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**IDENTIFYING THE CONTRIBUTION OF FINANCIAL AND NON-FINANCIAL
MEASURES IN VALUE CREATION: AN EXPLORATORY EMPIRICAL
ANALYSIS OF ECONOMIC VALUE ADDED AND CUSTOMER
SATISFACTION**

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Business Administration)
in The University of Michigan
1999

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This dissertation is dedicated to my family.

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TABLE OF CONTENTS

DEDICATION.....	ii
ACKNOWLEDGMENTS	iii
LIST OF APPENDICES	vii
CHAPTER #	
1: INTRODUCTION	1
Firm Strategy	1
Objective	4
2: LITERATURE REVIEW	7
Introduction.....	7
Competitive Advantage Theory.....	8
Performance Measurement	9
Financial Measures	10
New Financial Measures.....	13
Financial Measures Summary	16
Non-Financial Measures.....	18
Customer Satisfaction.....	19
The American Customer Satisfaction Index	23
Customer Satisfaction and Firm Performance	26
Non-Financials Summary.....	36

3: RESEARCH HYPOTHESIS DEVELOPMENT	38
Theory Integration.....	39
Cost Advantage	40
Differentiation Advantage.....	41
Outcome Measures.....	44
Synthesis	46
Hypotheses	52
4: RESEARCH DESIGN AND METHODOLOGY	59
Introduction.....	59
Measurement of Variables	59
Market Value Added	61
Economic Value Added	62
Customer Satisfaction.....	63
Data Collection Issues.....	67
Model Specification.....	68
Estimation Issues.....	71
5: ANALYSIS OF RESULTS	76
Results	76
Hypothesis 1.....	77
Hypothesis 2.....	77
Hypothesis 3.....	78
Hypothesis 4.....	79
Results Summary	81

6: CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH.....	83
Research Overview	83
Key Findings.....	83
Research Results	85
Limitations.....	88
Future Studies	90
Summary.....	92
APPENDICES	94
BIBLIOGRAPHY.....	106

LIST OF APPENDICES

Appendix

A.	Figure One – The American Customer Satisfaction Index.....	94
B.	Figure Two – Competitive Strategy Matrix	95
C.	Table 1 - ACSI MEASURED COMPANIES.....	96
D.	Table 2 – Descriptive Statistics	100
E.	Table 3 – Correlation Coefficients.....	101
F.	Table 4 – Results of Hypothesis 1	102
G.	Table 5 – Results of Hypothesis 2	103
H.	Table 6 – Results of Hypothesis 3.....	104
I.	Table 7 – Average MVA Levels by EVA/ACSI Split.....	105

CHAPTER #1

INTRODUCTION

The link between firm strategy and firm performance has always been an important issue in the field of strategic marketing. The primary challenge of management involves creating a firm strategy that creates and supports competitive advantages to ensure above-average performance over time. As markets increase in the level of competition, such advantages are more difficult to create and interest has grown in the strategic management of intangible and non-financial attributes such as customer satisfaction to create new sources of strategic advantages. This dissertation explores the role of non-financial marketing elements in the firm's strategic structure and how one of these elements, customer satisfaction, can be related to subsequent firm performance. As such, it contributes to the literatures of strategic marketing, strategy, and empirical predictions of firm success.

FIRM STRATEGY

Firm strategy decisions reflect the effectiveness and profitability of the value-creating activities based on the core competencies of the firm. Competitive advantages are created from the way the activities of the firm fit and reinforce one another. Based on the competitive advantage view of firm strategy, firms can choose to compete on the basis of a relative cost advantage or a relative differentiation advantage.

Firms that compete on cost strategies follow the strategy that lower costs give the firm greater pricing flexibility and allow for higher margins and profitability. Cost

strategies are derived from such sources as efficient usage of resources, more efficient production processes, and adoption of new technologies. Firms manage cost structures strategically to focus activities of the firm on reducing costs in the production cycle while preserving value to the customer. Examples of strategic cost efforts include process redesign, re-engineering, supply chain management, and outsourcing. The alternative to a cost focused strategy is to follow a differentiation strategy.

A differentiation strategy involves the creation of a distinctive feature or set of attributes that distinguish the company's products from its competitors. The management of customer satisfaction as a strategic component for firm success involves the implementation of systems and policies that reinforce the importance of customer loyalty to the future of the organization. Firms manage customer satisfaction so as to deliver products and services that are perceived as valuable and satisfying by customers. Customer satisfaction measures are commonly used to monitor customer contact and to manage service encounters. Examples of strategic methods for emphasizing the importance of customer satisfaction would be to use customer satisfaction measures in evaluating overall firm performance, as key components when designing new products, and as performance metrics for executive compensation calculations.

The alignment of marketing strategy with overall business strategy is seen as an important step. The key element behind the importance of customer satisfaction as a strategic differentiation advantage is that effective management of customer satisfaction leads to customer loyalty. If a firm can create a sustainable advantage by organizing itself to provide the proper mix of products or services that satisfy customers, it will keep these loyal customers returning into the future. This loyalty subsequently leads to a more

stable stream of repurchase behavior and the higher level of customer retention leads to sustained profitability for the firm. Investors perceive this financial performance and reward the firm by increasing its market value.

However, research on the explicit incorporation of economic efficiency and customer satisfaction measures into strategies to enhance firm performance and in rewarding executives for future-oriented customer satisfying behavior is still new. For instance, are financial and non-financial metrics such as customer satisfaction equally incorporated in the value creation process of firms? Also, what types of firms are likely to benefit the most from increases in their level of economic efficiency or customer satisfaction? Can customer satisfaction be used to create a differential competitive advantage? Do firms with higher economic efficiency or satisfaction levels have higher market values and how does this relationship change over time? While linking economic efficiency, customer satisfaction, and firm performance is conceptually likely, we have no empirical evidence to show that firms behave in these ways and whether or not firms that emphasize such measures in their strategic systems demonstrate superior firm performance on financial or non-financial metrics. Writers on strategy tend to discuss firms as pursuing either a cost-oriented strategy or a differentiation strategy. This view implicitly assumes that managers would be unable to conceptualize a dual maximization strategy or would lack the attention or resources to achieve a dual strategy integration position. This study will examine many of these strategic issues.

OBJECTIVE

The general objective of this study is to investigate the relations between elements of a management performance evaluation system (particular financial and non-financial performance measures) and subsequent measures of firm value. The specific focus of the study is to investigate the role of economic value added and customer satisfaction as strategic metrics by demonstrating their use as a leading indicator of firm market value added. Following either or both cost and differentiation strategies are expected to have positive effects on the level of market value added for a firm. Firms with higher levels of economic value added have created financial and/or production efficiency in delivering their products to the customer. If cost efficiency influences value perception through either a lower price for a comparable product or provide a greater profit margin per unit to the firm, firms should be rewarded with higher market values. Firms with higher levels of customer satisfaction have created more attractive value perceptions in the minds of consumers. If customer satisfaction influences customer loyalty as indicated by previous research, firms that develop superiority in satisfaction levels should develop higher market values over time and increase their differences in market value over time. For firms that can achieve high levels of internal economic cost efficiency in production and external differentiation through high levels of customer satisfaction, these firms are expected to have the highest market valuations of all.

Several measures are used to analyze these assertions. Customer satisfaction ratings are a plausible proxy for measuring the relative differentiation strategy of the firm. These ratings are measured using the firm level scores on the American Customer Satisfaction Index (ACSI). The ACSI is a construct developed to address the need for a

statistically rigorous measure of the concept of customer satisfaction and contains both antecedents and consequences of customer satisfaction and is estimated on the firm level. The satisfaction scores are linked with the financial performance measures of Economic Value Added (EVA) and Market Value Added (MVA). EVA is a measure of the value created by a firm over its yearly operations by measuring the value remaining after the cost of capital has been taken into account. EVA is a plausible proxy for cost efficiency strategy as it measures how efficiently the firm is using its capital to generate financial value. The outcome performance measure used in this analysis is Market Value Added. MVA is the market value remaining after all financial investments have been taken into account and can be seen as the lifetime value created over the lifetime of the firm. MVA is particularly well suited for this analysis as it indicates the relative performance of market value created by the firm, less the invested capital to achieve the market value.

The combined data set tracks the satisfaction scores of approximately 90 firms from 1994 to 1998. The scope of this study incorporates a national cross-section of firms across a diverse range of industries including airlines, banking, consumer products, and electric utilities. The firms in this analysis are all large, established firms to promote the comparability of metrics across firms and industries. This dissertation will serve as the first step in a research program to explore the relationship between firm strategy, customer satisfaction, and firm performance in terms of market value added.

To address these research questions, this dissertation is organized as follows. In Chapter Two, the literature on performance measurement and the construct of customer satisfaction is presented and these areas are integrated. Chapter Three presents a research review and hypotheses. In Chapter Four, the research design and methodologies for

testing these hypotheses, as well as variable definitions and data sources are explicated in detail. In Chapter Five, the results of a comprehensive statistical methodology will be presented. Results of each hypothesis will be presented and explained. Finally, Chapter Six contains a summary of the study and the conclusions drawn from the results, a discussion of the limitations of the study, and implications of the findings for future research.

CHAPTER #2

LITERATURE REVIEW

The central topic addressed in this chapter involves how performance measures are reflected in the value creation processes of the firm. In the first section of this chapter, the area of performance measurement is examined and the impact of key trends is reviewed. Particular attention is paid to the new financial measures of Economic Value Added and Market Value Added. Next, the construct of customer satisfaction is examined including measurement issues of antecedents and consequences and relevant empirical findings from academic and practitioner literatures. Finally, the specific relationships between these performance measures and firm value metrics are discussed to identify gaps in the literature and to set up the research hypotheses in Chapter III.

INTRODUCTION

Strategic decisions are concerned with the long-term direction of the organization. Firm strategy defines the scope of the activities of the organization in terms of what it will and will not do. Strategic decision-makers are constantly seeking to better understand the dynamics of the business world and how to organize the firm to take advantage of changes and trends to achieve superior performance. A central tenet of marketing strategy is that firms create advantages through distinctive competencies and resources and manage these strengths to achieve superior financial performance. An effective firm strategy involves interpreting the competitive environment and creating competitive advantages that lead to superior performance and are sustainable over time.

As a link to performance measurement, firms need to invest in value creation processes to develop and deliver competitive advantages by creating perceived value for customers and subsequently market value the firm.

COMPETITIVE ADVANTAGE THEORY

The theory of competitive advantage is based on the idea that firms can create a position based on firm skills or resources that provides an advantage over competitors to ensure the success of the firm over time. The competitive advantage of a firm is derived from the way its activities fit and reinforce one another with respect to the creation of value for customers and combine with the overall firm strategy. There are two conditions that define a competitive advantage: (1) superior performance, and (2) sustainability over time.

A performance advantage is created through firm-specific assets and skills which provide superior products and services based on all the resources at the firm's disposal (Peteraf, 1993). Competitive advantages can be centered on a single asset or skill that is a resource of the firm, or around a particular set of assets and skills that provide value to the customer. Within industries, products are expected to deliver different levels of performance and firms' resources and marketing actions are expected to lead to superior firm performance (Hunt & Morgan, 1995, 1996). Consequently, customer relationships can be seen as competitive advantages and may reflect market based assets such as brands or customer and distribution networks (Aaker, 1991). Firms that can identify their strategic resources and customer relationships can build market positions that deliver superior financial returns (Teece, 1982). The combination of marketing strategy and

marketing academic perspectives provide an outline for how firms can develop and exploit competitive advantages, including those based on customer relationships.

The sustainability aspect of competitive advantage involves the ability of the firm to create advantages that persist over time. Firms can create positions that generate short-term success (such as cutting prices), but at the expense of long-term success. A key element of sustainability is whether the advantage can be imitated or matched. New sources of material supply can be discovered, processes reverse-engineered, and key individuals can move within the industry and transfer knowledge. Competitive positions within industries that are built on systems of activities are far considered more sustainable than on individual activities (Porter, 1996), but it is difficult to create advantages that persist for substantial periods of time.

PERFORMANCE MEASUREMENT

It has been stated that the purpose of marketing is to deliver value to create and satisfy customers. To accomplish this purpose requires organizing the firm to create value for the customer without resulting in sacrificing shareholder value. These objectives may be conflicting unless winning and retaining customers results in superior cash flows that augment shareholder value (Day and Fahey, 1988). Marketing plays a lead role in managing the customer relationship by defining the value proposition and guiding business processes to deliver this value to the customer.

One of the most important components of an effective marketing strategy in guiding business processes is to choose the set of performance metrics from the wide variety available. Performance measures provide information to managers and investors

about the value creation processes within the firm. Internally, managers rely upon performance measures to provide information on both current performance and to track the underlying value processes over time. Externally, performance measures provide a benchmark for comparison across firms and as indicators of likely future performance. The design of performance measurement systems reflects the key strategic imperatives and goals of the organization. The choice of which performance measures are included in such systems is critical because managers generally limit their attention to a set of key metrics.

FINANCIAL MEASURES

Financial measures have traditionally been the major information items used by top management in their strategic systems. Firms have used financial measures to evaluate firm and executive performance because they provide a standard for comparison of firm performance across firms and industries. Examples of financial measures used in a strategic system such as executive compensation plans include accounting profits, revenues, market value, and various return measures (return on investment, assets, and equity, etc.). Financial measures are valuable as they reflect the assets and cash flows at different levels of the organization.

The primary distinction to be made among the many alternative financial measures of firm performance is between economic and accounting measures (Becker and Olson, 1987; Hirsh, 1991). Accounting measures are the historical financial results of the firm and include such items as profits, revenues, or accounts receivable. Economic profits represent the net cash flows that accrue to shareholders that are represented by

stock market returns (Huselid, 1995). Economic profits are forward-looking and reflect the stock market's perception of both current and potential profitability. Accounting measures can differ from economic profits because they can reflect timing differences, adjustments for accounting methods, or measurement error. Both economic and accounting measures are important and cover different aspects of firm performance.

Financial measures can affect major business decisions in financial performance. However, there are several key concerns of financial measures in tracking the value process of the firm. The first is a structural change in the economy such that many financial measures provide less information about the overall financial condition of the firm. The second concern with financial measures is that there may be newer versions that more accurately represent the value creation within the firm. Finally, there may be performance measures based on alternatives to financial measures that may be more reflective of the value processes of the firm. The first concern of a structural change in the overall economy has two key trends that are relevant to the issue of performance measurement.

A key trend is the rising market-to-book ratio of public corporations over the last twenty years. Off balance sheet assets are a larger portion of the market value of firms (Hunt and Morgan, 1995; Lusch and Harvey, 1994). As detailed by Lev (1996), the value of this ratio has increased from .811 to 1.692 indicating that the investor's assessments of the firm are substantially greater than the balance sheet assets of the firms. For high tech firms, this ratio the proportion of value was close to 2.0, which indicates that the value missing from the balance sheet was over 50 percent. In addition, market-to-book ratios have been dramatically increasing approximately 5 to 1 today. This impacts performance

measurement because a substantial portion of the value of the firm is embedded in intangible assets. The second structural trend is the declining level of information usefulness of financial measures.

Usefulness is evaluated in a variety of ways including an empirical measurement of the predictive power of specific information items with respect to future earnings, cash flows or stock returns (Ou and Penman, 1989; Finger, 1994). The weak statistical association between corporate earnings and stock returns has been discussed by Lev (1989) and the general conclusion that this weak relationship has continued to deteriorate over time from explaining 22 percent of the differences in annual stock returns in 1960 to only 7 percent in the 1980s. The association between an information item and market values is only a proxy for the usefulness of that item to decision-makers when used in a performance measurement system. A key conclusion is that this decreasing association between financial statement data and stock returns implies that the usefulness of the former to investors has been decreasing over the last four decades (Lev, 1996). As financial performance measures decline in their ability to monitor firm performance, new measures need to be developed. To address this situation, new financial measures have been developed to increase the alignment between financial metrics and invested capital.

Why do firms fail to create wealth for their shareholders? Reasons include the use of too many performance measures that conflict with each other, no clear prioritization strategy, performance measures that are not tied to increasing market value, or compensation arrangements tied to particular targets that are counterproductive to the wealth of the overall firm. Incentives are often short-term oriented and long-term incentives may have little or no integration to the strategic goals of the firm. The choice

of performance measures is essential in aligning the strategic goals with the process of value creation within the firm. Research by Atkinson, Hamburg and Ittner (1994) identified two primary reasons that companies had trouble linking quality improvements to financial performance. First, the companies did not have adequate measurement systems to quantify such returns and, second, it was difficult for managers to identify those projects offering the highest net economic return. Conceptually, calculating the return on quality is straightforward (change in revenues plus change in productivity divided by change in investment), but can be difficult in practice (Ittner and Larcker, 1996). For marketing strategy, the creation of value through the core business processes and contribution of the marketing function provides a superior value proposition to the consumer. To be successful, a firm must have a clear strategy to deliver value and this requires the proper set of measures to monitor value creation.

NEW FINANCIAL MEASURES

The second trend is examining the many possible alternative financial measures to use in measuring value creation, and two in particular have received considerable attention in the business and academic literatures. The first measure is Economic Value Added (EVA). EVA is a measure of whether the economic unit is making an adequate return on the capital employed to generate the return. The second measure that is separate from EVA, but closely related is Market Value Added (MVA). MVA reflects the cumulative wealth created over the existence of the firm beyond the capital invested. For firms that increase their EVA, over time this strategic value creation is expected to be reflected in their MVA. Both EVA and MVA are calculated by the consulting firm Stern

Stewart and the data for the top 1000 American firms is published annually in the Bank of America Journal of Applied Corporate Finance. This data source is used in this study.

Economic Value Added (EVA) is a strategic measure of corporate performance that is linked with shareholder value created through effectively managing the costs of the firm. EVA measures the ability of a firm to earn returns on net assets that exceed the cost of the capital employed to generate that return. EVA is calculated by multiplying net assets by the difference between return on net assets (RONA) and the cost of capital (c), which is the required or minimum rate of return the firm must earn to compensate its investors for the risk they bear (Stern, 1996). Market Value Added (MVA) reflects how much the firm has increased or diminished the value of capital provided them by lenders and shareholders. The difference between the total market value (debt + equity) and invested capital is MVA. MVA and EVA are closely related as MVA is the present value of all expected EVA and reflects the net present value of the firm.

Empirically, Economic Value Added is a measure of profit less the cost of capital employed and serves as a proxy for the measurement of economic returns (Stewart, 1991). It is calculated as the spread between a company's return on capital minus the cost of that capital employed multiplied by the amount of capital. EVA requires a company to identify its true return (cash flow) streams for each line of business and for the company as a whole and the answer whether economic value is being created. Accounting on the balance sheet can cause distortions and therefore adjustments are made before arriving at an estimate of the market value of the firm. The calculation of EVA involves adjustments to Generally Accepted Accounting Principles to reduce the influence of management involving activities such as accounting for research and

development, deferred taxes, and treatment of goodwill. These adjustments include netting the non-interest bearing current liabilities against the current assets, adding back to equity the gross goodwill, restructuring and other write-offs, capitalized value of R&D and advertising and other similar charges, and the debt balance increased by the capitalized value of operating lease payments (Stern, 1996). The goal is to produce an adjusted balance sheet that reflects the economic values of assets in place more accurately than the inherently conservative, historical-cost based balance sheet guided by generally accepted accounting principles. Traditional earnings based measures understate the cost of capital by ignoring the opportunity cost of capital and EVA is designed to take this into account.

A corporate governance system based on Economic Value Added is expected to help managers to influence behavioral and organizational change and thus shareholder value in a positive way. Many firms are adopting strategies made popular by the concept of EVA to align the interest of their employees with those of shareholders (Tully, 1993). EVA is a way for managers to see whether they are earning an adequate return. When returns are below what might be expected for investments of similar risk, the EVA is negative and the firm is not using its resources properly. EVA is a tougher performance standard for firms to manipulate than simple earnings. Many firms may grow net income, but not EVA because the capital employed grows faster than profits. EVA is thus used as a signaling mechanism and has been used for improved valuation analysis by Wall Street firms.

Research on the properties of EVA indicates that it is associated with several key business relationships. EVA has been related to stock price and has been widely

recognized as an essential component of strategic performance systems within highly performing companies such as Coca-Cola, AT&T, Quaker Oats, Eli Lilly, Georgia Pacific and Tenneco (Tully, 1998). Other associations include a relationship between the incidence of CEO turnover as significantly related to both MVA and EVA (Lehn, Makhija, 1996). Also, firms with a higher level of corporate focus on operating in fewer industries had a significantly higher rate of return on MVA and slightly higher return on EVA than firms who were below the median level of focus (Lehn, Makhija, 1996). EVA has also been related to executive compensation incentive structures to increase MVA (Desai, Fatemi, Katz, 1999). However, some research is less positive on the role of EVA in predicting firm values. A study by Biddle, Bowen and Wallace (1997) found that EVA added incremental information in some settings, it did not outperform other financial measures such as income before extraordinary items. Kramer and Pushner (1997) did not support the claim that “EVA is the best internal measure of corporate success in adding value to shareholder investments” made by proponents of the metric. EVA is relatively easy to measure, but it has been criticized for undervaluing growth potential and intangible assets. Although the concerns of whether EVA and MVA are the best single performance measures are valid, the most important reason firms use EVA and MVA in strategic systems is that they provide value by establishing a standard benchmark for evaluating financial performance through taking the cost of capital into account. Together, EVA and MVA are useful for measuring the value-added in the short-term with EVA and over the lifetime of the enterprise with MVA.

FINANCIAL MEASURES SUMMARY

In summary, performance metrics are essential strategic measures of the value creation ability of the firm. Increases in the market value of the firm depend on either improving the value of existing operations or developing new sources of value. Financial metrics have been viewed as the essential strategic measures to guide the creation of wealth. However, with the increased role of intangible value as a percentage of the overall market value of the firm and the decreasing explanatory power of financial metrics, new metrics are necessary. Accounting measures may bear little resemblance with the economic return and value created by the firm because they do not account for the cost of the capital employed to generate the return and the level of risk. Improvements on financial metrics include developments such as EVA and MVA, but even these measures do not completely explain how firms are creating value and so firms are exploring the role of non-financial metrics to aid decision making.

Authors argue that using only financial measures provides an incomplete assessment of managerial and organizational performance and should be supplemented by measures that capture the less tangible assets of the firm (Fornell, Ittner and Larcker, 1996). Non-financial measures capture many of the effects of business processes that provide value to the firm in ways that may not be captured directly in traditional financial measures. Examples of non-financial measures include customer satisfaction, human resource measures (such as employee satisfaction), research and development performance measures (% sales growth from new products), and manufacturing process measures (product quality and output measures). Non-financial measures may represent valuable information to aid in the management of the firm. Many of the non-financial

measures have been tracked and monitored by the firm in the past but have not been formally incorporated in format strategic systems such as incentives within executive contracts (Ross, Gergoff, 1991).

NON-FINANCIAL MEASURES

There are several key characteristics of non-financial measures that provide benefits for their use in strategic priority setting. The two most attractive properties of non-financial metrics are that the measures are leading indicators and that they provide incremental value in addition to financial measures. One of the primary arguments for the use of non-financial measures is that they are forward-looking measures of the drivers of future financial value (Kaplan and Norton, 1992; Cross and Lynch, 1992). Banker, Potter, Srinivasan (1998) demonstrate an empirical link between non-financial incentive systems and future financial performance from a field-based study of 18 managed properties of a hotel chain. Non-financial measures may also show relationships that are not captured by financial measures. For example, a company that undergoes a significant layoff of customer service personnel may achieve successful financial performance with respect to financial ratios, but suffer a significant penalty with respect to a customer satisfaction measure. These two properties are important determinants for the use of non-financials as key metrics in incentive systems.

One non-financial measure that has attracted attention for its possible relevance in explaining firm value is customer satisfaction. Customer satisfaction is important because it is linked to the current and future viability of the firm and the revenue stream provided by the customers, but it is an abstract concept and can be difficult to measure

and use strategically.

CUSTOMER SATISFACTION

Customer satisfaction has been an important topic for many years, and the research on satisfaction has evolved significantly. The motivation to understand customer satisfaction is clear: customers generate revenue for the firm and by better understanding their relationship with products, services, and their evaluations firms can do a better job delivering the proper mix of products and services customers desire. As the overall level of competition in a market matures, it becomes increasingly difficult to attract new customers and defensive strategies of managing existing customers increase in importance (Fornell and Wernerfelt, 1987). The better firms understand their customer relationships from a long-term perspective, the better that they can deliver superior customer satisfaction and consequent financial performance.

The construct of customer satisfaction has been explored in the field of marketing for many years, with two main positions presenting their conceptualization. One side perceives customer satisfaction as an outcome resulting from the consumption experience and the other interprets customer satisfaction as an individual evaluative process.

Early research focused on individual evaluations of specific transactions where satisfaction is viewed as a post-purchase judgement (Hunt, 1977; Oliver 1977, 1980; 1993). The process-oriented definition, such as Tse and Wilton (1988), focuses more on the differences between prior expectations and the actual performance of the product as perceived during its consumption. Key research studies in this area include work on the antecedents of customer satisfaction by Westbrook (1980), Westbrook and Oliver (1981)

and Churchill and Suprenant (1982) and on the consequences including Andreasen (1977), and Richins (1983). These studies postulated mechanisms for evaluating individual customer satisfaction examined issues such as intention formation and subjective evaluation of perceived rewards.

In contrast to the transaction-specific view that captures the customer impressions at the moment of consumption, the outcome-oriented view spans the entire consumption experience. The outcome-oriented definition, such as Howard and Sheth (1969), defines customer satisfaction in terms of the cognitive state of the buyer and whether or not the person has been rewarded by the consumption experience. The more modern outcome oriented approach focuses more on the consumer's experiences with the producer or service provide including predictor outcomes such as customer loyalty and subsequent profitability than transaction-specific approaches (Johnson, Fornell; 1991; Johnson, Anderson, and Fornell, 1995). The definition of customer satisfaction as a cumulative process involves antecedent beliefs of product quality and provides consequences that influence subsequent behaviors including repurchase and dissatisfaction behavior. Consumers are expected to use a variety of information sources including past experience in making evaluations (Johnson, Anderson, Fornell, 1995). The cumulative view of customer satisfaction is considered a more valuable conceptualization and is the standard definition for research in this area (Yi, 1991; Johnson and Fornell, 1991). Consequently, for this study, customer satisfaction is defined as the cumulative evaluation of a consumption experience.

Customer satisfaction is fundamentally an individual-level construct. There is no consensus on how to measure customer satisfaction and there have been many different

conceptualizations. However, through the aggregation of individual responses, a macro-level construct can be created to make firm, industry, and national level generalizations. The decision to model customer satisfaction as a theoretical or latent variable provides a common ground to make comparisons (Johnson, Fornell, 1991). Such comparisons had been made previously in studies by Andreasen and Best (1977) who compared customer satisfaction and complaint behavior across product and service categories. Wikström (1983) extended this work across nations by testing levels of customer satisfaction in Sweden and the U.S. The key result from these studies was that there was greater satisfaction with products than with services and this finding was present in both countries. This research on the comparability of customer satisfaction levels set the stage for the development of a national index of customer satisfaction.

The first national customer satisfaction index for products and services was the Swedish Customer Satisfaction Barometer (SCSB) (Fornell, 1992). It was created in 1989 and included approximately 130 companies from 32 industries. The barometer was designed to be complementary to productivity measures as a measure of quality of output as experienced by the consumer rather than an index of producer output.

From a macroeconomic perspective, a national index has many desired properties. As a national index, the Swedish Barometer serves as a weighted composite of the levels of customer satisfaction across the population. The index is expected to be an important complement to traditional measures of economic performance and as an important information source to the firms, investors, government officials, and to consumers. From a competitive perspective, nations are increasingly faced with a rising tide of international competition, slower growth rates in mature marketplaces and a customer satisfaction

index can help to determine relative performance across countries and global markets. Countries would clearly want high levels of customer satisfaction for its citizens, but if producing customer satisfaction is costly lower levels may persist. Government control over issues such as distribution channels, legal restrictions on competition and consumer protection laws may all contribute to perceived and actual costs involved with customer satisfaction delivered by firms within a nation. Accordingly, customer satisfaction indices such as the Swedish Barometer can be viewed as a future-oriented complement to traditional measures of performance and should help to focus public attention on improving quality and customer satisfaction as a source of a higher standard of living (Fornell, 1992).

The Swedish Customer Satisfaction Barometer methodology uses a model and measures of satisfaction with antecedents and consequences that can be applied across firms and industries. The model measures satisfaction as a latent variable using multiple indicators combined into an index to increase statistical validity. The SCSB provides a valuable model of customer satisfaction, as it is a comprehensive model that incorporates both antecedents and consequences. Consequently, the strength of the SCSB method for modeling customer satisfaction is that it provides a means for modeling what has been considered an individual construct at the firm and industry level and allows for comparisons to be made across Swedish firms. As a independently collected structural model, it is superior to internal, self-reported measures of quality. Methodological advantages of modeling customer satisfaction in a set of structural equations include that the causes of satisfaction are not confounded with the phenomenon itself (Fornell, 1992). Also, measurement error is taken into account through structural modeling and the

indicators of customer satisfaction are weighted so that the construct has maximal impact on loyalty and customer retention. This conceptualization of customer satisfaction spurred additional development of other national indexes.

After the creation of the Swedish Barometer, several other indices were created. A separate index using a different measurement model, the Deutsche Kundenbarometer, was created in Germany in 1992 and covers 38 industries. However, much of the rest of field of customer satisfaction indices has evolved from the original Swedish Barometer model. Despite using different methodological approaches, these national indexes have been demonstrated as important leading economic indicators and valuable in evaluating national and firm-level performance with respect to customer satisfaction. One index in particular has received academic and popular business press attention.

THE AMERICAN CUSTOMER SATISFACTION INDEX

The American Customer Satisfaction Index (or ACSI) developed at the University of Michigan's National Quality Research Center in 1994 contains information on approximately 200 companies in 34 industries and 7 major sectors of the American economy (Fornell, Johnson, Anderson, Cha, and Bryant, 1996). For this analysis, the ACSI is the primary data source for firm-level customer satisfaction information.

A graphical view of the ACSI model is shown in Figure One. In comparison to the Swedish Barometer there are several key evolutions. In the ACSI model, there are three antecedents of customer satisfaction. These are perceived quality, perceived value and customer expectations. Research has demonstrated that satisfaction is primarily a function of the customer's quality experience with the product or service. Perceived

quality is the first antecedent of the ACSI model (Churchill and Suprenant, 1982; Fornell, 1992; Tse and Wilton, 1988; Westbrook and Reilly, 1983). The second determinant is perceived value, which is operationalized as the perceived level of product quality relative to the price paid (Fornell, Johnson, Anderson, Cha, and Bryant, 1996). This indicator is important because it adds price information into the model and allows relative comparisons to be made across product categories (Johnson, 1984). The third antecedent is the level of quality that customers expect to receive. These expectations serve as an anchor in the evaluation process (Oliver, 1980; Van Raaij, 1989) and encompass all of the customer's prior consumption experience.

In comparison to the individual-level customer satisfaction model, the cumulative model reflects several differences. Instead of focusing on disconfirmation, the model uses antecedents that reflect a pattern of past purchases as customers identify and select products that deliver benefits that suit their expectations. In addition, the aggregation factor cancels out many of the expectations which reflects that expectations should reflect actual quality levels (Epstein, 1979). This is consistent with the research of Anderson, Fornell, and Lehmann (1994) who looked at the relative impact of expectations and perceived quality and found that perceived quality played a much larger positive role than expectations.

An evolution from the Swedish Barometer is that there are two consequences of customer satisfaction in the ACSI model. These are loyalty behavior and dissatisfaction behavior (Fornell and Wernerfelt, 1987, 1988). Loyalty behavior is defined as the probability that the consumer will repurchase the product or service again. Loyalty has been operationally defined as the long-term choice probability of the ratio of purchases of

a brand to total purchases of the product class. Loyalty is operationalized in the ACSI as repurchase probability and price tolerance for satisfied customers. Price tolerance is defined as the price differential required to make the customer switch to another brand and this adds price information into the repurchase decision (Fornell, 1992). Loyalty is generally positively related to customer satisfaction, but customers with close levels of satisfaction can have different levels of loyalty.

If the consumer does not experience customer satisfaction, they are considered to be dissatisfied. There are several reactions to dissatisfaction, including no action, negative word of mouth, complaining to management or workers, and switching to an alternative product (Yi, 1991). Research has demonstrated that complaint behavior is a function of many characteristics including dissatisfaction, but also the magnitude of the costs and benefits involved, the product type, and customer characteristics (Day, 1984, Singh and Howell, 1985). Such customer characteristics include age, income and brand loyalty. The effectiveness of a firm's complaint handling system can influence which reaction to dissatisfaction a customer will choose, and can actually turn complaining customers into loyal customers (Fornell, 1992). With respect to complaint and word of mouth behavior, research has indicated that it can be either positive or negative (Richins, 1983; Bolton & Drew, 1991). Anderson (1994) has also examined the role of word of mouth using the ACSI and finds that it increases with both satisfaction and dissatisfaction. However, this relationship varies across the level of involvement, product categories, and the concentration of the market.

Consumers evaluate products and services in a competitive marketplace and measures of customer satisfaction need to incorporate this into the analysis. Anderson

(1996) examined cross-category variations in both antecedents and consequences of customer satisfaction. Key findings include lower levels of repurchase likelihood in industries with greater product differentiation. One explanation for this result is that certain industries are sensitive to levels of quality and firms have provided a greater variety of differentiated products to meet these needs. A second finding involves linking customer satisfaction and repurchase likelihood and that switching costs influence this link. This makes intuitive sense as firms that can build switching costs for its customers using loyalty discounts will be increasingly harder to win customers away from than firms who are unable to build such barriers.

To be able to draw generalizations across firms and industries, the aggregate construct of the ACSI provides an opportunity to test empirical relationships between a non-financial construct and financial value metrics. However, first these possible relationships need to be identified and explored, especially, why would a firm include measures of customer satisfaction in their strategic systems? To answer this question, the research on linking customer satisfaction and firm performance is reviewed.

CUSTOMER SATISFACTION AND FIRM PERFORMANCE

The established belief among marketing professionals is that marketing strategy can provide a direct and economically significant contribution to firm performance. However, it has been difficult to identify, measure, and communicate to other disciplines the financial value created by marketing activities (Day and Fahey, 1988). Managers are looking for insights into increasing the value of their firms but are not sure of the mechanisms for creating value. The presumption is that effective systems of marketing

practices, ones that complement each other and create synergies that help to implement a firm's competitive strategy, are sources of sustained competitive advantage. For a firm that could create a sustained advantage based on customer satisfaction combined with financial efficiency, there would be many expected tangible and intangible benefits.

From a popular business perspective, the expected relationship between customer satisfaction and firm performance is unclear. Firms allocate a substantial amount of resources to monitor and improve customer satisfaction. However, the link between customer satisfaction and firm performance can be tenuous – as exemplified by a study by Arthur D. Little (1998) which found that over two-thirds of American firms did not have competitive gains from quality and satisfaction improvement programs. Anecdotal evidence in support of a relationship can be found through the large number of market research and consulting firms which focus on improving customer relationships. The number of firms conducting customer satisfaction research, as well as the firms employing these researchers, indicate support for a positive relationship. More empirical demonstrations of such a relationship would help to clarify and estimate the expected magnitude a satisfaction-performance link, although popular press stories on Sears and Pizza Hut have supported a positive relationship between customer satisfaction building efforts and operating performance results (Tully, 1998). These articles often focus on linking product or service quality with store performance.

Quality is often taken to be a global judgement of a product (Steenkamp, 1989). Other conceptualizations of quality include a construct having two primary dimensions of fitness for use and reliability (Garvin, 1988; Juran, 1988). Quality is different from satisfaction in several respects. The primary differences between quality and customer

satisfaction reflect the product consumption experience, as consumers are required to have an experience with the product before determining if they are satisfied with the product. Quality can be perceived without actual consumption experience (Oliver, 1993). Also, quality is generally more transaction-specific, where customer satisfaction reflects the overall consumption experiences both past and expected in the future (Anderson and Sullivan, 1993). A review of the Profit Impact of Marketing Strategies (PIMS) database indicates a significant relationship between perceived quality and return on investment (Buzzell and Gale, 1987). Capon, Farley and Hoenig (1990) identify 20 studies that find a positive relationship between quality and economic returns.

Marketing expenditures and firm performance are also linked. Research in this area includes a study of the PIMS database that found advertising and sales force expenditures increased perceived differentiation and decreased future price sensitivity (Boulding, Lee, & Staelin, 1994). This is a positive result as such activities allow the firm to more effectively position itself and create a competitive advantage with such expenditures. However, the research also indicated that sales promotion activities decreased differentiation and increased price sensitivity, which is consistent with the belief in marketing that such activities can be powerful short-term inducements to customers but at a long-term cost.

Marketing expenditures are expected increase financial performance by shifting the demand curve by increasing the quantity demanded, reaching new customer segments that had not purchased previously, and retaining the existing customer base by providing value-added activities. The increased demand should lead to an increase in profits as well as building a larger customer base to generate future profits. However, competitors are

performing similar satisfaction-building activities and may attempt to draw customers away from the firm using offensive marketing techniques. Eventually, industries could result in a stable configuration of satisfaction levels, where the firms all have close levels of satisfaction and none of the firms can develop a relative advantage based on customer satisfaction. However, for those firms that can achieve such a differentiation advantage, benefits are expected to accrue.

Perceptually, high levels of customer satisfaction serve to differentiate the product of a firm from its competitors. The perceived value of a product, conceptualized as quality relative to price, has a direct impact on how satisfied consumers are with that product (Anderson and Sullivan, 1993; Fornell, 1992; Sawyer and Dickson, 1984; Zeithaml, 1988). With respect to customer satisfaction activities, firms that have high satisfaction levels have less need to use price promotions as competitive tactics to deliver value to their customers. In addition, firms are motivated to invest in marketing activities that build customer satisfaction due to the cumulative effects of satisfaction on repurchase intentions and quality expectations.

Customer satisfaction has been linked at an individual level to repurchase intentions (Anderson and Sullivan, 1993; Oliver and Swan, 1989). Fornell (1992) found such a link using the Swedish Barometer. Customer satisfaction is extended beyond purchase intentions to actual repurchase behavior by Anderson and Sullivan in their framework (1993). Reichheld and Sasser (1990) link repurchase behavior and profitability in services by examining the credit card industry. The key element here is that a reduction in the defection rate boosts profits dramatically from increased volumes by satisfied customers, reduced operating costs for existing customers, and positive word

of mouth by satisfied customers.

A key consequence of high levels of customer satisfaction is the positive impact of customer satisfaction on repurchase behavior (Fornell, 1992; Reichheld and Sasser, 1990). Firms pay less to acquire new customers and satisfied customers are likely to buy more frequently and in greater volume (Reichheld and Sasser, 1990). A greater understanding of customers and high levels of attention to customer satisfaction should lead to greater new product success and greater relative product quality which should lead to profitability through reduced expenses and greater sales growth (Pelham and Wilson, 1996).

Intangibles are important because they can be used to predict tangibles such as firm performance measures. As an intangible construct, customer satisfaction is often communicated through such mechanisms as word-of-mouth. Satisfied customers are more likely to engage in positive word-of-mouth for transmitting tacit information about the company (Anderson and Sullivan, 1993). These mechanisms are important indicators of firm performance and this information may not be captured by traditional financial measures. As an intangible, customer satisfaction provides benefits over time (Anderson, Fornell, Lehmann 1994). These benefits may take time to be realized, and involve significant up-front costs that can mask current performance gains (Griffin, Gleason, Preis, and Shevenaugh, 1995). In an empirical examination between customer satisfaction and firm performance of service companies, Ittner and Larcker (1998) found that customer satisfaction measures were related to the subsequent year's customer retention, usage, and profits. The temporal dimension is important, as the economic benefits from satisfaction may not be achieved immediately

Loyal customers may not be satisfied customers, but satisfied customers tend to be loyal customers (Fornell, 1992). Key findings include that increasing satisfaction provided a substantial benefit as it increased repurchase likelihood as well as the stability of the elasticity of retention. This indicates that it is harder for competing firms to attract the more satisfied customers and make it easier for the firm to retain their existing satisfied customers. Switching barriers with respect to customer satisfaction are also discussed in Anderson and Sullivan (1993). Customer switching barriers may be expected to impact the relationship between loyalty and customer satisfaction as not all companies are equally affected by changes in customer satisfaction.

Customers will remain loyal to an organization if the value of what they receive is determined to be relatively greater than that expected from competitors. Organizations are looking for ways to create and maintain relationships with customers. Long-term superiority is dictated by the ability to maintain the relationship with the customer by showing a commitment to the customer. There is a continuous increase in customer expectations of quality and customers increase subsequent demands for better service as service improves. Customer demand and over capacity in industries has forced firms to take the lead in customer satisfaction management. Customers expectations and technological innovation demand that leaders distinguish themselves from the competition. Switching barriers can play an important role in determining satisfaction and loyalty levels. Examples of switching barriers include search costs, transaction costs, learning costs, emotional costs, and financial, social or psychological risks on the part of the buyer (Fornell, 1992). Repurchase intentions should be higher when switching costs are high (Fornell, 1992; Anderson and Sullivan, 1993) and demand should be less

sensitive to customer satisfaction.

There have been several important studies of the effect of levels of customer satisfaction on firm performance. The empirical work by Anderson, Fornell and Lehmann (1994) was the first to consider the impact of customer satisfaction on a firm's return on investment and they found a significant positive impact. In a study of the Swedish Customer Satisfaction Barometer, Anderson (1994) found differences between industrial categories with respect to the ease of changing satisfaction and the relative performance of firms. The implication of these studies is that a positive relationship between the level of satisfaction and firm performance is expected, but the researchers did not examine predictive relationships such as predicting market values. The link between a firm strategy emphasizing customer satisfaction and firm performance has also been examined. Griffin, Gleason, Preis and Shevenaugh (1995) found that firms that implemented customer satisfaction strategies improved their performance with respect to a set of measures over time. While the Griffin et al study did examine some financial performance measures, the study was extremely limited in scope as it only examined four firms in a manufacturing industry.

From a tangible financial perspective, customer satisfaction drives the top-line revenue of the firm. Customer satisfaction is an important component for generating value as 65% of an average company's revenues come from its active, established customers. With respect to demand, more satisfied customers are more willing to pay for the product. Pricing power is an extremely valuable strategic resource and if a high level of customer satisfaction allows more control over pricing, this would be a substantial competitive advantage. Anderson (1996) examined the relationship between customer

satisfaction and price tolerance using the SCSB data. Price tolerance reflects what a consumer would be willing to pay for a product or service rather than not consuming it. Key findings include a negative association between the level of customer satisfaction and the degree of price tolerance exhibited by its customers. A positive relationship was found between year-to-year changes in the levels of customer satisfaction and price tolerance. Firms with high service satisfaction ratings charged nine to ten percent higher than companies with average satisfaction ratings. In addition to charging higher prices, the high service companies grew twice as fast as low service companies (Grönroos, 1990). High levels of satisfaction may increase revenue, but does it really translate into increased profitability? Firms that are able to reduce price elasticities among repeat customers should be increasingly profitable and have higher market values.

Customer satisfaction is believed to lead to overall profitability. Nagar (1998) examined the interaction of firm strategy and power of customer satisfaction and found that non-financial measures had a significant impact on predicting future earnings moderated by the strategy of the firm. Rust and Zahorik (1993) empirically demonstrate the relationship between customer satisfaction and profitability in the context of a health care organization. Overall, companies with highly satisfied customers improved market share on an average of six percent per year, while the low service companies lost two percent per year (Zemke and Shaaf, 1989). The more loyal customers become, the greater the cumulative value of a loyal customer to the firm. The net present value of the expected margin from loyal customers reflects their asset values to the firm. Increasing customer satisfaction increases the value of a firm's customer assets and future profitability as reflected in accounting measures (Anderson, Fornell, Lehmann, 1994).

Anderson, Fornell, and Lehmann (1994) found that firms with high customer satisfaction achieve superior economic returns, but a long-run perspective is necessary for evaluating specific satisfaction-building activities. This study was the first to generalize from the specific case of Rust and Zahorik (1993). Specifically, a one-point increase in the Swedish index each year over five years would lead to cumulative discounted returns of 11.5% for an average firm. These findings were substantiated by Anderson, Fornell, and Rust (1995) who show a direct positive relationship between customer satisfaction and return on investment for goods and services.

From the literature review, superior customer satisfaction interacts with market value in several dimensions. There are many expected gains for the firm from possessing high levels of customer satisfaction including higher profits, higher growth rates, and reduced customer acquisition costs. Customer satisfaction measures are expected to incorporate sources of firm value beyond the book value, including information about expected cash flows (Ittner and Larcker, 1998). Temporal factors may influence the ability and duration of increases in the level of customer satisfaction. This perspective has evolved into work on maximizing customer lifetime value as the acquisition cost has increased in many markets (Reichheld and Sasser, 1990). Customer satisfaction indexes have also been demonstrated to move with markets with a few months lag.

Customer satisfaction as an incentive operates differently from financial measures. Results from customer dissatisfaction include the loss of revenue, expense of attracting new customers, and negative word of mouth from the dissatisfied customers (Gardner, 1996). Firms with high levels of services lead to greater profits (Jacobson and Aaker, 1987). Customer satisfaction benefits are expected to take time to develop and to

persist over time, and net benefits from investments in customer satisfaction may not be reflected in contemporaneous accounting performance (Anderson, Fornell, Lehmann, 1994). If increasing customer satisfaction affects future cash flows, then resources allocated to improving quality and customer satisfaction should be treated as investments rather than expenses.

As market values are driven by expectations of future profits, economic measures of value are still the primary drivers for generating value. This results from cost reducing and innovations in the ways and means of production including technology, organizational structures, and new product innovations and service delivery and customer satisfaction measures are designed to capture these value changes. Customers are often viewed as tangible assets that deliver cash flows over time (Reichheld and Sasser, 1990). These cash flows are important as increasing the satisfaction of customers also influences their price elasticity (Anderson, 1994) and they are willing to pay a higher reservation price and to tolerate increases in price (Garvin, 1988). But higher levels of customer satisfaction can also serve as intangible assets for the firm (Fornell, Ittner, and Larcker, 1996) and are reflected in the value of the firm. One perspective is that the stock market views customer satisfaction as a forward-looking indicator of economic performance. Ittner and Larcker (1998) found a one-unit increase of approximately \$240 million in the market value of the firm with a one-unit increase in the ACSI satisfaction score of a firm. Ittner and Larcker (1998) found that ACSI predicts the long-term forecasts of earnings at $p < .10$, which implies that some of the expected benefits of customer satisfaction are implicit in earnings forecasts. They also found that firms in the highest quartiles gained the most returns in the ten days after the announcement of satisfaction scores.

There are empirical findings that contradict a strong positive relationship between customer satisfaction and firm performance. Foster and Gupta (1997) found positive, negative, and non-significant relations between satisfaction measures for individual customers and future customer profitability that was different for alternative satisfaction measures. There are other limits to using customer satisfaction as a financial metric. There are tradeoffs between customer satisfaction and key metrics such as market share and productivity. Customer satisfaction and market share may not be positively related. One explanation for this is that incremental market shares are obtained by drawing from additional market segments which may have different preferences than existing customers (Anderson, Fornell, Lehman, 1994). Market share may be an important strategic indicator to a firm, but may not be a good indicator of performance when customer satisfaction is included into the strategic context. Maximizing the absolute level of customer satisfaction may not be the best strategy, as there are tradeoffs involved with investment and monitoring efforts (Fornell, 1995).

NON-FINANCIAL MEASURES SUMMARY

In summary, companies that are able to create advantages based on customer satisfaction are expected to enjoy many tangible and intangible benefits. One of the goals of this research is to relate the value of the income stream that customer satisfaction generates to the overall market value added of the firm. The key question is whether firms can create competitive advantages based on customer satisfaction levels, whether independently or through an interaction with other strategic measures. Will all firms benefit from increasing customer satisfaction? Not necessarily as there are expectations of

an optimal level past which diminishing returns on investment are expected. However, the combination of a satisfaction effort with a financial control such as using EVA may be a powerful mechanism for creating long-term firm value. This interaction effect will be examined in during the hypothesis testing to explore whether there are synergies from being successful in both cost and value strategies.

The mechanism for linking firm strategy to performance involves the choice of creating either a cost or differentiation advantage to establish a position within the market. The firm succeeds or fails due to the skills and resources of the firm and the degree of fit between these resources and the strategic direction of the management. Competitive forces are constantly working to reduce advantages and management needs to create new advantages, manage existing advantages, and work to reduce the advantages of competitors. By creating an effective cost or differentiation strategy, providing the correct set of incentives for the top management, and monitoring performance using financial and non-financial measures, firms can outperform their competition. It is also important to discover whether an integrated cost and differentiation strategy can exist or if firms can compete without either a cost or differentiation advantage. This integration or interaction strategy theme is an important dimension in this research study with particular emphasis on the differentiation strategy based on customer satisfaction to be examined.

In the next chapter, I will examine the theoretical and seminal empirical studies that support why a cost strategies based on efficiency and a differentiation strategies based on marketing constructs such as customer satisfaction are expected to be linked with financial measures of firm performance.

CHAPTER #3

RESEARCH HYPOTHESIS DEVELOPMENT

The literature review examined the role of performance measures and how they are used in monitoring and evaluating firm performance with respect to cost and differentiation advantages. Two key trends driving changes in the area of performance measurement were explored. First, market values are increasingly larger than the accounting book values of firms, leaving a greater proportion of firm market value to be explained. Second, new financial measures such as Economic Value Added and non-financial measures are being developed to identify and track sources of value creation not explained by traditional measures. One of these new measures of interest is the construct of customer satisfaction. Customer satisfaction has evolved from an individual assessment of a particular transaction to a more useful evaluation of cumulative satisfaction at firm, industry, and national performance levels. This cumulative construct can be compared across multiple levels to examine the role of a differentiation strategy.

In this chapter, the empirical relationship between customer satisfaction measures, economic efficiency, and market value added and the structure and qualities of this relationship will be explored. The chapter will focus on the conceptual strategic implications of enacting a strategy based on Economic Value Added as the proxy for a cost strategy and customer satisfaction as the proxy for a differentiation strategy. Following Day and Wensley (1988), a generic matrix noting aligned strategies and the potential of integrated and interactive strategies is presented. The matrix indicates an emphasis on the importance of firms having aligned cost and differentiation strategies if

they wish to develop sustainable competitive advantages. The matrix forms the basis for the set of hypotheses regarding the relative emphases of cost and differentiation strategies on the level of Market Value Added of the firm.

THEORY INTEGRATION

The literature concerning firm strategy and competitive advantage is quite extensive. There have been thousands of articles written about competitive advantage and the framework behind understanding competitive advantage has occasionally been criticized (Wright, 1987; Wright and Parsinia, 1988; Speed, 1989; Sharp, 1991). However, as evidenced by the extensive volume of literature in this area, the framework of competitive advantage has been considered a useful structure for both marketing academics and practitioners (Whalley and Thwaites, 1996). The basic conclusion from the evolution of thought on firm strategy is that firms need to identify and combine a set of competencies that lead to competitive advantages within their industry. To determine whether or not a firm has developed a competitive advantage requires monitoring of performance measures.

Performance measurement is a tool to assist the evaluation of two dimensions: internal and external performance. Congruent with competitive advantage theory, these two dimensions map into cost and differential advantages. Firms that choose to achieve cost advantages tend to focus on their internal operations to create efficiencies. Firms that choose to create differential advantages look for opportunities with respect to competitive positioning. These two approaches are very different and it is difficult for a firm to be successful on both dimensions. To be successful, the performance measures

used must reflect these two perspectives and indicate levels of customer value and cost superiority. Two basic types of advantages are by creating cost advantages or by creating differential advantages.

COST ADVANTAGE

Producing a product at a cost advantage is a strategic goal for many companies. A strategic advantage based on a cost advantage is built on the premise that lower costs give the firm greater pricing flexibility, which allow for higher margins and superior profitability. However, simply charging the lowest price does not guarantee a competitive cost advantage for the firm. The firm must provide a product with comparable value at a lower cost or greater value at the same cost level. Cost advantages can result from a variety of sources including geographic location, overhead controls, more efficient production processes, adoption of new technology, and access to alternative sources of raw material (Whalley and Thwaites, 1996). A common view is that cost drivers are under the control of the firm. These include things such as economies of scale, worker training, capacity utilization, and organizational linkages for coordinating activities such as service costs. For firms that choose to employ a cost-based strategy, all activities of the firm are centered on reducing costs in the production cycle while preserving value to the customer, and this unifying goal gives direction to the organization.

However, basing the firm strategy by having the lowest cost levels can be a risky strategy. A cost-leadership strategy is risky in that one firm could create a substantial advantage over its competitors, or a substitute technology from a different industry could

replace the entire established cost structure of an industry. Amit and Fershtman (1989) indicate that a cost-leadership strategy could fail due to low prices in the industry or from constant purchases of technology that do not allow a company to capitalize on its investments. The difficulty in creating a sustainable advantage through reducing costs is further explicated in a recent article of corporate strategy by Porter (1996), as he discusses the role of operating effectiveness in the creation of cost advantages.

Operating effectiveness is defined as performing all of the activities involved with creating value to the customer better than rivals perform them. Some companies are able to deliver more value from their inputs than other firms due to better technology, better processes, and better management are. However, Porter found that the rate of adoption of management tools to increase productivity, quality, and speed such as total quality management, benchmarking, time-based competition, and outsourcing is so fast and so pervasive in an industry that these gains have not translated into superior or sustainable profitability. The speed of diffusion of these practices to all of the firms in the industry reduced costs, but such savings were often passed on to customers rather than to the companies. For a cost strategy to be sustainable, new and different methods for reducing costs must be discovered and implemented as previous innovations are matched and eliminated by competitors. In contrast to a cost strategy, a differentiation strategy often offers a better opportunity to create a long-term advantage.

DIFFERENTIATION ADVANTAGE

A business is differentiated when some value-adding activities are performed in a way that leads to perceived superiority along dimensions that are valued by customers

(Day and Wensley, 1988). Differentiation is perceived superiority on some attributes and involves all activities and linkages of the business. A differentiation strategy involves the creation of a distinctive feature or set of attributes that distinguish the company's products from its competitors. These features can be either tangible (such as color or speed) or intangible (such as brand equity, prestige, or customer satisfaction). Differentiation drivers are activities residing in superior skills or resources motivated by a superior strategy. Policy choices on marketing activities such as advertising strategy, linkages within the value chain such as operations management, and market entry decisions are examples of differentiation drives. The key question is how investment in sources of advantage create positional advantages and superior performance outcomes. An advantage is created when the source of differentiation provides a benefit for the consumer that cannot be imitated. Benefits can include perceptual and performance differentiation from other brands within the industry due to the source of the advantage.

The key benefit for a company that differentiates its products and services is that it increases the inelasticity of demand for its goods. This increased inelasticity means that the company can exploit its competitive advantage by charging a higher price to attain greater revenues (Ireland, 1987). Differentiated brands are more responsive to advertising and other marketing activities (Keller, 1993). Differentiated products also offer greater potential for customer satisfaction and loyalty (Day and Wensley, 1988). These benefits are very important in establishing market advantages for the firm.

Customer satisfaction as a resource of the firm is a slightly different interpretation of marketing theory. Customer satisfaction is viewed as a consequence of particular skills and resources of the firm enacted into positional advantages. Customer satisfaction

is not a firm resource, but the result of the sequence of all the satisfaction-building activities delivered to the customer base over time. A customer satisfaction-based firm strategy would reflect a particular differentiation strategy to create value through designing systems that provide exceptional customer service and systems that meet customer needs to build long-term loyalty. By creating and supporting a customer-focused strategy, such firms would be expected to deliver superior value and produce superior financial results over time.

As an intangible, customer satisfaction is expressed in both tacit and explicit components by the firm (Nonaka and Takeuchi, 1996). Explicit components are the policies and procedures of the firm that are designed to produce a satisfied customer. These policies may be standardized or customized, but there are concrete organizational structures that guide employees to satisfy customers. Tacit components of customer satisfaction are all of the shared experiences from satisfying customers that are located in the knowledge and actions of the employees. The combination of tacit and explicit features makes customer satisfaction a difficult, yet potentially valuable, source of differentiation for a firm.

Firms would generally prefer to compete based on differentiation than cost advantages. However, a differentiation strategy can be risky as the firm must identify and capitalize on meaningful differences. There is a constant risk that competitors will encroach on the firm's position or re-position themselves by introducing or emphasizing new features. In addition, new entrants with new business models can create new sources of differentiation. Through re-definition or re-positioning, these entrants can reduce or eliminate existing competitive advantages. As with cost advantages, differentiation

advantages require regular innovation and creation of new ways to add value for customers. For both forms of competitive advantage, the choice of which measures to use to evaluate performance is very important for the strategic direction of the firm.

OUTCOME MEASURES

At the highest strategic level, maximizing market value is considered one of the most important objectives available to a firm (Stern, 1996). Invested capital is considered a scarce resource and to maximize the utility of their investments companies must compete for capital and efficiently manage their capital to provide products and services desired by their customers. If companies do not demonstrate that they are creating wealth, there is the risk that their ability to raise funds will decrease and their cost of capital will increase dramatically. In addition, a high market value gives the firm the ability to do a number of things to enhance the firm's competitive position. These options include acquisitions using a high stock price, creating variable compensation packages to attract and retain talent, and the prestige effects of being a successful company. Firms that develop and maintain high market values are often strong competitors.

The market value of the firm is generally viewed as composed of two elements. The first component is the physical assets such as plant and equipment, real estate, and cash in working capital. The other is the potential value created from its intangible assets as the net present value of the firm's current and future investment opportunities. If the firm executes a poor strategy in the opinion of the market or if does not implement a good strategy successfully, the market will lower the value of the firm's assets. The market

value of assets can be either above or below the economic book value of the assets in place.

Researchers have commented on the sources and determinants of market values. Firms can improve their market values in many different ways. First, if there is some operational slack or inefficiency in the organization it can be eliminated. Many firms focus on the importance of reducing inefficiencies through such activities as re-engineering or cutting back on spending levels for activities such as advertising or promotion. Organizational behavior researchers have also recognized the positive impact of human resource practices in selection, training, compensation, and labor relations on the market value of the firm. Executive compensation is one area in particular that has been focused on as aligning the interests of the top management with shareholders is expected to increase the focus on creating wealth. Firms that focus on increasing market values by implementing any of these factors should experience improvements in their ability to compete. However, simply reducing key inputs can enhance short-term market value at the expense of long-term value. For example, if the marketing staff dedicated to customer relations is cut by 10 percent while sales remain stable, market values may remain stable or be increased due to the lower overhead cost of the workers. Such improvements are possible if there was obviously slack in the organization or if the cuts were made possible through the adoption of productivity enhancements. However, for the long-term profit growth of the firm, new products and/or new markets need to be identified and exploited or existing markets need to be managed to produce greater sales and profits as non-financial measures such as customer satisfaction may be impacted by such cuts. The role of marketing is to determine the proper strategy that creates customer

value and market-based value for shareholders.

SYNTHESIS

A key issue in marketing strategy is whether cost and differentiation advantages are mutually exclusive. A key element of strategy is that firms can choose to follow either a cost or differentiation strategy to create a competitive advantage and maximize the market value of the firm. Traditional theory suggests that a firm should choose one approach because it is either too difficult to develop dual cost and differentiation strategies or because the attention of top management is limited in enacting and monitoring a dual strategy. Achieving differentiation often implies a trade off with the cost position of the firm if the activities required in creating the differentiation are inherently costly such as extensive research, product design, rare materials or intensive customer support (Porter, 1980). Also, cost based approaches may be unsuited for the treatment of intangibles – where customer satisfaction may be treated as an arithmetic necessity rather than a genuine commercial asset with future value (Day and Wensley, 1988).

The management of tangible and intangible advantages can require different systems within the firm. Tangible advantages are easier to monitor and manipulate and are often receive much of the attention from management. Following the prescriptions from the EVA literature, there are several ways to increase MVA levels. The first is to support all projects that generate more than the cost of capital – this may or may not increase customer satisfaction levels. Projects can be expected to lower perceived or actual quality levels or have other impacts that negatively affect customer satisfaction

levels but increase economic value for the firm. The second approach is to reduce the cost of capital for the firm. Projects that reduce the cost of capital are expected to be mainly financial in nature – including reducing the risk of cash flows using financial techniques and/or increasing the number and type of financing sources. These costs are generally known in advance and can be managed effectively.

In contrast to establishing a cost advantage, establishing a differentiation advantage requires a different understanding of the market and customer requirements. The intangibility of customer satisfaction refers to the idea that customer satisfaction is a result of the cumulative experiences of the customer with the product. These experiences include all of the factors that influenced how the product or service was purchased and consumed, including interactions with employees of the firm. These factors may include service components that can not be seen, felt, or touched in the same way that tangible goods can be sensed (Zeithaml, 1981). However, intangible attributes are more difficult to copy or overcome and are much more sustainable over time (Fahey, 1989). The intangibility of customer satisfaction is an important feature that differentiates it from other sources of competitive advantage and is a factor in why such advantages may be more sustainable.

A key theoretical perspective linking forms of advantage with firm performance is presented by Day and Wensley (1988). Day and Wensley (1988) link sources of advantage (based on skills and resources) to positional advantages on the basis of cost and/or differentiation advantage. Positional advantages influence outcomes including loyalty, market share and profit. The definition of value is perceived by the customer, and can include both economic and psychological benefits. The conventional view is that

companies can compete in terms of both cost and differential advantages, but their overall advantage is obtained from one relatively more than the other.

Each form of competitive advantage provides benefits to the company including market share dominance and profitability above average for the industry (Day and Wensley, 1988). This is the promised payoff from creating a competitive advantage and is ultimately reflected in the overall market value of the firm. A key extension of the Day and Wensley theory development is the creation of a strategic matrix. This matrix space is bounded by two strategic dimensions where the internal dimension represents the costs controlled by the operations inside the company and the external dimension represents the differentiation within the market. In their analysis, accounting measures are used for the cost dimension and market share is used as the differentiation proxy.

Following the global lines of strategic thinking enunciated by Day and Wensley (1988), an updated matrix is presented in Figure Two. In this matrix, the Y axis reflects that a firm may choose to focus on cost-centered strategies to obtain competitive advantage. A firm emphasizing cost reduction through internal initiatives emphasizing cost efficiencies such as layoffs, value engineering, and waste reduction could hope to achieve success by locating in quadrant three. A firm emphasizing product / service differentiation along the X axis by attention to discovering external opportunities and creating unique products and services would seek success through quadrant two positioning. If these two forms of competitive advantage interact empirically, the general view of Day and Wensley extended to the quadrant format holds that the greatest potential for a firm is to achieved sustained success by successfully integrating both strategies. A firm that by either choice or lack of a cohesive strategy would be expected

to be found in quadrant four, identified as the “competitive parity” quadrant.

The first area to be examined is the cost dimension. An overall cost edge involves performing activities at a lower cost than competitors while offering a parity product (Day and Wensley, 1988). Competitor centered assessments are based on relative comparisons with respect to a few target competitors on dimensions such as cost and market share (Day and Wensley, 1988). Defined as it is, EVA is a reasonable proxy for measuring the cost efficiency of the firm. Firms with high levels of EVA have created mechanisms for delivering greater profits over the cost of capital employed and consequently generate higher levels of MVA. Nonetheless, the relationship between EVA and firm performance must be explored in greater depth, especially with respect to strategic interactions with other performance strategies and measures. To the extent that maximizing EVA improves the strategic position of the firm, such a strategy will be valuable and result in increased market value.

The second area to be examined is the external value perception dimension. Customer focused assessment starts with analyses of customer benefits within segments and how the company can deliver these benefits. Firms that can deliver these benefits in a superior fashion often do so by creating differential advantages. The American Customer Satisfaction Index serves as a proxy for the perceived differentiation of the firm in the minds of their customers. Customer satisfaction has been linked to many performance measures including profits and retention, but not explicitly to Market Value Added. Linking customer satisfaction and MVA is intuitively probable and important strategically for management of the firm.

Tangible and intangible attributes are often inextricably linked and differentiation

often includes all activities and linkages of the business (Day and Wensley, 1988). The link between the source of differentiation and the activities of the business illustrates the importance of identifying core competencies of the organization to best align firm strategy with the sources of competitive advantage, whether tangible or intangible (Hitt and Ireland, 1985, 1986; Verdin and Williamson, 1992). By combining the twin goals of increasing customer satisfaction while still requiring capital efficiency, companies can determine the proper amount of spending on satisfaction building activities. By holding them to a cost-efficiency effort such as EVA, some of these efforts may not be conducted. Metrics such as cost of quality and TQM approaches are in a similar line of research combining a cost/benefit approach to managerial initiatives. This is congruent with satisfaction research indicating a U shaped relationship and diminishing returns for satisfaction (Fornell, 1995).

However, a dual integration strategy may be difficult or impossible to achieve. Managers are expected to focus relatively more on one or the other form of advantage through processes of selective attention and simplification (Pfeffer and Salancik, 1978). Customer satisfaction measurement and delivery systems are often expensive and require substantial training efforts to design and implement. However, as the bar for delivering customer satisfaction changes, more opportunities arise for creating a sustained advantage. For firms that can develop a cost efficient differentiation advantage, this should translate into superior profitability and wealth creation.

The Day and Wensley (1988) article and the matrix created for this literature focus on the relative payoffs to the firm as perceived by choice of strategy (cost or differentiation) or by a possible interaction of cost and differentiation strategies that

would maximize the value added over time. This value over time could be conceptualized as closely linked with the Stern Stewart construct of Market Value Added (MVA). In any case, the relative payoff from a strategy to a firm will depend on whether the value perceived by the customer is greater than the incremental cost of the activities that create this differentiated value.

Most basic valuation models presume that current levels of investment are the proper basis for assessing the level of market share a business can sustain. Market share has a net present value that relates current outlays to the discounted value of the future revenue stream. Market share was the performance measure of choice for Day and Wensley (1988). However, comments in this study indicate that customer satisfaction measures should precede market share measures and profitability outcomes when viewed intuitively. They also note that market value needs to be carefully considered in that current profitability reflects the reward stream from past advantages. Because many things can influence market share, it is unlikely to be a complete reflection of current advantage. Also, when the environment is turbulent, it may be a misleading indicator. Performance measures based on market share occur in the literature due to their convenience and availability, but perhaps using Market Value Added as the outcome measure will provide a better performance measure of wealth creation.

The choice of which performance measures to use to monitor and evaluate the effectiveness of the chosen strategy is an important decision for driving firm performance. Critics have suggested that the exclusive use of traditional financial measures fails to effectively capture the value created in the firm and that non-financial measures need to be added to increase the understanding of new sources of firm value.

Research has provided evidence that non-financial measures such as customer satisfaction can be linked to increased firm performance and firm value in conjunction with traditional financial measures. However, the theory on competitive advantage has not been tested empirically regarding each form of strategy and possible interaction / synergistic effects. The development of new performance measures allows for empirical tests of strategic theories involving cost and differential advantages and potential interaction. New internal measures of financial value creation such as EVA provide benefits beyond the accounting-based measures. New external measures of customer value such as the ACSI provide assessments of customer preferences and perceived differentiation. The combination of these measures allow for the testing of a set of hypotheses regarding the relative individual and combined effect on levels of firm value creation. Identifying high and low performers within and across industries provides some valuable insights into firm performance and consequently, this study provides an initial inquiry into this area.

HYPOTHESES

The review of the academic and strategy literature indicates that links are probable, but empirical tests of these relationships need to be performed. This is accomplished by testing a series of relationships. The first step is to draw a direct link between key performance measures and firm performance. The key relationships here are demonstrating the links between the level of Economic Value Added, the customer satisfaction of the firm, and the level of market value added of the firm, where the market value added reflects the long-term value of customer relationships.

Customer satisfaction is viewed a source of differential advantage. Through a link with customer loyalty and repurchase link, increased levels of customer satisfaction should result in higher levels of loyal customers, and the repurchase behavior should lead to larger and more secure cash flows for the firm. With respect to customer satisfaction levels, if the market believes that the company has an effective satisfaction strategy implemented, investors should reward the firm by increasing its market value. If the relationship between customer satisfaction and market value added is positive and sustainable, firms that develop superiority in customer satisfaction will also become superior in market value over time. This study is an attempt to draw a direct link between customer satisfaction, economic value added, and firm performance, recognizing the limitations due to the many interactions that occur from linking constructs.

H1 Economic Value Added and customer satisfaction are positively and significantly related to Market Value Added.

With the customer satisfaction and EVA measures established as being important predictors of MVA from Hypothesis 1, the next step is to look at the measures together as an interaction term. Firms can control their spending on customer satisfaction activities and implement systems to increase their EVA, but there may also be an interaction effect that increases the return from a combination effort. However, firms that try to do both can be caught in the middle - a situation that typically results in unfavorable profitability and competitiveness. If the relationship is negative, a superior position in customer satisfaction and EVA could correspond to an inferior position with respect to MVA. The positive benefits of achieving superiority with respect to EVA and customer satisfaction

could be offset by the negative effects such as the cost of establishing high levels of both measures. However, the expected relationship is positive.

The next step is to present a model with three predictors – customer satisfaction, economic value added, and their interaction term, to determine whether they are all positively and significantly related to MVA. The results are expected to be mixed however due to the shared variance among the predictors.

H2 The interaction of EVA and customer satisfaction combined with EVA and MVA is expected to be positively and significantly related to Market Value Added.

The basic linear form of the regression equation is consistent with describing simply an expected pattern or relationship between the strategic predictors and MVA (Bass, 1993). However, there are a variety of factors in addition to customer satisfaction and EVA that may be associated with MVA (such as firm or industry characteristics). These factors are explicitly acknowledged as unobserved fixed, autoregressive, and random effects.

Unobservable factors can lead to violations of the assumptions of OLS when estimating specifications using cross-sectional time-series data such as the ACSI. In particular, measurement error and random environmental shocks may create correlation between the residual and the independent variables (Anderson, 1996). In addition, the omitted factors may lead to biased estimates if they are correlated with both the dependent and independent variables. To control for potential bias, the regression equation must be transformed to account for the unobservable relationships. To control for firm-specific, fixed effects, first-differencing can be employed (Maddala, 1977).

Using the first differencing technique, the most advanced model incorporates the lagged MVA term to account for unobservable effects (Boulding, Lee, and Staelin, 1994). MVA can be influenced by a wide variety of observable and unobservable forces and this study is interested in only a few of the possible influences. By including the lagged MVA term into the predictive model, this term accounts for much of the historical variance in the level of market value added and forces the predictors to demonstrate their predictive ability against a higher standard. The lag term serves as a control against the previous level of MVA. The most significant predictor from H2 is positively and significantly related to market value added in a model that includes the previous period MVA to account for fixed effect. Therefore, the best predictor of the three options – either customer satisfaction alone, economic value added alone, or the interaction term will be used to test the most advanced model relating the predictor to market value added.

H3 The interaction of EVA and customer satisfaction is expected to be positively and significantly related to Market Value Added.

These hypotheses lay important groundwork for better understanding of major elements in the field of strategic marketing. Establishing customer satisfaction as a significant predictor of Market Value Added offers great potential to reconceptualize traditional financial approaches to increasing MVA. Linking Economic Value Added to MVA using marketing theory and constructs lays another important foundation stone for the analysis of strategic marketing issues. Pulling these constructs together will work to predict value creation, with the expectation that they are positive and significant predictors. Using a lagged MVA term to account for unobservable effects allows for a more precise estimation of the specified relationships.

The final set of hypotheses are derived from the competitive advantage literature and the matrix created in Figure Two. Which strategic dimension has the greatest relative return on MVA? To answer this question the matrix presented in Figure Two needs to be empirically tested. There were two key generic dimensions of the matrix: cost and differentiation strategies. In order to empirically test assertions about strategies, proxy variables for these strategies must be chosen. From the literature review, the proxy variables of Economic Value Added (cost strategy) and the American Customer Satisfaction Index (differentiation strategy) are used. For the outcome measure, Market Value Added represents the value created over the lifetime of the firm and can be seen as a proxy for the past and current value of the strategies of the firm.

By grouping firms based on polar performance (high / low) for each of the two performance measures, we are able to identify four distinct groups. These groups include “Integrated Leaders” (High ACSI / High EVA), “Differential Advantaged” (High ACSI / Low EVA), “Cost Advantaged” (Low ACSI / High EVA), and “Competitive Parity” (Low ACSI / Low EVA). Firms that have had the most success in creating value should have high levels of MVA, although the path to such value is not explicitly identified and could be through a cost advantage, a differentiation advantage, or some combination or integration of these general strategies.

In making predictions about the different groups of firms in the matrix, the “Integrated Leaders” quadrant firms should have the highest levels of MVA. These firms have demonstrated superiority on both cost and differentiation measures. From the theory presented, the interaction of high satisfaction and high EVA would be expected to have the highest average level of MVA. These firms have demonstrated above average

levels of cost efficiency and product differentiation into customer satisfaction and consequently should have been rewarded by high levels of market value created.

However, the number of firms in this first quadrant may be very small as it is difficult to implement both strategies well.

The next two quadrants of high levels of one dimension and low of the other are more open to investigation. Which strategic advantage is relatively more important in creating market value added? There are arguments for the overall importance of each dimension. For the “Cost Advantaged” group, these are firms that have increased EVA in a particular year and have been rewarded with higher MVA. For firms that have high levels of ACSI and have a “Differential Advantage”, this represents the payoff from establishing a relatively high level of satisfaction in the mind of the consumer. Theory suggests that differentiation advantages should be more difficult to be created, but are more valuable once created. On balance, the expectation is that customer satisfaction plays a more important role in wealth generation over time. Firms with customer satisfaction advantages, but low EVA are expected to have higher MVA than firms with high levels of EVA, but low levels of customer satisfaction. However, this has not been tested empirically until this study. Both are expected to be lower than the firms that have achieved superiority on both forms of advantage and higher than firms without any advantage at all. The fourth quadrant is “Competitive Parity” and represents the group with low levels of each dimension. This quadrant is also expected to have few firms as it represents a group without any advantages in the market. Without an advantage on cost or differentiation, these firms are expected to have the lowest average levels of MVA of the firms in the study.

From this discussion, a set of sub-hypotheses is developed:

H4 The distribution of average market value added for the matrix using Economic Value Added as a proxy for a cost advantage and the American Customer Satisfaction Index for a differentiation advantage is expected to follow this pattern:

H4A Quadrant #1 (High EVA/High ACSI) has the highest average level of MVA

H4B Quadrant #3 (Low EVA/High ACSI) has the second average level of MVA

H4C Quadrant #2 (High EVA/Low ACSI) has the third average level of MVA

H4D Quadrant #4 (Low EVA/Low ACSI) has the lowest average level of MVA

A study of these relationships has many important methodological issues involved with the analysis. Chapter IV introduces the methodology of the study and provides discussions of the measurement issues inherent in a study of this type.

CHAPTER #4

RESEARCH DESIGN AND METHODOLOGY

The purpose of this chapter is to describe the methodology used in the research. Based on the previous discussion, a model is developed that examines the relationship between customer satisfaction, economic efficiency, and the market value added of a firm. First, the data sources and each of the variables are described. Next, the specific regression models linking customer satisfaction, Economic Value Added, and the interaction term, to the dependent variable of Market Value Added are presented. Finally, we discuss issues relating to estimation and statistical techniques to deal with these issues.

INTRODUCTION

The advantage of a cross-sectional design is that it increases the generalizability of the results. The scale of the cross-sectional design of the ACSI provides a representative sample of the population of large American firms. The model linking measures of Economic Value Added, customer satisfaction, and Market Value Added is used to obtain regression-based estimates.

MEASUREMENT OF VARIABLES

In the following section, a description of the measurement of the central variables is presented. The literature examining the relationship between strategic variables and firm performance has included a wide variety of measures. As presented earlier, the

choice of measures can impact the size and nature of such a relationship, so the determination of which measure(s) to choose is not made lightly. To choose the proper dependent variable, several criteria were used.

Dependent Variable:

Desired properties of a measure of long-term firm value include several properties. First, it must be theoretically sound and accepted as a measure of value – it must have a solid economic foundation. Second, it must be calculable and be relevant across different firms and industries – it must be a viable comparative standard. Typical measures of firm performance include accounting ratios such as return on investment or return on assets. The strength of using such measures is that they are easy to find and calculate based on publicly available data. Anderson (1994) used such measures in linking customer satisfaction with accounting data. However, such measures are reflections of past performance and do not necessarily reflect future profitability and firm performance. Also ratios can be influenced by irregular activities and accounting actions that may produce skewed results.

Other studies use market-based measures such as stock price or price to earnings ratios or market value. An alternative is to use a computation of the residual value created over the lifetime of operation of the firm. There are several variations on the concept, but they generally represent the value created within the firm less the cost of capital employed. Two main approaches are the Edwards-Bell-Ohlson valuation (Ohlson, 1995) and Economic Value Added (Stern, 1996). In these approaches, the value of the firm is computed as a function of the accounting book value with certain adjustments and

provides a specific number of the value created by the enterprise. Such a measure has the properties desired for this analysis. Conceptually, EVA and MVA are superior measures because they recognize the cost of capital and the riskiness of a firm's operations (Lehn and Makhija, 1996). Measures such as return on assets lack to the cost of capital investment required to generate the earnings delivered by the firm.

Market Value Added

The dependent variable chosen for the analysis is Market Value Added (MVA). Information about MVA is obtained from *Stern Stewart & Co.'s Performance 1000 Database*. This database provides annual information on MVA and other related firm specific attributes for 1,000 large firms over the period of 1987-1998. The years 1994 to 1998 are used in this analysis.

Market Value Added reflects how much the firm has increased or diminished the value of capital provided them by lenders and shareholders. The difference between the total market value (debt + equity) and invested capital is MVA. Market Value Added was chosen as it is a measure of value creation that reflects the cumulative wealth created and is expected to reflect both tangible and intangible value. It is superior to simple market value as a performance measure because it removes the capital invested into the firm away from the cumulative value created to demonstrate how well management has used its resources.

One important methodology issue is whether the level of MVA is influenced by the size of the firm. Consequently, for this analysis MVA is scaled by dividing MVA by

the book value of the firm. Book values were obtained through the COMPUSTAT database.

Independent Variables:

Economic Value Added

The firm performance measure of economic efficiency used is Economic Value Added, which is also obtained from *Stern Stewart & Co.'s* Performance 1000 Database. Economic Value Added is a measure of profit less the cost of capital employed. It is the spread between a company's return on capital minus the cost of that capital employed multiplied by the amount of capital. EVA is calculated by multiplying net assets by the difference between return on net assets (RONA) and the cost of capital (c), which is the required or minimum rate of return the firm must earn to compensate its investors for the risk they bear (Stern, 1996). EVA requires a company to identify its true return (cash flow) streams for each line of business and for the company as a whole and the answer whether economic value is being created. Traditional earnings based measures understate the cost of capital by ignoring the opportunity cost of capital and EVA is designed to take this into account.

Accounting on the balance sheet can cause distortions and therefore adjustments are made before arriving at an estimate of the market value of the firm. The calculation of EVA involves adjustments to Generally Accepted Accounting Principles to reduce the influence of management involving activities such as accounting for research and development, deferred taxes, and treatment of goodwill. These adjustments include netting the non-interest bearing current liabilities against the current assets, adding back

to equity the gross goodwill, restructuring and other write-offs, capitalized value of R&D and advertising and other similar charges. The debt balance is increased by the capitalized value of operating lease payments (Stern, 1996). The goal is to produce an adjusted balance sheet that reflects the economic values of assets in place more accurately than the inherently conservative, historical-cost based balance sheet guided by generally accepted accounting principles.

Customer Satisfaction

The analysis requires a customer satisfaction measure that can be applied at an aggregate level across firms. As discussed in the literature review, the cumulative customer satisfaction measure is more appropriate for this purpose than a transaction-based approach. As we are looking to relate customer satisfaction to market value added over the lifetime of the firm, it is important to use a measure of the total consumption experience of the customers over time.

There are several possible firm-level customer satisfaction measures to choose from including the Swedish Barometer, the German satisfaction measure, and the American Customer Satisfaction Index. Each measure is designed for across firm comparisons of customer satisfaction and can be aggregated to the industry and national level (Fornell, 1992). Customer satisfaction, like utility can not be equated with or measured directly by any one observable variable (Simon, 1974). A good measure of customer satisfaction has properties of handling measurement error (Andrews, 1984), combines a set of indicators to reflect an unobservable construct (Howard and Sheth,

1969; Oliver, 1981; Westbrook and Riley, 1983) and places the construct in a context in which it is applied (Blalock, 1982; Fornell, 1982, 1989; Fornell and Yi, 1992).

The construct chosen to measure firm-level customer satisfaction in this study is the American Customer Satisfaction Index (ACSI). The ACSI is a national measure of customer satisfaction with goods and services. The ACSI is designed to obtain a nationally representative sample of customers in a wide variety of businesses. The index contains information on approximately 200 U.S. based companies and seven government agencies. A complete list of these firms can be found in Table 1. These companies and agencies had sales of \$2800 billion in 1993, which corresponds to 42.8% of the Gross Domestic Product of the United States (Fornell, Johnson, Anderson, Cha, and Bryant, 1996). The ACSI covers seven industry sections: Manufacturing (SIC code 1,2); Transportation, Communications, Utilities (4); Retail Trade (5); Finance and Insurance (6); Services (7,8); and Government / Public Administration (9). The ACSI data used in this study included firms for the time period of 1994 to 1998. The number of firms included in the composition of the data set of firms changes over the time period from 1994 to 1998 due to mergers and data collection decisions to eliminate industries such as publishing and television from the sampling frame.

The implementation of the collection of the ACSI involves a large-scale data collection effort. The consumer survey is conducted annually based on approximately 45,000 telephone interviews. The sample is based on a probability sample of households across the nation, with a modal response of 250 customers per included firm. Each of the respondents is identified as having consumed the specific brand or product within a certain time period, which is a function of the product category. The sampling error for

the ACSI is less than 0.2 points (at the 95% confidence interval with a 100-point scale). Customers are queried on 15 measurement items that are used as indicators for 6 latent constructs as depicted in Figure 2. Each respondent was asked about a single company only. An additional methodological issue is that aggregation across consumers leads to better measurement properties by reducing measurement error, idiosyncratic factors and canceling individual differences (Katona, 1975). For a more detailed description of the data collection for the ACSI, see the Fornell, Johnson, Anderson, Cha, and Bryant (1996).

The ACSI has several properties that make it ideal for this study. Each of the six constructs that comprise the customer satisfaction model is linked in a system of equations. This indicates that buyers generally purchase goods that they like. The questionnaire uses 10 point rating scales to allow customers to make better discriminations (Andrews, 1984). The measurement variables and constructs combine to create a structural model of customer satisfaction that reflects both antecedents and consequences. Partial Least Squares (PLS) is used to estimate the model (Fornell, 1989; Lohmöller, 1989; Wold, 1973, 1982). PLS does not make distributional assumptions about the data, which is important with customer satisfaction data that is often skewed (Fornell, 1992). By using the survey results as multiple indicators of the underlying constructs, PLS allows the estimation of index values for each firm and industry.

The index is specified as a composite latent variable in a system of multiple equations. Structural modeling lessens the impact from the frailties of direct observation in favor of combining observations into composites or latent variables (Fornell, 1982, 1989). Each individual company is estimated separately to capture differences in relationships among the constructs. This structure of relationships is an important

distinction from many measures of customer satisfaction that examine an overall evaluation of customer satisfaction on a single rating scale. The indices are evaluated from 0 to 100 and are weighted to maximize the model's ability to explain customer loyalty (Fornell, Johnson, Anderson, Cha, and Bryant, 1996). The final result is an index value for each of the constructs, including customer satisfaction for the overall firm. The ACSI is an independent index of consumer-level perceptions of their consumption experience with a select group of products and firms (Fornell, 1992).

Skewness is often a problem when working with customer satisfaction measures. The distribution of responses to customer satisfaction measures is almost always negatively skewed. Highly skewed distributions can influence coefficients, lead to lower correlations, low reliability, and influence conventional tests of significance (Fornell, 1992). Each construct in the ACSI is operationalized using multiple questionnaire items to reduce skewness (Fornell, 1992) and increase reliability of the construct. With the structural approach, the skewness problem is dealt with by increasing the number of scale points to 10, using a multiple indicator approach for greater accuracy and estimating using Partial Least Squares.

Statistically, the ACSI model has been demonstrated to have nomological validity (Bagozzi, 1980; Cronbach and Meehl, 1955). Nomological validity reflects the degree to which a construct behaves as it should behave within a system of related constructs. By placing customer satisfaction within the context of its antecedents and consequences, this modeling approach is expected to reduce bias and decrease measurement error. The model has a high level of correlation between the indicators and the customer satisfaction construct and the average variance extracted is substantially greater than 50% which

indicates less error in measurement. Finally, the signs and magnitude of the relationships have the expected signs. The other methodological issues relating to the ACSI model are covered in the American Society of Quality Control Methodology report (1995).

DATA COLLECTION ISSUES

The data in this analysis consist of three years of performance numbers for the 95 publicly held companies out of the 160 firms included in the ACSI database. The time period of this study, 1994 to 1998, reflects the limited availability of ACSI scores. The baseline of the ACSI was established in 1994. Both EVA and MVA are calculated by the consulting firm Stern Stewart and the data for the top 1000 American firms is published annually in the Bank of America Journal of Applied Corporate Finance.

In combining the samples of firms obtained from the Stern Stewart and ACSI databases, we require that data be available for all variables to be used in tests of the hypotheses. The sample for the current study includes all firms for which the ACSI collected customer satisfaction, MVA, and EVA data for at least four consecutive years during the period spanning 1994 through 1998. The four-year requirement is imposed due to the methodological transformations necessary to account for unobservable factors. The final number of observations available for analysis is between 360 and 380 depending on the model estimated. Missing financial data were tracked down from a variety of sources in order to obtain as many complete observations as possible. There were several reasons for the missing data including mergers, a firm being created after 1994, and unavailable data for one or more of the variables in a given year across the multiple data sources. The data is aggregated to estimate each regression equation.

The ACSI is collected on a rolling system where 25% of the firms are collected each quarter. Transportation and Services are collected in the first quarter, Manufacturing/Durables and Public Administration in the second quarter, Manufacturing/Nondurables in the third quarter, and Retail and Finance/Insurance in the fourth quarter. However, the data is published on an annual basis, so there could be disconnects that result from mismatching customer satisfaction evaluations with financial measures at a particular point in time. EVA and MVA are calculated at the end of the fiscal year, which could be as long as nine months from the time of the satisfaction evaluations. The two datasets have been aligned as closely as possible to adjust for these measurement differences. In addition, with the limited intersection of these datasets there could be systematic errors that influence the analysis. For example, as large firms are chosen to be part of the ACSI, this could influence their ability have generated higher market value added levels. The EVA and MVA values are calculated using a proprietary technique and it would be difficult to construct an independent verification of the measures presented.

MODEL SPECIFICATION

The model excludes many factors. The most important reason is parsimony. The purpose of this study is not to build an elaborate model of the relationship between customer satisfaction and market value. To fully describe which factors influence this relationship is beyond the scope of this dissertation. The five models specified are of a similar form.

1. To investigate the direction and degree of association between customer satisfaction, Economic Value Added, and Market Value added (H1), we posit the following expression for the relationship:

$$MVA_{it} = \alpha + \beta(ACSI_{it}) + \beta(EVA_{it}) + \varepsilon_{it}$$

where

MVA_{it} = Market Value Added of firm i at time t,

$ACSI_{it}$ = Customer Satisfaction of firm i at time t,

EVA_{it} = Economic Value Added of firm i at time t,

α = constant,

β = slope coefficient,

ε_{it} = autoregressive or random unobserved factors.

2. To investigate the direction and degree of association between customer satisfaction, economic value added, and market value added (H2), we posit the following expression for the relationship:

$$MVA_{it} = \alpha + \beta_1(ACSI_{it}) + \beta_2(EVA_{it}) + \beta_3 (INTER_{it}) + \varepsilon_{it}$$

where

MVA_{it} = Market value added of firm i at time t,

$ACSI_{it}$ = Customer Satisfaction of firm i at time t,

EVA_{it} = Economic Value Added of firm i at time t,

$INTER_{it}$ = Market Value Added of firm i at time t * Economic Value Added of firm i at time t,

α = constant,

β = slope coefficient,

ε_{it} = autoregressive or random unobserved factors.

3. To investigate the relative direction and degree of association between customer satisfaction, economic value added, and market value added (H3), based on the preceding four hypotheses, we posit the following expression for the relationship:

$$MVA_{it} = \alpha + MVA_{it-1} + \beta_1 (INTER_{it}) + \varepsilon_{it}$$

where

MVA_{it} = Market value added of firm i at time t,

MVA_{it-1} = Market value added of firm i at time t-1,

$INTER_{it}$ = Market Value Added of firm i at time t * Economic Value Added of firm i at time t,

α = constant,

β = slope coefficient,

ε_{it} = autoregressive or random unobserved factors.

4. To test Hypothesis 4, involving the average Market Value Added levels of firms using Economic Value Added as a proxy for a cost advantage and the American Customer Satisfaction Index for a differentiation advantage the results are expected to follow a particular pattern. From the matrix presented in Figure 2, each of the quadrants

is labeled. Quadrant #1 is the high EVA / high ACSI segment which is expected to have the highest average MVA level. Quadrant #2 (Low EVA / High ACSI) is expected to have the next highest level of MVA followed by Quadrant #3 (High EVA / Low ACSI). Quadrant #4 (Low EVA / Low ACSI) is expected to have the lowest average MVA level of the four quadrants.

ESTIMATION ISSUES

The purpose of regression is to predict or estimate the value of one variable from known or assumed values of other variables related to it (Younger, 1979). The most crucial task in a regression study is to determine which variables are important indicators and which predictors do not add to the analysis. Regressions also aid in describing the manner in which variables are related in with respect to the direction and form of the relationship and to test if theories about such a relationship are supported or refuted by empirical evidence.

The simplest estimation technique is to use Ordinary Least Squares (Greene, 1993). Ordinary least squares (OLS) has several assumptions including regarding that the error terms are identically and independently distributed with zero mean and unit variance. With these assumptions, OLS provides estimates with desired properties of no bias and efficiency. Estimating cross-sectional time series data may lead to a variety of OLS assumptions (Jacobson, 1990; Boulding, 1990; Boulding, Lee, and Staelin, 1994). When data are collected over time, time effects can occur and create possible distortions.

To adjust for time effects, the technique of first differencing can be used. A first difference is the difference between a value in one time period and the value in the

preceding time period. This should take time effects into account if the subsequent value is influenced by the value in the preceding period, leaving the rest of the variance. If there is interdependence across multiple periods, first differences may not be the most effective technique.

The problem of unobservable factors is clearly important in any analysis. The definition of unobservable factors is one or more independent variables that should be included in a model, but are excluded from the analysis either incorrectly or because they can not be directly observed or measured (Jacobson, 1990). For an analysis such as this research, this a particular problem as the chosen measures may have overstated effects. Unobservables that could influence the link between customer satisfaction and market value added include management ability, corporate cultures, particular accounting practices and chance events. The ability for the influence of unobservables to overstate the value of strategic factors can invalidate any conclusions for studies that do not take steps to control for unobservables (Jacobson, 1990). However, steps have been taken to account for unobservable variables. There are several areas on influence of unobservables: fixed effects, time-varying effects, and random effects.

Fixed effects are unobservable effects that are specific to a firm, but are invariant over time. For a firm, this could include managerial skill, training practices, and firm-level resources. Resulting estimates can be biased if these firm level fixed effects are not controlled for in the analysis (Boulding, 1990). Time-varying effects reflect an autoregressive relationship between the error terms. Correlation over time is called serial correlation or autocorrelation. The level of response in one time period affects the level of response in the next period. Thus the residual in one time period is related to the

residual in the next period. The last type of unobservable effects are random effects which may be a function of data collection errors or measurement errors for the indicators or constructs.

Jacobson (1990) discusses the role of unobservable firm-specific factors that are correlated with both strategic variables and firm performance measures. The sign and extent of the correlation can produce biased estimates of coefficients and a flawed analysis. Some unobservable factors include managerial skills, firm resources, and random chance. Two ways to control for these observables are using first differences and instrumental variables. Studies using these techniques include Jacobson (1990) and Boulding (1990) who found that after controlling for unobservables, marketing expenditures are positively correlated with profitability. This methodology is an important contribution and I will use the first-differencing to control for unobservables in linking customer satisfaction and economic value added to market value added.

Fixed effects affect the dependent variable indirectly through the lagged dependent variable. One problem is over-controlling for unobservable effects. In addition, a fixed effects controlling model changes the interpretation of the coefficients to emphasize short term changes have an immediate rather than long-term consequence for satisfaction and profitability (Anderson, Fornell, Lehman, 1994).

Cross-section analysis presents some statistical problems, with two possible in this research study. The first of these problems is heteroskedasticity, the second is multicollinearity. In order for OLS estimates to be efficient, the variance of the residuals must be constant for all observations. One problem encountered in cross-sectional analysis is non-constant variance of the residual across cross-sectional units. This could

occur as a function of differences in the scale of operations across firms. When the error variance is heteroskedastic, OLS coefficient estimates will be unbiased and consistent. However, they will not be efficient and consequently standard hypothesis testing techniques are invalid. There are tests for heteroskedasticity performed in the regression analysis.

When multicollinearity is present, the net regression coefficients are said to be unreliable measures of the effects of their associated predictor variables. They not only measure the effect of the related predictor, but are confounded with the effects of other predictors related to it. When the data are not collected from a controlled experiment, or if there are restrictions on the regressor values that cause the value of certain regressors to be highly correlated, then the manipulation of certain regressor values in an effort to control Y within specified bounds may not be successful. Multicollinearity can cause problems with the signs of the coefficients. Negative coefficients can result simply because of certain combinations of values of correlation coefficients. The OLS estimator is still efficient, and the R^2 statistic is unaffected. A consequence of multicollinearity is inflated variances, and the problem with inflated variances is that the width of the confidence intervals for the coefficients will also be inflated. The high variances arise because in the presence of multicollinearity, the OLS estimating procedure not given enough independent variation in a variable to calculate with confidence the effect it has on the dependent variable. This could lead to rendering one or more intervals useless.

The variables in this analysis may be closely related, especially EVA and MVA.. New data could solve the problem. A larger sample size also provides some additional information helping to reduce variances. Another is to eliminate one or more of the

regressors that are causing the multicollinearity. Respecifying the model is one approach where the measures can be combined in some manner or one can be chosen to represent the others. One approach is to use a simultaneous equation estimation to formalize relationships among regressors. The final way to reduce multicollinearity is to create a specific relationship among some to the parameters in the estimating equation by dropping a variable from the analysis. Removing the multicollinearity affects the estimated standard deviations of the remaining estimators. For my analysis, using the interaction term may be the best tool for capturing the shared variance of these indicators and using parsimonious models should help with multicollinearity problems.

CHAPTER #5

ANALYSIS OF RESULTS

This chapter contains a description of the data and the results of the tests of hypotheses using the models described in the “Statistical Analysis” section of Chapter IV.

Descriptive statistics for each of the variables are presented in Table 2. The number of observations differ between the variables, with complete data for 368. Correlation coefficients for the variables are presented in Table 3. The correlation between MVA and EVA is high at .37 ($p < .00$). The correlation between MVA and customer satisfaction is much lower at .09 ($P < .07$). The interaction term is highly related to MVA at .44 ($p < .00$). EVA and lagged MVA is lower but still close at .35 ($p < .00$). An examination of these relationships with the lagged terms indicates expected significant auto-correlation, which impacts the choice of modeling techniques.

RESULTS

We now conduct formal tests of the hypotheses about the influence of cost and differentiation competitive strategies on firm performance. These hypotheses are tested using a cross-sectional regression framework and analysis using a matrix approach. The dependent variable in the regressions is the performance outcome of Market Value Added, which is a measure of the wealth created by the organization.

Hypothesis 1

The first hypothesis concerns the relation between customer satisfaction, Economic Value Added, and firm performance. Specifically, the focus was to discover whether customer satisfaction and Economic Value Added have positive and significant impacts on Market Value Added using the following model:

$$MVA_{it} = \alpha + \beta(ACSI_{it}) + \beta(EVA_{it}) + \varepsilon_{it}$$

The estimates of this model are shown in Table 4. For the OLS model, the coefficient estimate for customer satisfaction is 64.77 and significant at $p < .06$. The coefficient estimate for EVA is 9.24 and is significant at $p < .00$. The overall model fit is adequate, with an adjusted- R^2 of .17 and F value of 38.72 ($p < .00$). This provides support for Hypothesis 1 that customer satisfaction and Economic Value Added are positively and significantly related to market value added.

Hypothesis 2

Next, we consider the relative impact of each component in a full model containing all three predictors. The preceding results indicate that all three terms of customer satisfaction, Economic Value Added, and the interaction term are expected to be positively and significantly related to Market Value Added. The model is tested using the following specification:

$$MVA_{it} = \alpha + \beta_1(CS_{it}) + \beta_2(EVA_{it}) + \beta_3 (INTER_{it}) + \varepsilon_{it}$$

The results are presented in Table 5. The coefficient estimate for the interaction term of customer satisfaction and economic value added is .14 and significant at $p < .01$.

However, the customer satisfaction and EVA terms are both negative and significant (EVA= -44.5, $p < .02$; ACSI = -761.71, $p < .01$). The overall model fits well, with an adjusted- R^2 of .18 and F value of 28.94 ($p < .00$). The negative signs for the satisfaction and EVA terms indicate that there may be some multi-collinearity present, requiring a different model specification. The results indicate that the interaction term may be the best predictor, so it will be used to test Hypothesis 3 using a simplified model.

Hypothesis 3

To test hypothesis 3, a lagged term of Market Value Added has been added to the analysis. This is to account for unobservable factors that may be biasing the size and direction of the coefficients. Using an alternative technique that includes the lagged value of the performance provides a better estimation technique. This bias could mask the nature of the underlying relationship between the performance measures and performance outcomes

In Table 6, we report parameter estimates for the following model:

$$MVA_{it} = \alpha + MVA_{it-1} + \beta_1 (INTER_{it}) + \varepsilon_{it}$$

For the OLS model, the coefficient estimate for the interaction term of customer satisfaction and economic value added is .01 and significant at .01. The lag term is also positive and significant (1.3, $p < .00$). The overall model is good, with an adjusted- R^2 of .91 and F value of 1772.7 ($p < .00$). The results indicate that the interaction of customer satisfaction and economic value added provides a positive and significant relationship with market value added when the lagged MVA term is taken into account.

Hypothesis 4

The evidence presented above indicates that the levels of customer satisfaction and Economic Value Added are positively related to the Market Value Added of the firm. In particular, the interaction of satisfaction and EVA has a strong relationship. Since having both a strong level of customer satisfaction and high level of EVA is expected to be difficult to achieve, what are the expected payoffs from accomplishing this dual achievement? To explore this issue further, we sort the total sample into groups based on ACSI and EVA.

All of the firms in the sample are ranked independently based on these two variables. Combinations of rankings based on EVA and ACSI thus yields four groups: high EVA / high ACSI, low EVA/ high, high EVA / low ACSI, and low EVA / low ACSI. These four groups are labeled HH, HL, LH, and LL respectively.

We view these four groups in the following manner. The HH sample consists of the firms that generate high economic returns and have high levels of customer satisfaction and are well positioned to generate wealth for the future. The HL firms have a high level of customer satisfaction, but low EVA so they have a differentiation advantage but lower levels of cost efficiency. The LH firms have a high level of cost efficiency, but low customer satisfaction levels. The LL sample represents firms whose current and future prospects to generate wealth are limited.

Table 7 provides a series of matrixes indicating the average Market Value Added levels of each of the 4 groups over the period from 1994 to 1998. The most striking result from this table is the difference in MVA levels between the HH and LL levels. For example, in 1994 the average HH MVA is 8374 and LL is 2865. This difference expands

dramatically over the years to 42660 for HH and 8282 for LL firms in 1998. These results provide clear support for hypotheses 4A and 4D. These difference suggest that, on average, the firms that are high on EVA and high on customer satisfaction generate a significantly greater amount of wealth as measured by MVA than the firms that are low on both EVA and satisfaction.

Next, we examine the relationship between EVA and customer satisfaction on the diagonal elements of the matrix (HL, LH) to test hypotheses 4B and 4C. From Table 7, an interesting pattern emerges. For the first three years 1994 to 1996, a consistent pattern of emerges. The pattern supports all four hypotheses with HH as the highest, LL as the lowest and HL and LH respectively as the second and third highest MVA. However, the MVA levels of the LH group are growing increasingly close to the levels of the HL group.

In 1997 and 1998, the pattern changes. The LH group increases to become the second highest MVA, replacing the HL group. These results run counter to the hypotheses presented. Rather, they are consistent with the argument that high levels of EVA drive wealth creation as measured by MVA. While the balance of the five years support the pattern expected in hypotheses 4A-D, the trend is clearly moving away from this pattern to the High EVA group having the second highest level of MVA in the population.

Taken together, the results presented in Table 7 indicate the positive interaction of high EVA and high customer satisfaction provides the highest levels of MVA. Also, having an advantage based on either EVA or customer satisfaction provides a large advantage over the firms in competitive parity that are below average on both dimensions

advantage. However, there is no clear determination of whether an EVA or customer satisfaction advantage is desired over the other. From 1994-1996, a customer satisfaction advantage provided a higher MVA, and from 1997-1998 the EVA advantage provided a higher MVA. However, clearly firms need to generate some form of advantage or they will have relatively low levels of MVA compared to the firms in the other quadrants.

RESULTS SUMMARY

The summary of the results of the four hypotheses are presented in the following table.

<u>Variable of Interest</u>	<u>Found</u>	<u>Not Found</u>
Hypothesis 1 EVA +Customer Satisfaction	✓	
Hypothesis 2 Full Model with Interaction		✓
Hypothesis 3 Interaction with Lag MVA	✓	
Hypothesis 4 HH, HL, LH, LL	✓ (1994-1996)	✓ (1997,1998)

The main finding of this research is that there is positive and significant relationship between customer satisfaction, economic value added, and market value added. In particular, the interaction effect was a significant predictor of market value added. A matrix analysis of the relative contribution of the satisfaction vs. economic value added components indicate that the combination of high levels of both measures provides the greatest market value added. This implies that firms that can deliver both high levels of customer satisfaction and are efficient users of capital can deliver the

highest levels of market value added. From the analysis, initially the HL firms dominated the LH firms, but this changed over time. The low customer satisfaction and low EVA firms were always the lowest MVA group.

CHAPTER #6

CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

This chapter provides a summary and conclusion of this study. An overview of this study is presented and a summary of the research findings is presented. Finally the limitations and extensions of this study are presented.

RESEARCH OVERVIEW

The objectives of this study were to investigate the size and structure of a relationship between competitive advantages based on cost and differentiation factors and the firm performance outcome of wealth creation. The cost effectiveness of the firm is proxied using Economic Value Added and the level of differentiation using customer satisfaction measures from the American Customer Satisfaction Index to influence levels of Market Value Added. MVA reflects the value creation of the firm based on effective management rather than reported accounting or economic measures that may not reflect the cost of capital employed or the level of risk involved. In this study, a set of hypotheses were presented about the relationships between customer satisfaction, EVA, and their interaction as determinants of wealth creation.

KEY FINDINGS

Consistent with the extant evidence, we find that EVA is a significant determinant of MVA. This is of little surprise as MVA is an expectation of future EVA streams. The

next finding is that customer satisfaction levels are positively and significantly related to MVA levels. This provides support that customer satisfaction levels are important determinants of the wealth created in the firm. The next hypothesis investigated the interaction effect of EVA and customer satisfaction and found that it provides additional information about the nature of MVA. However, when all three terms were included in the model, multicollinearity caused several of the signs to become negative. Consequently a final model was presented with a first-differenced MVA term included to control for these effects. From this final model, it is found that the interaction of customer satisfaction and EVA is a positive and significant predictor of the level of MVA.

One of the most significant findings of this study is arrived at when we divide the sample firms into four groups based on their rankings of customer satisfaction using the ACSI and Economic Value Added. By grouping firms based on polar performance (high / low) for each of the two performance measures, we are able to identify four distinct groups. These groups include “Integrated Leaders” (High ACSI / High EVA), “Differential Advantaged” (High ACSI / Low EVA), “Cost Advantaged” (Low ACSI / High EVA), and “Competitive Parity” (Low ACSI / Low EVA). The findings suggest that the firms who have above average levels of ACSI and EVA have the highest levels of MVA over the 5 years examined in this study. In addition, these firms had the highest percentage growth rates in the level of MVA of the 4 groups. It was hypothesized that the differential advantage based on high levels of ACSI would provide a larger benefit to MVA than the cost advantage based on EVA and this was supported for 1994, 1995, and 1996. However, in 1997 and 1998, the cost advantage group was the second highest

performer indicating that the market may be rewarding economic efficiency over long term customer satisfaction building. Finally, the firms in the competitive parity group had the lowest levels of MVA and had very low growth rates over time.

RESEARCH RESULTS

From both a practitioner and academic perspective, this research provides valuable applications. The empirical results provide confirmation to marketing strategy perspectives on how firms can generate wealth by linking strategies with marketing variables, in this case by increasing customer satisfaction levels and their interaction with cost efficiency efforts. Through the additional analysis, a case was presented that customer satisfaction plays an important role in determining the cumulative wealth of the firm by rewarding firms with above average levels of customer satisfaction over time. The idea of customer satisfaction providing current and future income streams as an economic asset of the firm is an important one. Consequently, measuring customer satisfaction levels should be an important non-financial component in a strategic management system such as the balanced scorecard approach.

In addition, this study indicates the importance of establishing and maintaining high levels of customer satisfaction. Customer satisfaction programs are often costly, risky, time-consuming and the benefits are spread over a long period of time. There could be negative outcomes from implementing a strategy based on customer satisfaction. A firm could focus on customers too much or focus on the wrong features. By focusing on meeting the needs of existing customers, the firm could miss opportunities to grow the business or to identify future needs of its customers. There may also be significant costs

associated with satisfying customers. There may be a point of diminishing returns to investments in satisfaction as conformity to specifications may be expensive (Anderson and Sullivan, 1993). There may also be organizational barriers to formulating a firm strategy based on customer satisfaction. The unfamiliarity of managing the intangibility of customer satisfaction is one factor that clearly creates a barrier. Many managers find it difficult to relate customer satisfaction measures to performance measures (Ittner and Larcker, 1996). Another barrier is the long-term strategic nature of customer satisfaction. As a cumulative construct, customer satisfaction is important not only for immediate results of a consumption experience but also over a sustained period of time and it can take time for the benefits to appear. It is often difficult for managers to look beyond short-term tactical plans to identify long-term strategic objectives and keep them in mind during operations. Employee turnover, quarterly stock market expectations, and the isolation of strategic duties to senior members of the organization all present barriers to implementing a long-term strategy. Finally, providing customer satisfaction can be expensive. Expenses often include increased staffing costs, providing extra service, and the development and operation of satisfaction monitoring systems. These costs can be substantial and impact firm performance. Despite these concerns, a strategy emphasizing customer satisfaction and economic efficiency can be expected to be an effective sources of competitive advantage if it is implemented correctly.

The empirical results indicate that firms can integrate both strategies. The integration of EVA and customer satisfaction makes theoretical sense and it has now been tested empirically. Quadrant number one ("Market Leaders" is a good place to be in that it has the highest average level of MVA and also the highest MVA growth rate over the

four years examined. One practical application is for firms to examine their relative position and see whether they need to reevaluate their current strategy and work on increasing their performance of the complementary dimension. Is it possible to succeed at both cost and value strategies over time? Management theory suggests that it is very difficult to focus on divergent strategies of cost and value creation. Simplification is expected to come at a cost. External focuses can lead to providing benefits and services that customers desire, but can lead to a lack of connection with internal activities or the creation of unsustainable cost structures. Internal focuses on costs can lead to a preoccupation with managing for efficiency even if such activities are no longer what the customer desires. However, the rewards for combining these strategies is greater wealth creation.

Over the five years of analysis, only five firms remained in the High ACSI / High EVA group the entire time. These firms were Campbell Soup, Coca-Cola, General Electric, General Mills, and Kellogg. The average MVA of these five increased from \$27.535 billion to \$91.423 billion, and provided a dramatic increase in wealth for their shareholders. These five outperformed the rest of the “Market Leaders” and by far the rest of the groups in the analysis. Only two firms remained in the “Competitive Parity” group over the five years: Federated Department Stores and Kmart. Federated showed some progress, increasing from an MVA of \$-792M in 1994 to \$1.865 billion in 1998; Kmart is has been steadily decreasing in market value MVA of \$1.561 billion in 1994 to \$-2.257 billion in 1998. Clearly, Kmart is having competitive difficulties based on cost efficiency and competitive differentiation.

The question of whether a balanced perspective is appropriate for all firms is still open. This analysis provides a snapshot in time with fixed levels of customer satisfaction and efficiency of capital usage. For an ongoing basis, different measures can be used to assess performance that may give more precise measures of firm performance on both internal and external dimensions and these may give different interpretations than EVA and ACSI scores. Customer satisfaction scores should also be a part of competitive monitoring activities to understand the firm's relative position with respect to competitors and whether its levels are too low or high combined with internal cost levels for maintaining or changing the firm's satisfaction level. However, this analysis is a valuable first look at relative performance levels based on independent internal and external measures. One thing to remember is that the analysis involves looking at two measures of the consequence of activities and not the activities themselves. These activities may be affected by new management practices, employee satisfaction and turnover, and other organizational factors that are not directly observed. For investors, the ability to identify and understand a relationship between a firm's current condition and its capacity to produce wealth for investors is a priority. From a managerial perspective, how to improve the firm's condition by allocating resources is a top objective. This research combines these perspectives by linking economic value added, customer satisfaction and market value added measures.

LIMITATIONS

There are many possible limitations to a research study such as the one presented in this dissertation. The measures chosen and the models presented are abstractions built

upon previous research studies from the field of marketing strategy. The model looks across an entire economy that consists of a variety of firms and industries that may have dramatic differences with respect to resources, management styles and talents, and competitive dynamics.

One key element of this analysis is the measures chosen to represent strategic advantages. EVA and the ACSI are valuable data sources of firm performance. However, they have a selection bias toward large public firms and there is no assurance that the relationships demonstrated in this study hold for private companies, small companies, and those firms that rely on more business to business customer satisfaction relationships than business to consumer relationships. A key element of this analysis is defining MVA as a measure of sustained advantage over time. Many components influence this calculation, but it seems a reasonable proxy for the wealth creation activities of the firms. These performance measures are all reasonable proxies, but new measures may be developed to address the question of competitive advantage in greater detail.

A second and related limitation is that this research does not explore how firms achieved their levels of EVA and customer satisfaction. There is no measure of the set of activities used to create the value provided. In addition, the research is not prescriptive as it does not detail how firms should go about increasing their economic value added and customer satisfaction levels to deliver higher levels of market value added. Such research would be dramatically valuable, but is beyond the scope of the measures publicly available at this time. However, projecting this research within a firm would be a valuable test of the results and could be applied throughout an organization that has

already implemented EVA and customer satisfaction measurement systems within its organization.

FUTURE STUDIES

Future research will need to push down the level of analysis to specific research within a firm. Research needs to be collected on specific marketing competencies and tools that can be used to develop customer satisfaction activities, but also can be evaluated using financial metrics. Although the firm-specific results may limit generalizability of the results, such an analysis would be valuable to practitioners. In addition, research on industry level variables and their influence on satisfaction levels and their relationship with market values would be valuable. One key limitation of this analysis is that these are outcome measures and do not give a clear path on how to make the strategic changes necessary to change performance on one or both dimensions.

Information on the relative performance is a valuable source of competitive information to managers. Also, managers want to know how to get the greatest improvement in performance in areas that provide the most leverage for the future. Such key success factors may be different across types of businesses or they may be applied across a range of industries. Ideally there should be a set of causal relationships describing how controllable variables influence performance outcomes. This may be easier for cost-based advantages. The potential of customer satisfaction has not been realized (Day and Wensley, 1988). The biggest limitation is that it has not been comparative and has been focused on recent buyers instead of cumulative experiences.

The focus of research on competitive advantage also examines performance over

time. Measurement of performance over time can be difficult to assess, but is usually inferred from sustained periods of above-average performance. This selection criterion reduces the set of firms who are succeeding over time, but also provides a mechanism to study the path of evolution towards and away from a competitive advantage. One key element is the ability to reach to information about competitive advantages that form the basis of sustained advantages. Valuable but commonly held resources become sources of competitive parity (Barney, 1991). An examination of the distribution of firms that fall in the "Market Leadership" quadrant shows that the firms change in their positioning over time with only five firms maintaining high levels of customer satisfaction and EVA over time. In depth study of these firms, as well as Kmart and Federated Stores which were low customer satisfaction and low EVA, could provide additional insight into strategy development and how it is carried out.

In addition, additional examination of the matrix could be very interesting. One area of future investigation is which industry types are more likely to develop firms that are high on both cost and differentiation dimensions. Structural constraints by the industry may place limits on the strategies firms could pursue and lead to differential performance among firms. One of the most important studies in this area is Rumelt's study of how much industry matters in explaining performance. He partitioned the total variance in rate of return into industry factors, time factors, corporate factors and business-specific factors. One innovation is using multiple years of data, to identify stable and transient effects. Rumelt (1991) found that the variance within industries is greater than variance across industries. Rumelt's study also emphasizes the strategic business unit level of analysis in accounting for the variation in performance across

industry, corporate and business units on profit rates. Examining industry effects on the customer satisfaction and EVA interaction relationship could be a very interesting line of strategic research.

One prediction would be that product firms are more likely than services firms to be high on both due to the twin dimensions of cost control and easier to standardize performance. Creating an advantage based on EVA may be easier than creating one based on customer satisfaction. Cost targets may be more achievable. One company to examine is Coca-Cola, who has been a strong proponent of EVA for several years. They have been very successful in creating market value added by increasing EVA levels, but have not done much with respect to customer satisfaction. Recently, Coca cola has been struggling with the inroads by Pepsi and a perceived lack of customer concern regarding consumer health-related problems in Belgium and France. For the future, the firm may be more successful by relying less on EVA building activities and more on customer satisfaction building activities. To be truly valuable, customer satisfaction based advantages would need to be inimitable. Customer satisfaction advantages have some benefits in that they take time to form. For example, Southwest airlines that has been publicized for years but rivals have been unwilling or unable to reduce the customer satisfaction advantage generated by Southwest airlines. Examining the role of high performers within industries could lead to important strategic insights.

SUMMARY

The research questions posed in this study are interesting to both marketing academics and practitioners. For academics, calls for research in this area have explored

how customer satisfaction provides a link with market behavior (Fornell, Johnson, Anderson, Bryant, and Cha, 1996). Marketing Science has research on customer satisfaction and consumers as its primary topic for 1998, with a particular focus on economic measurement and relating marketing activities to customer value calculations. This study provides an empirical test and confirmation of strategic ideas advanced by Day and Wensley (1988). For practitioners, this research should provide insights for managers as to what links customer satisfaction and Economic Value Added with Market Value Added. To remain competitive, firms need to know what is required of them. If a competitor can achieve a superior position in customer satisfaction, firms may have to invest in building its own satisfaction levels. Customer retention and the role of marketing affect retention on long-term value of customer purchased compounded over time. The positive and significant link demonstrated in this study should give managers the ability to gauge their existing levels, an expected future value, and a path for generating that level by improving both EVA and customer satisfaction. The specific path must be developed internal to the firm, perhaps using a technique such as return-on-quality (Rust and Zahorik, 1993) or through a comprehensive total quality management program. Finally, as this information is publicly available, managers can do their own analysis of competitor's and their expected strategies to anticipate their strategic moves by attracting new customers from competitors and retaining existing customers.

FIGURE ONE

THE AMERICAN CUSTOMER SATISFACTION INDEX

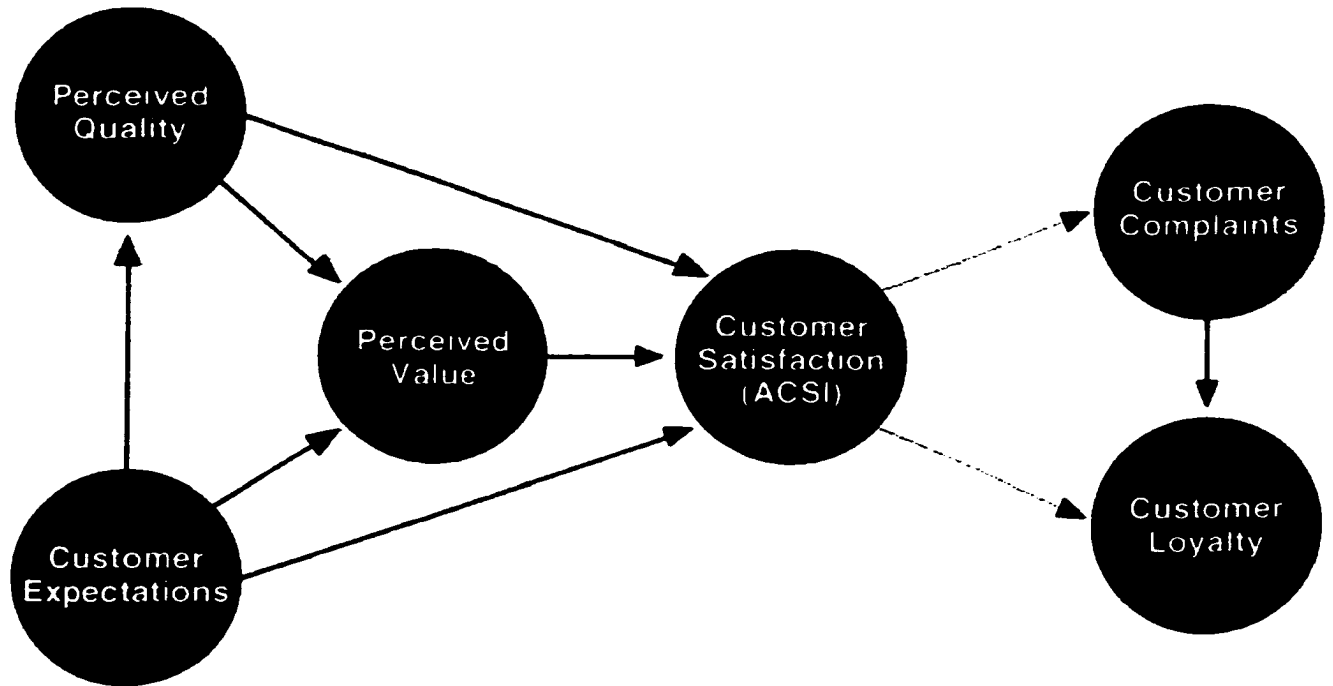


FIGURE TWO

COMPETITIVE STRATEGY MATRIX

Cost-Focus Strategy
(Internal Efficiency)

High EVA	COST ADVANTAGED	INTEGRATED LEADERS
Low EVA	COMPETITIVE PARITY	DIFFERENTIATION ADVANTAGED

Low ACSI

High ACSI

Differentiation-Focus Strategy
(Managing External Opportunities)

TABLE 1

ACSI MEASURED COMPANIES

Adolph Coors Company
Aetna Life and Casualty
Albertson's, Inc.
Allstate Insurance Group
American Brands, Inc.
American Corporation (AMR)
American Electric Power Company, Inc.
American Medical Holdings
American Stores Company
American Telephone & Telegraph Company (AT&T)
Ameritech
Amoco Corporation
Anheuser-Busch Companies, Inc.
Apple Computer, Inc.
Atlantic Richfield Company (ARCO)
Banc One Corporation
BankAmerica Corporation
Bell Atlantic Corporation
Bellsouth Corporation
Best Western
BMW of North America, Inc. (Bayerische Motoren Werke AG)
Borden, Inc.
Burger King Corporation (Pillsbury, Inc./Grand Metropolitan PLC)
Cadbury Schweppes
Campbell Soup Company
Capital Cities, Inc./ABC (to be acquired by Walt Disney)
CBS, Inc.
Central and South West Corporation
Chemical Banking Corporation
Chevron Corporation
Chrysler Corporation - Chrysler; Dodge; Plymouth; Jeep; Eagle
CitiCorp
The Clorox Company
CMS Energy Corporation
The Coca-Cola Company
Colgate Palmolive Company
Colombia/HCA Healthcare
Commonwealth Edison Company
Compaq Computer Corporation
ConAgra, Inc.
Consolidated Edison Company
Continental Airlines, Inc.
Delta Airlines, Inc.
The Detroit Edison Company
The Dial Corporation
Dillard Department Stores, Inc.
Dole Food Company, Inc.

Dominion Resources, Inc.
Domino's Pizza, Inc.
Dow Jones & Company, Inc.
Duke Power Company
Emerson Radio Corporation
Entergy Corporation
Exxon Corporation
Farmers Group, Inc.
Federal Express Corporation
Federated Department Stores, Inc.
First Interstate Bancorp
First Union Corporation
Food Lion, Inc.
Ford Motor Company - Ford; Lincoln; Mercury
Fox, Inc.
FPL Group, Inc.
Fruit of the Loom, Inc.
Gannett Company, Inc.
General Electric Company
General Mills, Inc.
General Motors Corporation - Buick; Oldsmobile; Cadillac; Chevrolet/GEO; Pontiac; Saturn
General Public Utilities Corporation
Great Atlantic and Pacific Tea Company (A&P)
GTE Corporation
Heinz Company
Healthtrust
Hershey Foods Corporation
Hewlett-Packard Company
Hilton Hotels
Holiday Inns
Honda Motor Company, Ltd.
Hyatt Corporation
Hyundai Motor America
Internal Revenue Service
International Business Machines Corporation (IBM)
J.C. Penney Company, Inc.
JVC Company of America (Matsushita Electric)
Kellogg Company
Kentucky Fried Chicken (KFC) (PepsiCo, Inc.)
KeyCorp
Kmart Corporation
Knight-Ridder, Inc.
Kraft USA (Philip Morris)
The Kroger Company
Levi Strauss Associates, Inc.
Little Caesars Enterprise, Inc.
Liz Claiborne, Inc.
Local police/central city (metro)
Local police/suburban (metro)
Local solid waste management/central city (metro)
Local solid waste management/suburban (metro)
Marriott Corporation
Mars, Inc.
The May Department Stores Company

Maytag Corporation
Mazda Motor of America, Inc.
McDonald's Corporation
MCI Communications Corporation
Meijer, Inc.
Mercedes Benz of North America, Inc.
Metropolitan Life Insurance Company
Miller Brewing Company (Philip Morris)
Mitsubishi Electronics America, Inc.
Mobil Corporation
Montgomery Ward & Company, Inc.
NationsBank Corporation
NBC (General Electric Company)
Nestle, USA, Inc.
The New York Times Company
Niagara Mohawk Power Company
NIKE, Inc.
Nissan Motor Corporation in USA
Nordstrom, Inc.
Northeast Utilities
Northwest Airlines Corporation
Norwest Corporation
NYNEX Corporation
Pacific Gas & Electric Company
Pacific Telesis Group
Panasonic Company (Matsushita Electric)
Paramount Communications
PepsiCo, Inc.
Philip Morris
Philips Electronics North America Corporation
Phillips Petroleum Company
Pillsbury, Inc. (Grand Metropolitan PLC)
Pizza Hut (PepsiCo, Inc.)
The Procter & Gamble Company
Promus
The Prudential Insurance Company of America
Public Service Enterprise Group
PUBLIX Supermarkets, Inc.
The Quaker Oats Company
Reynolds Tobacco Company (RJR Nabisco, Inc.)
Ralston Purina Company
Ramada Inns
RCA (General Electric Company)
Reebok International, Ltd.
RJR Nabisco, Inc.
Safeway, Inc.
Sanyo Fisher USA Corporation
Sara Lee Corporation
SCEcorp
Sears, Roebuck and Company
Shell Oil Corporation (US) (Royal Dutch Petroleum Company)
Sony Corporation
The Southern Company
Southwest Airlines, Inc.

Southwestern Bell Corporation
Sprint Corporation
State Farm Insurance
Subaru of America, Inc. (Fuji Heavy Industries, Ltd.)
SUPERVALU, Inc.
Taco Bell (PepsiCo, Inc.)
Target/Mervyn/Dayton-Hudson Corporation
Texaco, Inc.
Texas Utilities Company
The Times Mirror Company
Time Warner
Toyota Motor Manufacturing, USA, Inc.
Travelers, Inc.
Tribune Company
TriStar/Columbia (Sony Corporation)
Turner Broadcasting System, Inc.
Tyson Foods, Inc.
Unilever United States, Inc.
United Corporation (UAL)
United Parcel Service of America, Inc.
Universal Studios/MCA (Matsushita Electric)
US Postal Service
USAir Group, Inc.
USWEST, Inc.
VF Corporation (Lee, Wrangler)
Volkswagen of America, Inc.
Volvo Cars of North America, Inc. (AB Volvo)
Wal-mart Stores, Inc.
Walt Disney/Touchstone
Wells Fargo & Company
Wendy's International, Inc.
Whirlpool Corporation
Winn-Dixie Stores, Inc.
Zenith Electronics Corporation

TABLE 2
DESCRIPTIVE STATISTICS

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ACSI	910	50.00	90.00	76.6110	6.2393
EVA	511	-308.60	1914.80	1201.2978	197.6828
INTERACT	381	27722.00	774900.00	469876.8399	81380.9325
MVA	512	-3990.20	39316.00	2059.4980	3818.3612
LGMVA	512	-4140.20	39166.00	1909.4980	3818.3612
Valid N (listwise)	368				

TABLE 3
CORRELATION COEFFICIENTS

		Correlations				
		ACSI	EVA	INTERACT	MVA	LGMVA
ACSI	Pearson Correlation	1.000	.016	.444	.094	.099
	Sig. (1-tailed)	.	.379	.000	.034	.016
	N	910	381	381	382	466
EVA	Pearson Correlation	.016	1.000	.901	.368	.348
	Sig. (1-tailed)	.379	.	.000	.000	.000
	N	381	511	381	511	393
INTERACT	Pearson Correlation	.444	.901	1.000	.408	.391
	Sig. (1-tailed)	.000	.000	.	.000	.000
	N	381	381	381	381	368
MVA	Pearson Correlation	.094	.368	.408	1.000	.951
	Sig. (1-tailed)	.034	.000	.000	.	.000
	N	382	511	381	512	394
LGMVA	Pearson Correlation	.099	.348	.391	.951	1.000
	Sig. (1-tailed)	.016	.000	.000	.000	.
	N	466	393	368	394	512

where

ACSI: American Customer Satisfaction Index
 EVA: Economic Value Added
 INTERACT Interaction of ACSI*EVA
 MVA: Market Value Added
 LGMVA: MVA Lagged one period

TABLE 4
RESULTS OF HYPOTHESIS 1

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	EVA, ACSI	.	Enter

a. All requested variables entered.

b. Dependent Variable: MVA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.412 ^a	.170	.166	3872.8309

a. Predictors: (Constant), EVA, ACSI

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1161610864.463	2	580805432.231	38.723	.000
	Residual	5669553777.063	378	14998819.516		
	Total	6831164641.526	380			

a. Predictors: (Constant), EVA, ACSI

b. Dependent Variable: MVA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-14024.594	2975.584		-4.713	.000
	ACSI	64.772	34.533	.088	1.876	.061
	EVA	9.239	1.078	.401	8.567	.000

a. Dependent Variable: MVA

TABLE 5
RESULTS OF HYPOTHESIS 2

Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	INTERACT ^a , ACSI, EVA	.	Enter

^a. All requested variables entered.

^b. Dependent Variable: MVA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.433 ^a	.187	.181	3837.7275

^a. Predictors: (Constant), INTERACT, ACSI, EVA

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1278651267.493	3	426217089.164	28.939	.000
	Residual	5552513374.033	377	14728152.186		
	Total	6831164641.526	380			

^a. Predictors: (Constant), INTERACT, ACSI, EVA

^b. Dependent Variable: MVA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	51811.436	23539.864		2.201	.028
	ACSI	-761.706	295.173	-1.034	-2.581	.010
	EVA	-44.454	19.077	-1.932	-2.330	.020
	INTERACT	.136	.048	2.608	2.819	.005

^a. Dependent Variable: MVA

TABLE 6
RESULTS OF HYPOTHESIS 3

Regression

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	LGMVA, INTERACT ^a	.	Enter

^a. All requested variables entered.

^b. Dependent Variable: MVA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.952 ^a	.907	.906	1316.4971

^a. Predictors: (Constant), LGMVA, INTERACT

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6144707454.534	2	3072353727.267	1772.684	.000
	Residual	632605070.665	365	1733164.577		
	Total	6777312525.199	367			

^a. Predictors: (Constant), LGMVA, INTERACT

^b. Dependent Variable: MVA

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	-867.585	420.450		-2.063	.040
	INTERACT	2.378E-03	.001	.045	2.618	.009
	LGMVA	1.297	.024	.933	53.722	.000

^a. Dependent Variable: MVA

TABLE 7
AVERAGE MVA LEVELS BY EVA/ACSI SPLIT

	1994
High ACSI / High EVA	\$8374M
High ACSI / Low EVA	\$7507M
Low ACSI / High EVA	\$3081M
Low ACSI / Low EVA	\$2865M
	1995
High ACSI / High EVA	\$8436M
High ACSI / Low EVA	\$4046M
Low ACSI / High EVA	\$1679M
Low ACSI / Low EVA	\$1053M
	1996
High ACSI / High EVA	\$16300M
High ACSI / Low EVA	\$7126M
Low ACSI / High EVA	\$6701M
Low ACSI / Low EVA	\$1607M
	1997
High ACSI / High EVA	\$23651M
High ACSI / Low EVA	\$3737M
Low ACSI / High EVA	\$6944M
Low ACSI / Low EVA	\$3267M
	1998
High ACSI / High EVA	\$42660M
High ACSI / Low EVA	\$11726M
Low ACSI / High EVA	\$18181M
Low ACSI / Low EVA	\$8282M

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