0.42 **	-1.45 **
		(2.32)	(-2.17)
Sales Growth	φ_{44}	7.86	0.01
		(0.53)	(1.12)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14 (continued)

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector	
Independent Variables		Retail (5000)	Services (7000)
Change in R&D / Advertising	φ_{45}	1.88**	0.00
		(1.96)	(0.00)
Change in Capital Expenditures	φ_{46}	0.00	0.33
		(1.37)	(1.23)
Debt to Equity	φ_{47}	-0.10	2.88
		(-0.19)	(1.21)
Inventory Valuation (LIFO)	φ_{48}	2.04***	0.00
		(2.48)	(0.00)
Audit Opinion (Unqualified)	φ_{49}	0.40	-0.43
		(1.15)	(-1.15)
T1 by CofGS	φ_{511}	-4.60	-11.79
		(-0.60)	(-1.72)
T1 by S&A	φ_{512}	-0.60	1.32
		(-0.32)	(1.21)
T1 by ROA	φ_{513}	1.29*	-0.43
		(1.78)	(-0.39)
T1 by Growth	φ_{514}	0.01	0.05
		(0.12)	(1.24)
T1 by R&D Adv.	φ_{515}	-0.46**	-0.13
		(-2.17)	(-0.19)
T1 by Cap. Exp.	φ_{516}	0.02	-0.24
		(0.69)	(-1.28)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14 (continued)

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector	
Independent Variables		Retail (5000)	Services (7000)
T1 by Debt	φ_{517}	-0.22	0.81
		(-0.31)	(0.83)
T2 by CofGS	φ_{521}	-6.41	-4.78
		(-1.40)	(-0.68)
T2 by S&A	φ_{522}	0.00	0.30
		(0.00)	(0.29)
T2 by ROA	φ_{523}	0.00	-0.60
		(0.00)	(-0.64)
T2 by Growth	φ_{524}	-0.03 *	-7.83
		(-1.77)	(-0.92)
T2 by R&D Adv.	φ_{525}	-0.10 *	0.01
		(-1.78)	(0.44)
T2 by Cap. Exp.	φ_{526}	-0.02 *	0.02
		(-1.92)	(0.14)
T2 by Debt	φ_{527}	0.28	-0.70 **
		(1.29)	(-2.48)
T3 by CofGS	φ_{531}	0.00	0.00
		(0.00)	(0.00)
T3 by S&A	φ_{532}	-0.73	2.82
		(-0.66)	(1.22)
T3 by ROA	φ_{533}	1.00 *	0.88
		(1.66)	(0.72)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 14 (concluded)

Full Model of 1-Year Ahead Abnormal Earnings by Industry Sector (by Single Digit SIC Code)

Estimated coefficients (t statistics) of regressing 1-year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Industry Sector	
Independent Variables		Retail (5000)	Services (7000)
T3 by Growth	φ_{534}	0.00	-0.02
		(0.29)	(-0.20)
T3 by R&D Adv.	φ_{535}	-29.59 *	-3.51
		(-1.91)	(-0.30)
T3 by Cap. Exp.	φ_{536}	-4.84	-6.41
		(-0.64)	(-1.74)
T3 by Debt	φ_{537}	-2.49	-40.98
		(-0.30)	(-1.05)

A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components are shown below.

Partial F-Statistic	2.971 ***	5.536 ***

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 15

Full Model by *T*-Year Ahead Abnormal Earnings for 1995

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		.53	.45	.46
F-Statistic		4.79***	3.51***	3.58***
N		99	88	85
Constant	φ_0	5.26	7.44***	7.59***
		(1.61)	(2.92)	(2.89)
TYPE1	φ_{11}	-0.69	0.02	-1.20
		(-0.21)	(0.01)	(-0.46)
TYPE2	φ_{12}	0.32	-1.59	-0.45
		(0.09)	(-0.56)	(-0.15)
TYPE3	φ_{13}	-3.03	-1.77	0.34
		(-0.80)	(-0.38)	(0.07)
GDP	φ_2			
Concentration	φ_3	-3.09	-1.92	-1.11
		(-1.60)	(-1.00)	(-0.55)
Cost of Goods Sold to Sales	φ_{41}	1.19*	1.67**	0.94
		(1.65)	(2.00)	(1.25)
Selling & Admin. Exp. to Sales	φ_{42}	104.88	75.44	0.44**
		(0.99)	(0.71)	(2.06)
Return on Assets	φ_{43}	1.69	1.00	0.78
		(0.97)	(0.67)	(0.50)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 15 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1995

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	φ_{44}	-0.36	-0.09 *	-0.08
		(-0.58)	(-1.76)	(-1.44)
Change in R&D / Advertising	φ_{45}	-73.56	-260.84	56.87
		-0.07	-0.20	(0.01)
Change in Capital Expenditures	φ_{46}	2316.03	1049.39	-109.32
		1.37	0.49	-0.05
Debt to Equity	φ_{47}	319.25	916.16	258.06
		0.58	1.39	0.39
Inventory Valuation (LIFO)	φ_{48}	-0.70	-0.02	-0.08
		(-1.46)	(-0.05)	(-0.14)
Audit Opinion (Unqualified)	φ_{49}	-1.40 ***	-1.06 ***	-1.20 ***
		(-3.54)	(-2.52)	(-2.60)
T1 by CofGS	φ_{511}	-19.17	-19.06	-8.08
		-0.99	-0.71	-0.30
T1 by S&A	φ_{512}	-0.04	1.33 **	-27.61
		(-0.20)	(2.08)	-0.30
T1 by ROA	φ_{513}	-1.50	-0.94	-0.70
		(-0.84)	(-0.60)	(-0.44)
T1 by Growth	φ_{514}	0.49	0.14	0.09
		(0.80)	(1.35)	(0.81)
T1 by R&D Adv.	φ_{515}	0.23	0.14	0.00
		(0.61)	(0.35)	(-0.00)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 15 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1995

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

Independent Variables		Dependent Variables: 1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T1 by Cap. Exp.	φ_{516}	0.05	0.05	0.11 **
		(1.22)	(1.26)	(2.29)
T1 by Debt	φ_{517}	-0.45	0.00	-0.36
		(-1.10)	(-0.37)	(-0.72)
T2 by CofGS	φ_{521}	-0.47	-1.31	0.08
		(-0.39)	(-1.00)	(0.06)
T2 by S&A	φ_{522}	0.64 ***	0.49 ***	0.45
		(3.76)	(2.69)	(1.17)
T2 by ROA	φ_{523}	-1.52	-0.91	-0.71
		(-0.88)	(-0.60)	(-0.45)
T2 by Growth	φ_{524}	0.21	-14.09	-6.04
		(0.35)	-0.71	-0.30
T2 by R&D Adv.	φ_{525}	-0.13	-0.13	-0.38
		(-0.46)	(-0.44)	(-1.22)
T2 by Cap. Exp.	φ_{526}	-0.02	-0.04	0.04
		(-0.52)	(-1.00)	(0.91)
T2 by Debt	φ_{527}	0.33 **	0.31 **	0.24
		(2.28)	(2.07)	(1.57)
T3 by CofGS	φ_{531}	-1.81	-0.68	0.76
		(-1.06)	(-0.20)	(0.22)
T3 by S&A	φ_{532}	0.76 **	0.86 **	2.39 ***
		(2.36)	(2.09)	(2.84)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 15 (concluded)

Full Model by *T*-Year Ahead Abnormal Earnings for 1995

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T3 by ROA	φ_{533}	0.02	0.27	0.25
		(0.01)	(0.16)	(0.14)
T3 by Growth	φ_{534}	0.38	0.18	0.12
		(0.59)	(0.86)	(0.54)
T3 by R&D Adv.	φ_{535}	0.50	0.83	6.05
		(0.09)	(0.14)	(0.98)
T3 by Cap. Exp.	φ_{536}	0.14	-0.02	-1.51 **
		(0.26)	(-0.03)	(-2.18)
T3 by Debt	φ_{537}	-2.70	-2.38	-1.24
		(-1.04)	(-0.90)	(-0.45)

A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components are shown below.

Partial F-Statistic	3.108 ***	1.926 **	2.344 ***

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 16

Full Model by *T*-Year Ahead Abnormal Earnings for 1996

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		.23	.16	
F-Statistic		2.29***	1.72**	
N		124	104	
Constant	φ_0	7.15***	7.20***	
		(3.87)	(2.55)	
TYPE1	φ_{11}	-0.64	0.78	
		(-0.25)	(0.23)	
TYPE2	φ_{12}	-3.41*	-2.14	
		(-1.90)	(-0.72)	
TYPE3	φ_{13}	-2.57	-0.80	
		(-0.89)	(-0.18)	
GDP	φ_2			
Concentration	φ_3	-3.55**	-2.48	
		(-2.31)	(-1.45)	
Cost of Goods Sold to Sales	φ_{41}	-0.14	8.70	
		(-0.35)	0.35	
Selling & Admin. Exp. to Sales	φ_{42}	3.40	-0.61***	
		(0.34)	(-2.63)	
Return on Assets	φ_{43}	-0.93	0.29	
		(-1.27)	(0.14)	

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 16 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1996

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

Independent Variables		Dependent Variables: 1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	φ_{44}	35.38	-916.95	
		(0.31)	-0.38	
Change in R&D / Advertising	φ_{45}	0.19**	0.12	
		(2.20)	(0.81)	
Change in Capital Expenditures	φ_{46}	1737.48	-4548.51	
		(0.20)	-0.37	
Debt to Equity	φ_{47}	-3693.32	-6804.50	
		(-1.11)	-1.51	
Inventory Valuation (LIFO)	φ_{48}	0.13	0.22	
		(0.20)	(0.29)	
Audit Opinion (Unqualified)	φ_{49}	-0.54	-0.81	
		(-1.02)	(-1.35)	
T1 by CofGS	φ_{511}	-2.24*	-1.91	
		(-1.83)	(-1.51)	
T1 by S&A	φ_{512}	-1.27*	-0.72	
		(-1.71)	(-0.89)	
T1 by ROA	φ_{513}	1.47*	-0.05	
		(1.66)	(-0.03)	
T1 by Growth	φ_{514}	0.12	0.11	
		(1.58)	(1.19)	
T1 by R&D Adv.	φ_{515}	-0.17*	-0.12	
		(-1.90)	(-0.76)	

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 16 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1996

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T1 by Cap. Exp.	φ_{516}	0.01	-0.01	
		(0.17)	(-0.20)	
T1 by Debt	φ_{517}	0.13	-0.24	
		(0.39)	(-0.59)	
T2 by CofGS	φ_{521}	-7.76	-0.33	
		(-0.43)	(-0.75)	
T2 by S&A	φ_{522}	-0.40**	-43.86	
		(-2.34)	-0.35	
T2 by ROA	φ_{523}	1.22	0.24	
		(1.62)	(0.11)	
T2 by Growth	φ_{524}	0.00	0.00*	
		(0.84)	(1.74)	
T2 by R&D Adv.	φ_{525}	-0.15	0.01	
		(-1.56)	(0.04)	
T2 by Cap. Exp.	φ_{526}	0.03	0.00	
		(1.37)	(0.10)	
T2 by Debt	φ_{527}	0.24*	0.32**	
		(1.71)	(2.02)	
T3 by CofGS	φ_{531}	-1.58	-1.51	
		(-0.86)	(-0.48)	
T3 by S&A	φ_{532}	-1.37***	-0.67	
		(-2.98)	(-0.85)	

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 16 (concluded)

Full Model by *T*-Year Ahead Abnormal Earnings for 1996

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T3 by ROA	φ_{533}	2.87***	0.98	
		(3.07)	(0.45)	
T3 by Growth	φ_{534}	0.00**	0.00	
		(2.00)	(0.82)	
T3 by R&D Adv.	φ_{535}	-2078.33	-4501.33	
		(-0.56)	-1.05	
T3 by Cap. Exp.	φ_{536}	-0.55	-0.12	
		(-1.51)	(-0.30)	
T3 by Debt	φ_{537}	-0.91*	-0.60	
		(-1.86)	(-0.69)	

A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components are shown below.

Partial F-Statistic		1.669*	1.338

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 17

Full Model by *T*-Year Ahead Abnormal Earnings for 1997

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		.13		
F-Statistic		1.70**		
N		131		
Constant	φ_0	12.12**		
		(2.43)		
TYPE1	φ_{11}	-6.20		
		(-1.23)		
TYPE2	φ_{12}	-5.30		
		(-1.10)		
TYPE3	φ_{13}	-8.13		
		(-1.58)		
GDP	φ_2			
Concentration	φ_3	-1.81		
		(-1.26)		
Cost of Goods Sold to Sales	φ_{41}	-1.38***		
		(-2.70)		
Selling & Admin. Exp. to Sales	φ_{42}	1.56		
		(0.14)		
Return on Assets	φ_{43}	-4.35		
		(-1.16)		

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 17 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1997

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	φ_{44}	2.62		
		(0.14)		
Change in R&D / Advertising	φ_{45}	-0.01		
		(-0.32)		
Change in Capital Expenditures	φ_{46}	-4620.60		
		(-1.27)		
Debt to Equity	φ_{47}	204.35		
		(0.23)		
Inventory Valuation (LIFO)	φ_{48}	-0.15		
		(-0.27)		
Audit Opinion (Unqualified)	φ_{49}	-0.60		
		(-1.01)		
T1 by CofGS	φ_{511}	0.25		
		(0.28)		
T1 by S&A	φ_{512}	-0.72**		
		(-2.21)		
T1 by ROA	φ_{513}	4.06		
		(1.08)		
T1 by Growth	φ_{514}	-0.01		
		(-0.17)		
T1 by R&D Adv.	φ_{515}	0.10***		
		(2.59)		

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 17 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1997

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T1 by Cap. Exp.	φ_{516}	0.02		
		(0.70)		
T1 by Debt	φ_{517}	0.04		
		(0.35)		
T2 by CofGS	φ_{521}	-2.27		
		(-0.14)		
T2 by S&A	φ_{522}	-0.53 ***		
		(-3.05)		
T2 by ROA	φ_{523}	3.85		
		(1.02)		
T2 by Growth	φ_{524}	0.00		
		(0.26)		
T2 by R&D Adv.	φ_{525}	-0.01		
		(-0.32)		
T2 by Cap. Exp.	φ_{526}	-0.01		
		(-0.23)		
T2 by Debt	φ_{527}	0.15		
		(1.32)		
T3 by CofGS	φ_{531}	0.91		
		(0.70)		
T3 by S&A	φ_{532}	-0.28		
		(-1.11)		

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 17 (concluded)

Full Model by *T*-Year Ahead Abnormal Earnings for 1997

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T3 by ROA	φ_{533}	4.92		
		(1.30)		
T3 by Growth	φ_{534}	0.03		
		(1.56)		
T3 by R&D Adv.	φ_{535}	3778.64		
		(0.99)		
T3 by Cap. Exp.	φ_{536}	0.02		
		(0.07)		
T3 by Debt	φ_{537}	-0.77		
		(-0.77)		

A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components are shown below.

Partial F-Statistic	1.185

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 18

Full Model by *T*-Year Ahead Abnormal Earnings for 1998

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		.15		
F-Statistic		1.81 **		
N		130		
Constant	φ_0	3.49		
		(0.84)		
TYPE1	φ_{11}	1.04		
		(0.27)		
TYPE2	φ_{12}	1.95		
		(0.45)		
TYPE3	φ_{13}	2.14		
		(0.40)		
GDP	φ_2			
Concentration	φ_3	-3.64 ***		
		(-2.84)		
Cost of Goods Sold to Sales	φ_{41}	-0.91		
		(-0.60)		
Selling & Admin. Exp. to Sales	φ_{42}	6.09		
		(0.70)		
Return on Assets	φ_{43}	2.24		
		(0.72)		

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 18 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1998

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	φ_{44}	3180.93		
		(0.01)		
Change in R&D / Advertising	φ_{45}	0.06		
		(0.92)		
Change in Capital Expenditures	φ_{46}	-19214.96		
		(-0.70)		
Debt to Equity	φ_{47}	-273.01		
		(-0.36)		
Inventory Valuation (LIFO)	φ_{48}	0.28		
		(0.43)		
Audit Opinion (Unqualified)	φ_{49}	-0.67		
		(-1.18)		
T1 by CofGS	φ_{511}	0.00		
		(0.00)		
T1 by S&A	φ_{512}	-6.11		
		(-0.71)		
T1 by ROA	φ_{513}	-1.91		
		(-0.61)		
T1 by Growth	φ_{514}	0.04		
		(1.30)		
T1 by R&D Adv.	φ_{515}	-0.07		
		(-0.39)		

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 18 (continued)

Full Model by *T*-Year Ahead Abnormal Earnings for 1998

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T1 by Cap. Exp.	φ_{516}	0.04		
		(1.09)		
T1 by Debt	φ_{517}	0.47		
		(1.29)		
T2 by CofGS	φ_{521}	0.22		
		(0.13)		
T2 by S&A	φ_{522}	-6.77		
		(-0.78)		
T2 by ROA	φ_{523}	-1.95		
		(-0.62)		
T2 by Growth	φ_{524}	-0.01		
		(-0.89)		
T2 by R&D Adv.	φ_{525}	-0.04		
		(-0.58)		
T2 by Cap. Exp.	φ_{526}	0.00		
		(-0.69)		
T2 by Debt	φ_{527}	0.18		
		(0.73)		
T3 by CofGS	φ_{531}	0.11		
		(0.03)		
T3 by S&A	φ_{532}	-7.23		
		(-0.84)		

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 18 (concluded)

Full Model by *T*-Year Ahead Abnormal Earnings for 1998

Estimated coefficients (t statistics) of regressing abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
T3 by ROA	φ_{533}	-1.73		
		(-0.55)		
T3 by Growth	φ_{534}	-0.01		
		(-0.68)		
T3 by R&D Adv.	φ_{535}	-4338.04		
		(-1.42)		
T3 by Cap. Exp.	φ_{536}	0.00		
		(-0.03)		
T3 by Debt	φ_{537}	-3.78		
		(-0.85)		

A partial F-test allows one to test the significance of a set of independent variables in a regression model. The partial F statistic for the strategy components are shown below.

Partial F-Statistic	1.132

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 19

Model of *T*-Year Ahead Abnormal Earnings for TYPE1 Firms

Estimated coefficients (t statistics) of regressing abnormal earnings for TYPE1 firms on environmental variables and fundamental measures.

$$X_{it} = \phi_0 + \phi_1 GNP + \phi_2 Structure_{it} + \sum_{k=1}^{9} \phi_{3k} FM's_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		0.11	0.32	0.43
F-Statistic		2.61***	4.37***	4.67***
N		147	79	54
Constant	ϕ_0	2.84*	7.50***	7.86***
		(1.78)	(4.05)	(4.24)
GDP	ϕ_1	27.63	-11.08	-20.68
		(1.06)	(-0.36)	(-0.71)
Concentration	ϕ_2	-2.66**	-3.24*	0.93
		(-2.00)	(-1.79)	(0.41)
Cost of Goods Sold to Sales	ϕ_{31}	1.05***	1.49***	0.93**
		(3.00)	(3.38)	(1.90)
Selling & Admin. Exp. to Sales	ϕ_{32}	0.16*	0.68***	0.57***
		(1.87)	(3.80)	(4.52)
Return on Assets	ϕ_{33}	0.13	0.06	-0.12
		(1.19)	(0.29)	(-0.55)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 19 (concluded)

Model of *T*-Year Ahead Abnormal Earnings for TYPE1 Firms

Estimated coefficients (t statistics) of regressing abnormal earnings for TYPE1 firms on environmental variables and fundamental measures.

$$X_{it} = \phi_0 + \phi_1 GNP + \phi_2 Structure_{it} + \sum_{k=1}^{9} \phi_{3k} FM's_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	ϕ_{34}	0.02	0.04	0.04
		(1.00)	(0.98)	(0.66)
Change in R&D / Advertising	ϕ_{35}	-0.01	0.00	-0.02
		(-1.37)	(-0.46)	(-1.48)
Change in Capital Expenditures	ϕ_{36}	0.00	0.00	0.00
		(0.44)	(-0.59)	(-0.84)
Debt to Equity	ϕ_{37}	-0.05	-0.48***	-0.63***
		(-0.86)	(-2.75)	(-2.59)
Inventory Valuation (LIFO)	ϕ_{38}	0.66*	1.04**	0.36
		(1.77)	(2.44)	(0.77)
Audit Opinion (Unqualified)	ϕ_{39}	-0.05	-0.48***	-0.63***
		(-0.86)	(-2.75)	(-2.59)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 20

Model of *T*-Year Ahead Abnormal Earnings for TYPE2 Firms

Estimated coefficients (t statistics) of regressing abnormal earnings for TYPE2 firms on environmental variables and fundamental measures.

$$X_{it} = \phi_0 + \phi_1 GNP + \phi_2 Structure_{it} + \sum_{k=1}^{9} \phi_{3k} FM's_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		0.32	0.32	0.40
F-Statistic		11.11***	5.77***	4.79***
N		239	113	63
Constant	ϕ_0	3.97***	6.79***	7.61***
		(2.75)	(3.15)	(3.52)
GDP	ϕ_1	24.41	-7.80	19.16
		(1.01)	(-0.21)	(0.57)
Concentration	ϕ_2	-3.91***	-2.70**	-2.45
		(-4.63)	(-2.08)	(-1.61)
Cost of Goods Sold to Sales	ϕ_{31}	-0.61***	-0.71**	-1.98***
		(-2.97)	(-2.14)	(-2.59)
Selling & Admin. Exp. to Sales	ϕ_{32}	-0.67***	-0.68***	-0.91***
		(-8.71)	(-5.62)	(-4.98)
Return on Assets	ϕ_{33}	0.13***	0.09*	0.04
		(2.82)	(1.66)	(0.90)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 20 (concluded)

Model of *T*-Year Ahead Abnormal Earnings for TYPE2 Firms

Estimated coefficients (t statistics) of regressing abnormal earnings for TYPE2 firms on environmental variables and fundamental measures.

$$X_{it} = \phi_0 + \phi_1 GNP + \phi_2 Structure_{it} + \sum_{k=1}^{9} \phi_{3k} FM's_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	ϕ_{34}	0.00	0.00	-0.06**
		(0.86)	(1.39)	(-2.37)
Change in R&D / Advertising	ϕ_{35}	0.00	-0.04	0.06*
		(0.27)	(-0.97)	(1.69)
Change in Capital Expenditures	ϕ_{36}	0.00	0.00	0.00
		(-0.59)	(-0.49)	(-0.18)
Debt to Equity	ϕ_{37}	0.03	0.14**	0.12*
		(1.03)	(2.28)	(1.87)
Inventory Valuation (LIFO)	ϕ_{38}	-0.35	-0.05	-0.55
		(-0.89)	(-0.09)	(-0.78)
Audit Opinion (Unqualified)	ϕ_{39}	0.03	0.14**	0.12*
		(1.03)	(2.28)	(1.87)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 21

Model of *T*-Year Ahead Abnormal Earnings for TYPE3 Firms

Estimated coefficients (t statistics) of regressing abnormal earnings for TYPE3 firms on environmental variables and fundamental measures.

$$X_{it} = \phi_0 + \phi_1 GNP + \phi_2 Structure_{it} + \sum_{k=1}^{9} \phi_{3k} FM's_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Adjusted R^2		0.11	0.15	0.17
F-Statistic		2.97***	2.23**	1.89*
N		176	76	47
Constant	ϕ_0	4.02***	11.91***	13.11***
		(2.03)	(3.82)	(3.32)
GDP	ϕ_1	-1.35	-94.34*	-74.89
		(-0.04)	(-1.95)	(-1.31)
Concentration	ϕ_2	-1.90	-0.67	-11.32
		(-1.39)	(-0.24)	(-1.58)
Cost of Goods Sold to Sales	ϕ_{31}	0.86	1.45	2.15
		(1.22)	(1.03)	(1.13)
Selling & Admin. Exp. to Sales	ϕ_{32}	0.71***	1.16***	2.01***
		(4.12)	(3.54)	(3.33)
Return on Assets	ϕ_{33}	0.86***	0.88***	1.21**
		(3.92)	(2.65)	(2.48)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 21 (concluded)

Model of *T*-Year Ahead Abnormal Earnings for TYPE3 Firms

Estimated coefficients (t statistics) of regressing abnormal earnings for TYPE3 firms on environmental variables and fundamental measures.

$$X_{it} = \phi_0 + \phi_1 GNP + \phi_2 Structure_{it} + \sum_{k=1}^{9} \phi_{3k} FM's_{it}$$

		Dependent Variables		
Independent Variables		1-Year Ahead Abnormal Earnings	3-Year Ahead Abnormal Earnings	5-Year Ahead Abnormal Earnings
Sales Growth	ϕ_{34}	0.00	0.00	-0.01
		(0.04)	(-0.68)	(-0.59)
Change in R&D / Advertising	ϕ_{35}	0.01	0.04	0.00
		(0.51)	(0.64)	(-0.03)
Change in Capital Expenditures	ϕ_{36}	0.00	0.00	0.00
		(0.30)	(-0.40)	(-0.23)
Debt to Equity	ϕ_{37}	0.00	-0.01	-0.05
		(-0.01)	(-0.39)	(-0.33)
Inventory Valuation (LIFO)	ϕ_{38}	-0.07	-1.59**	-1.86
		(-0.14)	(-2.00)	(-1.56)
Audit Opinion (Unqualified)	ϕ_{39}	-0.38	-1.13**	-1.67**
		(-1.02)	(-2.16)	(-2.06)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 22
Summary of Results -- Association between Value, Strategy Types, and the Fundamental Measures

Comparison of predicted signs and actual results for the coefficients of the fundamental measures used to predict future abnormal earnings.

STRATEGY	**TYPE1:** Competitive advantage is derived by improving efficiencies and minimizing costs.		**TYPE2:** Competitive advantage is derived by being the first to the market with innovative products and product changes.		**TYPE3:** Competitive advantage is derived by having efficient operations and copying the products of TYPE2 firms.		**TYPE4:** These firms have no consistent strategy and are expected to eventual fail.	
FUNDAMENTAL MEASURES	**$H1_A$**	**Test Result**	**$H2_A$**	**Test Result**	**$H3_A$**	**Test Result**	**$H4_A$**	**Test Result**
Cost of Goods Sold Measure	+	+ (3)	-	- (3)	+	+ (3)	NP	NR
Selling and Administrative Expense Measure	+	+ (3)	-	- (3)	+	+ (3)	NP	NR
Efficiency Measure	+	+ (2)	-	+ (3)	+	+ (3)	NP	NR
Growth Measure	NP	+ (3)	+	NR	+	NR	NP	NR
R&D and Advertising Measure	-	- (2)	+	+ (2)	NP	+ (2)	NP	NR
Capital Expenditures Measure	-	NR	+	NR	NP	NR	NP	NR
Debt Measure	+	- (3)	-	+ (3)	-	- (2)	NP	NR

H – Hypothesis
NP – No Prediction
NR – No Result
(#) – Number of times the coefficient was + or – out of the three time frames tested.

Table 23

Full Model of 1-Year Abnormal Earnings using Varying Discount Rates

Estimated coefficients (t statistics) of regressing abnormal earnings for three different discount rates on strategy variables, environmental variables, and fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

Independent Variables		1-Year Ahead Abnormal Earnings		
Discount Rate		10%	8%	12%
Adjusted R^2		0.21	0.21	0.19
F-Statistic		5.76***	5.65***	4.88***
N		580	580	580
Constant	φ_0	4.38***	4.49***	4.29***
		(4.14)	(4.50)	(4.08)
TYPE1	φ_{11}	-0.91	-0.84	-1.09
		(-1.15)	(-1.13)	(-1.39)
TYPE2	φ_{12}	-0.49	-0.43	-0.25
		(-0.94)	(-0.88)	(-0.47)
TYPE3	φ_{13}	-1.35	-1.49	-1.17
		(-1.34)	(-1.57)	(-1.18)
GDP	φ_2	18.27	17.89	22.28
		(1.14)	(1.19)	(1.40)
Concentration	φ_3	-3.16***	-2.97***	-2.56***
		(-5.02)	(-5.01)	(-4.09)
Cost of Goods Sold to Sales	φ_{41}	0.57***	0.57***	0.69***
		(2.78)	(2.99)	(3.41)
Selling & Admin. Exp. to Sales	φ_{42}	1.29***	1.19***	1.22***
		(2.38)	(2.34)	(2.31)
Return on Assets	φ_{43}	0.26	0.26	0.23
		(1.16)	(1.26)	(1.05)
Sales Growth	φ_{44}	22.26	24.74	21.44
		(0.06)	(1.46)	(1.24)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 23 (continued)

Full Model of 1-Year Abnormal Earnings using Varying Discount Rates

Estimated coefficients (t statistics) of regressing abnormal earnings for three different discount rates on strategy variables, environmental variables, and fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

Independent Variables		1-Year Ahead Abnormal Earnings		
Discount Rate		10%	8%	12%
Change in R&D / Advertising	φ_{45}	0.13	0.12	0.12
		(1.11)	(0.06)	(0.05)
Change in Capital Expenditures	φ_{46}	0.00	0.00	0.00
		(-0.11)	(-0.25)	(-0.30)
Debt to Equity	φ_{47}	0.01	0.04	0.00
		(0.03)	(0.15)	(0.00)
Inventory Valuation (LIFO)	φ_{48}	0.06	0.07	0.08
		(0.24)	(0.32)	(0.32)
Audit Opinion (Unqualified)	φ_{49}	-0.47 **	-0.52 ***	-0.67 ***
		(-2.41)	(-2.83)	(-3.45)
T1 by CofGS	φ_{511}	0.43	0.40	0.35
		(1.01)	(0.99)	(0.83)
T1 by S&A	φ_{512}	-1.14	-1.04	-1.06
		(-1.22)	(-1.17)	(-1.13)
T1 by ROA	φ_{513}	-0.11	-0.12	-0.06
		(-0.41)	(-0.49)	(-0.25)
T1 by Growth	φ_{514}	0.01	0.01	0.02
		(0.75)	(0.75)	(0.94)
T1 by R&D Adv.	φ_{515}	0.00	0.00	0.00
		(-0.06)	(-0.09)	(0.09)
T1 by Cap. Exp.	φ_{516}	0.00	0.00	0.00
		(0.43)	(0.46)	(0.37)
T1 by Debt	φ_{517}	-0.03	-0.03	-0.02
		(-0.38)	(-0.37)	(-0.30)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 23 (continued)

Full Model of 1-Year Abnormal Earnings using Varying Discount Rates

Estimated coefficients (t statistics) of regressing abnormal earnings for three different discount rates on strategy variables, environmental variables, and fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

Independent Variables		1-Year Ahead Abnormal Earnings		
Discount Rate		10%	8%	12%
T2 by CofGS	φ_{521}	-2.42	-2.65	-2.76
		(-0.03)	(-0.70)	(-0.71)
T2 by S&A	φ_{522}	-0.63	-0.58	-0.68
		(-0.67)	(-0.65)	(-0.73)
T2 by ROA	φ_{523}	-0.13	-0.17	-0.27
		(-0.59)	(-0.77)	(-1.19)
T2 by Growth	φ_{524}	0.00	0.00	0.00
		(0.74)	(0.84)	(0.83)
T2 by R&D Adv.	φ_{525}	-0.02	-0.02	-0.02
		(-1.12)	(-1.15)	(-1.12)
T2 by Cap. Exp.	φ_{526}	0.00	0.00	0.00
		(-0.64)	(-0.62)	(-0.47)
T2 by Debt	φ_{527}	0.04	0.04	0.02
		(1.23)	(1.19)	(0.68)
T3 by CofGS	φ_{531}	0.30	0.06	0.40
		(0.44)	(0.09)	(0.59)
T3 by S&A	φ_{532}	-0.59	-0.55	-0.49
		(-0.62)	(-0.62)	(-0.52)
T3 by ROA	φ_{533}	0.64 **	0.58 **	0.68 **
		(2.17)	(2.09)	(2.30)
T3 by Growth	φ_{534}	0.00	0.00	0.00
		(0.26)	(0.30)	(0.31)
T3 by R&D Adv.	φ_{535}	-1.91	-1.78	-1.67
		(-1.00)	(-0.99)	(-0.88)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 23 (concluded)

Full Model of 1-Year Abnormal Earnings using Varying Discount Rates

Estimated coefficients (t statistics) of regressing abnormal earnings for three different discount rates on strategy variables, environmental variables, and fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

Independent Variables		1-Year Ahead Abnormal Earnings		
Discount Rate		10%	8%	12%
T3 by Cap. Exp.	φ_{536}	0.03	0.07	0.08
		(0.13)	(0.27)	(0.32)
T3 by Debt	φ_{537}	-0.24	-0.83	-0.07
		(-0.05)	(-0.18)	(-0.01)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 24

Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
Independent Variables		Full Sample	Without Drug Industry	Without Airline Industry
Adjusted R^2		0.21	0.22	0.22
F-Statistic		5.76***	5.42***	5.28***
N		580	522	477
Constant	φ_0	4.38***	4.35***	8.26***
		(4.14)	(3.09)	(4.16)
TYPE1	φ_{11}	-0.91	-3.07*	-5.88***
		(-1.15)	(-1.86)	(-3.47)
TYPE2	φ_{12}	-0.49	-6.02*	-5.06***
		(-0.94)	-1.80	(-2.91)
TYPE3	φ_{13}	-1.35	-1.18	-4.19***
		(-1.34)	(-0.61)	(-2.12)
GDP	φ_2	18.27	12.56	20.44
		(1.14)	(0.77)	(1.22)
Concentration	φ_3	-3.16***	-2.76***	-1.79***
		(-5.02)	(-4.40)	(-2.88)
Cost of Goods Sold to Sales	φ_{41}	0.57***	0.77	0.78**
		(2.78)	(0.70)	(2.07)
Selling & Admin. Exp. to Sales	φ_{42}	1.29***	-9.82**	0.77***
		(2.38)	(-2.04)	(6.24)
Return on Assets	φ_{43}	0.26	0.18	-1.46**
		(1.16)	(0.83)	(-2.01)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 24 (continue)

Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
Independent Variables		Full Sample	Without Drug Industry	Without Airline Industry
Sales Growth	φ_{44}	22.26	18.47	31.25
		(0.06)	1.02	(0.64)
Change in R&D / Advertising	φ_{45}	0.13	0.09	0.12
		(1.11)	(0.80)	(0.64)
Change in Capital Expenditures	φ_{46}	0.00	0.00***	0.00
		(-0.11)	(-0.08)	(-0.18)
Debt to Equity	φ_{47}	0.01	-0.38	0.05
		(0.03)	(-1.08)	(0.15)
Inventory Valuation (LIFO)	φ_{48}	0.06	-0.01	0.27
		(0.24)	(-0.03)	(1.17)
Audit Opinion (Unqualified)	φ_{49}	-0.47**	-0.60***	-0.37*
		(-2.41)	(-2.90)	(-1.76)
T1 by CofGS	φ_{511}	0.43	-2.35	12.11
		(1.01)	(-1.45)	(0.49)
T1 by S&A	φ_{512}	-1.14	9.92**	-0.39*
		(-1.22)	(2.06)	(-1.69)
T1 by ROA	φ_{513}	-0.11	0.04	1.86***
		(-0.41)	(0.15)	(2.49)
T1 by Growth	φ_{514}	0.01	0.01	0.01
		(0.75)	(0.48)	(0.35)
T1 by R&D Adv.	φ_{515}	0.00	0.00	0.01
		(-0.06)	(0.10)	(0.60)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 24 (continue)

Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
Independent Variables		Full Sample	Without Drug Industry	Without Airline Industry
T1 by Cap. Exp.	φ_{516}	0.00	0.00	0.00
		(0.43)	(0.18)	(-0.02)
T1 by Debt	φ_{517}	-0.03	-0.01	0.03
		(-0.38)	(-0.11)	(0.34)
T2 by CofGS	φ_{521}	-2.42	-0.03	-0.28
		(-0.03)	(-0.05)	(-0.67)
T2 by S&A	φ_{522}	-0.63	10.49**	1.59
		(-0.67)	(2.18)	(0.23)
T2 by ROA	φ_{523}	-0.13	-0.01	1.60**
		(-0.59)	(-0.07)	(2.19)
T2 by Growth	φ_{524}	0.00	0.00	0.00
		(0.74)	(0.77)	(0.31)
T2 by R&D Adv.	φ_{525}	-0.02	-0.02	0.00
		(-1.12)	(-1.12)	(0.12)
T2 by Cap. Exp.	φ_{526}	0.00	0.00	0.00
		(-0.64)	(-0.52)	(-0.75)
T2 by Debt	φ_{527}	0.04	0.07	0.07**
		(1.23)	(1.18)	(2.01)
T3 by CofGS	φ_{531}	0.30	-0.35	0.66
		(0.44)	(-0.20)	(0.86)
T3 by S&A	φ_{532}	-0.59	10.46**	1.16***
		(-0.62)	(2.17)	(3.10)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 24 (continue)

Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
Independent Variables		Full Sample	Without Drug Industry	Without Airline Industry
T3 by ROA	φ_{533}	0.64 **	0.59 **	2.33 ***
		(2.17)	(1.97)	(3.08)
T3 by Growth	φ_{534}	0.00	0.00	0.00
		(0.26)	(0.10)	(-0.54)
T3 by R&D Adv.	φ_{535}	-1.91	-1.33	-2.10
		(-1.00)	(-0.70)	(-1.03)
T3 by Cap. Exp.	φ_{536}	0.03	0.03	0.05
		(0.13)	(0.13)	(0.22)
T3 by Debt	φ_{537}	-0.24	5.45	-0.78
		(-0.05)	(0.92)	(-0.14)

(T-Statistic)

*** significance at .01

** significance at .05

* significance at .10

Table 24 (continued)
Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
		Without Restaurant Industry	Without Apparel Retail Industry	Without Top 4 Industries
Adjusted R^2		0.21	0.22	0.25
F-Statistic		5.18 ***	5.29 ***	4.01 ***
N		511	497	285
Constant	φ_0	3.61 ***	4.47 ***	3.91 **
		(3.21)	(3.88)	(2.05)
TYPE1	φ_{11}	0.10	-0.79	-2.96
		(0.11)	(-0.92)	(-1.50)
TYPE2	φ_{12}	0.09	-0.48	7.79
		(0.16)	(-0.86)	(0.32)
TYPE3	φ_{13}	0.28	-1.53	0.80
		(0.26)	(-1.45)	(0.24)
GDP	φ_2	22.64	15.81	18.94
		(1.33)	(0.90)	(0.87)
Concentration	φ_3	-3.34 ***	-2.91 ***	-1.03
		(-5.24)	(-4.39)	(-1.57)
Cost of Goods Sold to Sales	φ_{41}	0.58 ***	0.54 ***	-3.13 *
		(2.84)	(2.55)	(-1.64)
Selling & Admin. Exp. to Sales	φ_{42}	-9.53 **	0.64 ***	-2.47
		(-1.94)	(8.04)	(-0.36)
Return on Assets	φ_{43}	0.19	0.26	42.95
		(0.81)	(1.11)	(0.67)

(T-statistics)

*** significance at .01

** significance at .05

* significance at .10

Table 24 (continued)
Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
		Without Restaurant Industry	Without Apparel Retail Industry	Without Top 4 Industries
Sales Growth	φ_{44}	17.99	23.47	-1.28 *
		(0.98)	(1.28)	(-1.87)
Change in R&D / Advertising	φ_{45}	0.02	0.12	-0.08
		(0.98)	(1.28)	(-0.51)
Change in Capital Expenditures	φ_{46}	0.02	0.00	0.03
		(0.44)	(-0.16)	(0.84)
Debt to Equity	φ_{47}	0.06	-0.07	-0.96
		(0.21)	(-0.22)	(-1.41)
Inventory Valuation (LIFO)	φ_{48}	-0.10	0.19	0.52 **
		(-0.39)	(0.74)	(1.93)
Audit Opinion (Unqualified)	φ_{49}	-0.51 **	-0.57 ***	-0.83 ***
		(-2.42)	(-2.69)	(-2.96)
T1 by CofGS	φ_{511}	0.50	0.53	2.50
		(1.15)	(1.17)	(1.06)
T1 by S&A	φ_{512}	9.74 **	-0.50 ***	0.20
		(1.99)	(-3.77)	(1.00)
T1 by ROA	φ_{513}	-0.09	-0.12	1.61 **
		(-0.36)	(-0.45)	(2.28)
T1 by Growth	φ_{514}	0.01	0.01	0.00
		(0.77)	(0.75)	(-0.25)
T1 by R&D Adv.	φ_{515}	0.01	0.00	0.03
		(0.26)	(0.01)	(1.41)

(T-statistics)

*** significance at .01

** significance at .05

* significance at .10

Table 24 (continued)
Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
		Without Restaurant Industry	Without Apparel Retail Industry	Without Top 4 Industries
T1 by Cap. Exp.	φ_{516}	0.00	0.00	0.00
		(0.50)	(0.45)	(-0.33)
T1 by Debt	φ_{517}	-0.04	-0.02	0.03
		(-0.53)	(-0.30)	(0.34)
T2 by CofGS	φ_{521}	-7.56 *	-2.99	4.27 ***
		(-1.74)	(-0.74)	(2.95)
T2 by S&A	φ_{522}	10.15 **	6.17 **	0.73 ***
		(2.07)	(2.01)	(3.53)
T2 by ROA	φ_{523}	-0.04	-0.12	1.42 **
		(-0.16)	(-0.49)	(2.09)
T2 by Growth	φ_{524}	0.00	0.00	0.00
		(0.89)	(0.74)	(0.18)
T2 by R&D Adv.	φ_{525}	-0.01	-0.02	0.03
		(-0.32)	(-0.99)	(1.07)
T2 by Cap. Exp.	φ_{526}	0.00	0.00	0.00
		(-0.87)	(-0.65)	(-1.13)
T2 by Debt	φ_{527}	0.04	0.08	0.07
		(1.12)	(1.46)	(0.50)
T3 by CofGS	φ_{531}	0.49	-0.14	-3.62
		(0.72)	(-0.19)	(-1.17)
T3 by S&A	φ_{532}	-10.24 **	-0.03	-1.78 ***
		(-2.09)	(-0.16)	(-2.73)

(T-statistics)

*** significance at .01

** significance at .05

* significance at .10

Table 24 (concluded)
Full Model of 1-Year Ahead Abnormal Earnings using Varying Sample Compositions

Estimated coefficients (t statistics) of regressing 1- year ahead abnormal earnings on strategy variables, environmental variables, fundamental measures, and interactions of strategy with fundamental measures.

$$X_{it} = \varphi_0 + \sum_{s=1}^{3} \varphi_{1s} Strategy_{it} + \varphi_2 GDP_{it} + \varphi_3 Structure_{it} + \sum_{k=1}^{9} \varphi_{4k} FM's_{it} + \sum_{s=1}^{3}\sum_{k=1}^{7} \varphi_{5sk} (Strategy * FM's)_{it}$$

		Sample Description		
		Without Restaurant Industry	Without Apparel Retail Industry	Without Top 4 Industries
T3 by ROA	φ_{533}	0.36	0.60 *	1.38 *
		(1.16)	(1.90)	(1.89)
T3 by Growth	φ_{534}	0.00	0.00	0.00
		(-0.08)	(0.20)	(-1.28)
T3 by R&D Adv.	φ_{535}	-0.04	-1.74	1.11
		(-0.02)	(-0.88)	(0.43)
T3 by Cap. Exp.	φ_{536}	-0.27	0.05	-0.55
		(-0.42)	(0.18)	(-0.81)
T3 by Debt	φ_{537}	-1.09	1.22	15.56
		(-0.22)	(0.20)	(1.39)

(T-statistics)

*** significance at .01

** significance at .05

* significance at .10

VITA

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