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The Effect of Organizational Structure and Diversification on Firm Performance
(Under the direction of DAVID KAMERSCHEN)

This paper describes an ongoing investigation of corporate performance in approximately 56 firms found in the 1972 *Fortune 500*. Specifically, this paper analyzes the effect the firm's internal organizational structure and diversification strategies have on performance. Economic theory suggests that the implementation of the multidivisional organizational structure (M-form) in large diversified firms has a positive impact on performance. This is a decentralized structure with divisions established as independent profit centers. Day-to-day operating decisions are made at the divisional level, while the central office makes long-term strategic decisions. Most firms that utilize the M-form structure are diversified. Therefore it is useful to investigate the effect the firm's diversification strategy has on performance. I utilize a unique data set that effectively characterizes the sample firm's type of organizational structure over the period 1963-1973. This time frame presents an opportunity to investigate diversification strategies during their formative years. Previous research claims that diversified firms trade at a discount relative to single-segment firms. However, prior studies fail to include both measures of a firm's diversification strategy and its organizational structure. I theorize that when both variables are included in the analysis, the negative impact of these factors will be reduced. This paper outlines the approach, reviews past literature, previews some findings, and discusses work that remains.

INDEX WORDS: Corporate Performance, Diversification, Organizational Form

THE EFFECT OF ORGANIZATIONAL STRUCTURE AND DIVERSIFICATION ON FIRM PERFORMANCE

by

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CHAPTER 1

INTRODUCTION

Corporate performance is the dynamic issue permeating the mind of every CEO and financial economist in the new millennium. This is not a new trend, since the early 1900's, researchers, as well as the business community, have attempted to formulate guidelines or models that yield accurate predictions about the continually changing influences on firm performance. I increase our knowledge on this matter by considering the pivotal roles that the firm's internal organizational structure, in combination with its diversification strategy, plays in firm performance. These topics are often pursued as two separate issues in the literature. However, the forces that cause a firm to diversify may also cause it to change organizational form and vice versa. Therefore, a model of firm performance that does not properly control for these concerns will produce inaccurate results.

I have access to a unique data set that permits a look at the organizational structure of each firm in the sample. A firm's organizational structure is the way internal functions are organized and information is transmitted throughout the firm. If the firm's strategy is growth and diversification, then the efficient organizational structure is the multidivisional form. This decentralized, multidivisional (M-form) structure has in place the control systems which allow the corporate office to dictate operating decisions to the division managers so that the top executives can focus on long-term strategic planning.

These quasi-autonomous divisions maximize profits, as long as the proper incentives and control systems are present. It is assumed that firms adopting this structure are diversified or are in the process of diversifying.

There is an ongoing debate regarding the effect of diversification on firm performance. While a small number of studies find diversification does not decrease firm value, overwhelming evidence in the academic community shows diversification causes firms to trade at a discount relative to firms that are more focused. This creates something of an economic conundrum, since firms continue to engage in related and unrelated business diversification strategies. According to Villalonga (2000b), diversified firms employed approximately 50% of the total U.S. workforce and controlled nearly 60% of the total assets of publicly owned firms between 1990 and 1996. I provide information on this debate by examining the effect of both diversification and organizational structure on performance, an effect that is often left out of the diversification literature.

The role of internal structure and its effect on firm performance have not been considered in recent models in part because of the weak support found in past literature. More importantly, it is very difficult to obtain inside information that enables the researcher to construct a concise classification system that can accurately describe each firm's internal structure in a large sample of firms. However, I have acquired extensive internal classification information for approximately 59 firms from the 1972 *Fortune 500*. This study employs a unique classification system developed by Williamson and Bhargava (1972), and provides in-depth information on the organizational history of each firm in the sample. The organizational structure of firms at the beginning of the sample period, 1963-1973, was typically one of centralized control, or unitary in nature, with top

management involved in both day-to-day operating activities of the various departments and long-term strategic decision-making. However, as firms expanded production and diversified, both in related and unrelated areas, the centralized structure hampered firm performance. As a response to this decline in value, many firms in the sample implemented the multidivisional structure. However, there is no statistical support for the proposition that implementing the M-form increases performance. So why did firms adopt this structure, if not to increase value?

Past research suffers from incomplete model specification needed to explain firm performance, in particular, from looking at internal organizational structure and diversification as separate issues that affect the firm. The goal of this paper is to show that both the decision to diversify, and to adopt the multidivisional structure, are profit-maximizing choices for the firm. The main contribution to the existing literature is the prospect that the diversification decision, along with the firm's choice of organizational structure, must be considered simultaneously to determine their individual effects on performance.

CHAPTER 2

ORGANIZATIONAL STRUCTURE: LITERATURE REVIEW

In the early 1900's, corporations became larger either by acquiring physical and/or human capital or by the merging. Firms vertically integrated (both forward and backward) to ensure the supply of necessary inputs in the production process, to create synergies and/or to reduce costs. Firms were no longer pure manufacturing entities. The diversified firm now had to coordinate an internal distribution channel and raw materials production process. The supply of the input materials had to be coordinated with production, which in turn had to be in line with marketing efforts. Most firms adopted a centralized, functionally organized structure. This was designed to reduce the cost of production.

The most prevalent structure in the early 1900's was the unitary (or U-form) structure. The U-form had centralized control, with the top executives making both day-to-day operating and strategic long-run planning decisions. The corporate head office was also in charge of coordinating the functional departments, such as manufacturing, sales, finance, engineering, marketing, and R&D (Teece 1982, Porter 1985). In most cases, the managers of these departments were also members of the executive board.

However, as firms grew and acquired existing firms, they encountered internal turmoil. The multidivisional firm was a response to the failing centralized structure. The M-form structure decentralizes control and transfers cumbersome day-to-day operating decisions from corporate headquarters to divisional units, leaving the top executives free

to concentrate on the long-term strategic planning. The operating divisions are responsible for the procurement of inputs, production techniques, sales, R&D, etc. Executives of the M-form organization employ an "elite" staff that monitors and evaluates the individual divisions. The staff reports directly to the head office and is responsible for audits and advisory functions of the divisions. This creates an internal control mechanism the corporate office uses to evaluate and capture the profit of each division and reallocate the funds to the most profitable division or project, rather than returning the profits to their source. This internal capital market is a subset of benefits resulting from the M-form structure.

This paper sorts out ambiguities that plague the current literature regarding the multidivisional structure and firm performance. Several empirical papers have found that the M-form structure increases performance (Steer and Cable (1978), Hoskisson and Galbraith (1985), Teece (1981) and Hill (1985a)). Some papers find ambiguous results (Armour and Teece (1978), Harris (1983), and Thompson (1981)), and others find that the multidivisional structure does not increase the performance of the firm (Cable and Dirrheimer (1983), and Cable and Yasuki (1985)).

This paper extends the research of Harris (1983). He included measures of the firm's size, capital structure, growth, and diversification to model the performance of the firm. Harris utilizes two different models to determine firm profitability for approximately ninety firms. Harris's first model compares rates of return of the firm over time with the return of an industry standard. Next, the Capital Asset Pricing Models (CAPM) is used to examine the expected return between a firm that adopted the M-form and the expected return on the market portfolio. Harris used two different statistical

methods to measure firm profitability under the M-form organization compared to the unitary structure. The first technique involves the use of dummy variables in the regression analysis to indicate when the firm was organized along the multidivisional structure. This procedure is utilized in the current analysis. The second method compares the regression residuals five years after the adoption of the M-form, with those from the year that the structure was initially adopted. The results in the Harris paper are ambiguous and do not provide overwhelming support for the multidivisional hypothesis.

I analyze fifty-nine firms from the sample of approximately ninety firms analyzed in the Harris study. But, I use different performance proxies, along with alternative specifications of the explanatory variables and statistical techniques. This paper uses two different measures of performance. A profitability and a valuation measure to uncover the true effects of organizational form on firm performance. The significance of a firms organizational structure and diversification strategy on its' current and expected future value is estimated using both a short and long-run measure of performance. I calculate the return on invested capital (ROI), which measures profitability using accounting data. Tobin's *q* is utilized to measure the long-runs. This is a valuation measure which calculates the expected future value of the firm. Other papers that investigate the effect of organizational structure on firm performance have not looked at both short and long-run effects. Also, previous studies fail to control for the variation in *q* across industries and therefore produce biased results.

There are several reasons why there is little empirical support to document the positive relationship that exists between adopting the M-form structure and firm performance. First, many of the models underestimate the positive impact M-form

corporations have on performance because there are omitted variables in the regression analysis. The exclusion of, or failure to model correctly, a firm's diversification strategy in the estimation of corporate performance produces inaccurate estimates. The second problem is an empirical issue. Since the firm chooses to implement the M-form structure, this decision should be treated as endogenous decision to the model. A sample selection model is needed to control this endogeneity issue. However, this could not be employed because of data collection problems with the time period of the sample. By the same token, virtually all of research that investigates how the firm's diversification strategy affects its performance fails to consider the organizational structure of the firm. As a result, a large portion of the academic literature claims that the decision to diversify has a negative impact on firm performance. This result is puzzling, however, since it is a common business strategy for firms to engage in diversifying investments. This paper sheds some light on these discrepancies by controlling for the firm's organizational structure and its diversification strategy instead of treating them like two separate issues. When the two variables are accurately controlled for in the analysis, perhaps implementing both the M-form structure and the correct diversification strategy can increase the value of the firm.

CHAPTER 3

DIVERSIFICATION: LITERATURE REVIEW

Diversification is a common business strategy. However, studies over the last decade report that conglomerate firms trade at a discount relative to their single-segment equivalents (Lang and Stulz 1994, and Berger and Ofek 1995, Burch et al 2000). The explanations for the discount have been attributed to agency problems such as rent-seeking by divisional level managers, along with empire building by top management (Jensen 1986, Rajen, Servaes, Zingales 2000). It was not until the latter part of the 1990s that Villalonga (2000a, 2000b) and Campa and Kedia (1999) simultaneously and independently applied new empirical and sample selection techniques illuminated this paradox. These studies, which are discussed below, use different methods to arrive at the same conclusion that diversification is a value-enhancing decision of the firm.

The empirical research regarding the diversification discount can be categorized along the following lines: (1) diversification destroys firm value (Wernerfelt and Montgomery (1988), and Berger and Ofek (1995)); (2) diversified firms are valued at a discount, but this discount is due to factors other than diversification (Lang and Stulz (1994), and Burch, Nanda, Narayanan (2000)); and (3) there is no diversification discount and, in fact, there is a premium when the proper sampling and empirical methods are utilized (Villalonga (2000a, 2000b)[1], and Campa and Kedia (1999)). This research, which is in line with the most recent literature, maintains that diversification is a value-enhancing decision by the firm.

Campa and Kedia (1998) show that it is not diversification that destroys firm value, but the underlying unobservable firm characteristics that cause the firm to undertake diversifying investments. The external capital market is not discounting the action of diversification, but rather these fundamental traits that caused the firm to diversify. Adversity, either industry or firm-specific, often causes a firm to make a change in its organizational structure, such as to multidivisional. This may also be the reason for diversification. When the authors' control for firm-fixed effects, exogenous events, along with endogenous firm characteristics using two-stage least squares, the so-called discount becomes substantially weaker. However, when the authors employ a self-selection model of firms that diversify with Heckman's two-step procedure, they conclude that, once the decision to diversify is treated as endogenous and is jointly determined along with firm value, the diversification discount turns out to be a 45%

[1] Although Villalonga's techniques are an important extension to the literature, they cannot be implemented in the current analysis because the new database used in his analysis does not contain data for the sample period considered in this paper.

premium. Unfortunately, I cannot implement the empirical techniques used by Campa and Kedia to control for diversification and model firm performance using Heckman's two-step procedure. Because of the time period of the sample, it is virtually impossible to collect data and obtain instruments to measure unobservable firm characteristics. However, I aim to uncover evidence that shows that diversification does not have the negative effect that previous papers find when a measure of organizational structure is included in the model of firm performance.

CHAPTER 4

SAMPLE SELECTION AND MODEL GUIDELINES

The sample includes 59 of the 250 largest industrial firms featured in *Fortune 500* in 1972 compiled by Harris (1983). Data for the firms included in this sample are retrieved from Compustat and also from the Poor's Register of Corporations. This comprehensive data set includes an in-depth organizational history prepared for each firm in the sample. Harris accurately identifies what type of organizational form each of the 59 *Fortune 500* companies had in place over the 1963-1973 sample period, according to the classification system developed by Williamson and Bhargava (1972) and presented in Chart 1. Harris states determines whether or not the firm adopted the M-form organization at some point between 1963 and 1973. Chart 2 breaks down the years each firm spent in transition from its current organizational structure (in the sample) to the multidivisional form or identifies if the M-form was attained.

I perform some simple comparisons of the mean values of firm performance among the firms that have adopted the multidivisional structure relative to all other organizational structures in the sample. Then, to clarify the results obtained from the above analysis, I run a series of panel regressions of firm performance on a constant, two explanatory variables measuring, respectively, organizational structure and diversification. Control variables include size, leverage, and a measure of current cash flows for some of the regressions. I also include lagged variables that capture the possibility that adopting the M-form or a new diversification strategy takes time

before it is reflected in the performance of the firm. Each variable is observed for firm *i* in year *t*. The base model is as follows:

$$\text{Performance} = \alpha + \beta_1(\text{organizational structure}) + \beta_2(\text{diversification}) + \beta_3(\text{size}) + \beta_4(\text{leverage}) + \beta_5(\text{current profitability}) + \beta_6(\text{lagged M-form}) + \beta_5(\text{lagged diversification}) + \varepsilon$$

In investigations of the determinants of firm value, the dependent variable is always some measure of the firm's performance. I use two different variables to calculate performance. The first series of regressions employs return on invested capital (ROI), which measures the firms' current level of profitability. ROI utilizes accounting data and is measured as net income divided by total assets. The accounting rate of return is the ratio of accounting profits to the book value of assets. There are potential drawbacks to using this measure since accounting profits measure short-run profits, and do not take risk into account. Therefore, it is necessary to use a different dependent variable, Tobin's *q*, which captures the stock market's current judgment of future cash flows in a risk-return pricing framework.

Tobin's *q* is the ratio of the capital-market value of the firm to the replacement cost of the firm's tangible assets. It is necessary to control for variations in *q* across industries and this is discussed in the statistical analysis section. Theoretically, in a competitive environment the market value of the firm's assets should equal their replacement costs (q equals 1). If *q* is greater (less) than one, then the firm is overvalued (undervalued). I calculate an approximate measure of Tobin's *q* as the value of common and preferred stock plus total assets minus shareholder equity all divided by the total

assets of the firm (Smith and Watts 1992)[2]. Factors such as tax laws, different accounting techniques, and deviations of nominal from real values are taken into account in an efficient capital market, and do not distort *q*. However, this calculation leaves intangible assets out of the denominator, and can therefore overstate the relative performance of firms with large investments in intangibles. However, the results using these two different measures should accurately identify the effect of both organizational structure and diversification on performance.

The key variables determining firm performance are measures of diversification and organizational structure. The firm's internal organizational structure has an important effect on performance. This variable has not been considered in recent studies because of the difficulty in obtaining this type of undisclosed information. An equally important determinant of performance is the firm's diversification strategy. Past research finds that the decision to grow through diversification has a definite impact on firm value, though it may be negative, positive or depending upon the specific diversification strategy (related or unrelated). To estimate the effect of diversification on firm performance, I investigate the number of SIC codes at the two-digit level assigned to each firm in the sample. By using SIC codes as the diversification proxy, I can determine the number of different segments in which each firm operates. This allows me to compare the performance of diversified firms relative to more focused firms. This is admittedly a crude measure of diversification but, given the time period, there is no segment level data available for each firm. To be categorized as a single-segment firm, I

[2] There are several different methods used to calculate approximate *q*. However, studies have shown that the produce roughly the same results.

require the firm to operate in one segment over the entire period for which there is data available. I compare results from this treatment to a sample that treat firms as single segments any year in which that firm operated in only one segment.

The control variables include firm size, current profitability, and a measure of the firm's leverage. A measure of leverage should be included in the regression, since several papers have identified a relationship between the firm's diversification strategy and firm profitability. Since the diversified firms have more debt in their capital structure than less diversified firms this may cause the value of firms with more debt in their capital structure to appear less valuable than that of single-segment firms. Also, Belkaoui and Bannister (1994) found that the implementation of a multidivisional structure leads to an increase in the debt-to-equity ratio. To control for these effects, I use the ratio of debt to equity to proxy for the firm's financial capital structure. To control for the presence of economies of scale and its effect on profitability among the firms in the sample, a measure of size is included. This is necessary because more diversified firms are generally bigger than less diversified firms. The log of average total sales serves as a proxy for firm size. Finally, a measure of current performance is included as a control variable in the regression analysis when return on invested capital is used to measure firm performance. The firm's cash-flow margin can be used to estimate current profitability, and is calculated as income available from common stock plus depreciation less income taxes paid, plus R&D, all divided by net sales (Klein 2001). This controls for the impact that the firm's current condition has on performance.

CHAPTER 5

STATISTICAL TECHNIQUES

The following regressions consist of a time-series analysis of a cross section of firms, using data from the years 1963-1973. First I estimate a panel version of the model described previously, using ordinary least squares. Then, a firm-fixed effects estimator is used to control for intra-firm differences in the right-hand-side variables. Firm-fixed effects are introduced to control specifically for time invariant unobservable firm characteristics that affect both the diversification decision and the decision to adopt the M-form structure. This enables us to calculate the change in performance arriving from a change in organizational structure and a change in the diversification strategy using two performance measures: (1) a short-run profitability measure, ROI, and (2) a long-run valuation measure of industry-adjusted *q*.

Tobin's *q* is useful in examining how the level of firm value varies with firm structure. An industry-adjusted *q* is used since there is a large variation in q across industries. To compute industry-effects, the average *q* of firms that match the primary SIC code of the 59 firms in my sample at the two-digit level is calculated. More specifically, the 4-digit SIC code for each multiple-segment firm in each year of the sample based on the firm's primary SIC code is retrieved. For each segment-year, I searched for matching firms from the set of all single-segment firms in the Compustat database having in that year the same primary 2-digit SIC code as the diversified firm's segment. The average *q* of all the matched single-segment firms is calculated and

subtracted from each firm's annual unadjusted *q*. This is a technique that has not been applied to performance models that investigate organizational structure. The proxy for organizational structure is a dummy variable that indicates whether the M-form structure is in place across the firms during the sample years (e.g. M_{it}=1, if the M-form structure is in place for firm *i* in year *t*, and 0 otherwise).

The number of SIC codes assigned to each firm will be used to estimate the impact of diversification on performance. A dummy variable is constructed indicating whether each firm is diversified according to the number segments it operates in (e.g. D_{it}=1, if the firm operates in multiple segments, and 0 otherwise). The remaining control variables in the baseline model are size, leverage and a measure of cash flow margin that is included in the analysis only when the dependent variable is a measure of current profitability (ROI). When ROI is the dependent variable, the same explanatory variables are utilized. The control variables include size, leverage, and a proxy for the firm's current cash flow.

Barber and Lyon (1995) demonstrate that models which include the firm's past performance are more powerful than those that ignore it. Therefore, I will attempt to determine if there are lagged effects that may not come to fruition until several years after the M-form has been adopted. I argue that diversification strategy may also have lagged effects on the value of the firm, similar to those of the organizational structure decision. As a result, this is also controlled for in the regression analysis.

CHAPTER 6

SUMMARY STATISTICS AND EMPIRICAL RESULTS

The sample is an unbalanced panel data set that consists of 59 firms. It was possible to retrieve data on approximately half of the sample firms for an eleven-year period (1963-1973) and data on the remainder firms for an eight-year period (1966-1973). The means and standard deviations of the explanatory and dependent variables are presented for the full sample of firms in the first column of Table 1. The means and standard deviations of two different types of firms in the sample are computed. I restrict the sample to include only years that firms were M-form and years that the M-form structure was not present as listed in Table 1 in columns 2 and 3, respectively.

One of the most noteworthy points in Table 1 is the difference between the average unadjusted valuation measure, (TOBINSQ), and the industry-adjusted variable (ADJQ) located in column 1. There is a large variation in q across industries. TOBINSQ does not control for these differences. The average unadjusted estimate is 2.02 compared to 0.63 when industry effects are considered. The remaining statistics confirm prior results regarding the M-form structure. The industry-adjusted q of non-M-form years is significantly larger (1.07) than observation years that always had the multidivisional structure (0.46). In years that the M-form was present, firms were larger in size (LSALES) and had a higher debt-to-equity ratio than in non-M-form years. However, the profitability and the current cash-flow averages are slightly higher for the non-M-form years.

The sample is divided into diversified and non-diversified firms and the averages of the dependent and independent variables for the different types of firms listed above are computed. Non-diversified firms are firms that have only one SIC code (at the two-digit level) as listed in Standard & Poor's Register of Corporations, Directors and Executives. Diversified firms operate in multiple segments as measured by their two-digit SIC code. These summary statistics are reported in Table 2.

Within the sample of diversified firms, the firms in the sample of M-form years in column two had the highest average expected future performance measure along with the greatest number of segments among the three different samples. This supports the hypothesis that the multidivisional structure is the most efficient form for large diversified firm. When the results between the diversified and non-diversified firms are compared, the average profitability (ROI) is highest in years that the M-form structure was not present and the firm operated in a single segment (see column 3). However, the diversified firms that operated in a single-segment had the larger average cash flow (CFM). The number of segments is larger for single-segment firms in years that the M-form structure was not present, but this is because of the one non-M-form firm that operates in thirty-six segments which skews the results. A surprising result is that the average single-segment firm has a higher debt-to-equity ratio than the average multi-segment firm within the sample of M-form years (column 2). Regression analysis is needed to measure the effects of these variables on firm performance.

The OLS regression results are compared to the fixed-effects estimates using the two different performance measures. Let us examine the results from the two models

using the current measure of profitability (ROI) and compare these to the industry-adjusted expected future value estimates (ADJQ). Both models have the form

$$\text{Performance} = \alpha + \beta_1(\text{organizational structure}) + \beta_2(\text{diversification}) + \beta_2(\text{size}) + \beta_3(\text{leverage}) + \beta_4(\text{lagged M-form}) + \beta_5(\text{lagged diversification}) + \varepsilon$$

where

performance = industry-adjusted Tobin's q

organizational structure = log of the number of segments

diversification = number of firm SIC codes and takes on the value 1 if the firm operates two or more different segments (as measured by its two-digit SIC code) zero otherwise

size = log of sales

leverage = debt-to-equity ratio

lagged M-form = 1 if the firm has been an M-form for the past five years and zero otherwise

lagged diversification = dummy variable with a lag of one year

Four different versions of the industry-adjusted model of performance are presented. The first version includes organizational structure (M-form), whereas the second includes a measure of diversification (number of segments in which the firm operates at the two-digit level). The third variation includes both organizational structure and the number of segments, while the final version includes both of the previously mentioned variables along with a dummy variable indicating whether the firm had the M-form organizational structure in place for at least five years. The results from the OLS and fixed-effects analyses for the two performance measures, ROI and industry-adjusted *q*, are reported in Tables 5 and 6, respectively.

When ROI is utilized as the dependent variable in the regression analysis (Table 6), firm size and leverage are positively and negatively related to current profitability, respectively, and are in line with economic intuition. The estimated coefficient on the size of the firm is highly significant in the fixed-effects regressions that include proxies for organizational structure and the number of segments in which the firm does business. The coefficient on the debt-to-equity ratio is negative and highly significant in both the OLS and fixed-effects models. The coefficient on the M-form dummy variable is negative and highly significant for all models in Table 6. It may be the case that these firms were poorly performing firms before they adopted the M-form. Since ROI is a profitability measure of the firm's current financial situation, it does not capture the long-run value the M-form structure can induce in the diversified firm. So I investigate what happens when an expected-future-value measure is the dependent variable in the performance analysis.

In this section, the same exercises described previously but using an industry-adjusted *q* are repeated. I compare the results from this regression to an unadjusted measure of Tobin's *q* that most studies use to measure performance. These estimates are reported in Tables 4 and 5. The size of the coefficients on the M-form variable is reduced for most of the analysis using an industry-adjusted measure of the firm's long-run value. Diversification has a negative and statistically significant effect on the expected-future-value of the firm in the results reported in Table 4. However, when an industry-adjusted measure of q is used, the effect of diversification within the firm has no significant effect on performance. Therefore, when Tobin's q is not adjusted to include industry effects, the negative impacts of both diversification and the M-form structure are overestimated.

The results reported in Table 5 were obtained with an industry-adjusted measure of q. The sign on the debt-to-equity ratio is negative for both the OLS and the fixed-effects models and is consistent with economic intuition. In two of the OLS regressions, firm size has a negative effect on the value of the firm, which is a counterintuitive result. However its sign is positive and significant in all of the fixed-effects models. The coefficient on the organizational structure variable is significant and negative in the OLS regressions. However, when firm-specific characteristics are controlled for in the model, the coefficient on organizational structure is positive and no longer significant. Diversification has a negative and statistically significant impact on the expected future value of the firm in the OLS regressions. However, this variable has an insignificant impact on expected future performance in the fixed-effects analysis.

According to Campa and Kedia (1999), the only coefficient that significantly changes between the OLS and fixed-effects regressions is on diversification. Using excess value to measure firm performance, they conclude that this result supports their prior that diversification is correlated with unobserved firm characteristics and cannot be accurately estimated with the OLS or fixed-effects models. They document a diversification discount of 4% using a sales multiplier in a fixed-effects model. Campa and Kedia investigate segment-level data to value each segment of the diversified firm as if it were a stand-alone firm. I am unable to do this because segment-level data were not available for the time period of my sample. The coefficient on my diversification variable remains the same sign, but is different in size between the two models. However, using a firm-fixed-effects model and a valuation measure of performance, diversification has no impact on the value of the firm in my sample. However, when a

measure of current profitability (ROI) is used, along with a dummy variable that indicates whether the firm has adopted the M-form structure, the discount is significant and decreases to 0.01%. Therefore, when a variable is included to measure the firm's internal organizational structure, the model better fits the data and diversification has no impact on the expected future value of the firm.

The next step is to analyze only the years that firms had the M-form structure in place and years when other organizational types were observed to see what factors influence performance. I now determine if there are fundamental differences in firms when the M-form structure is in place relative to the other six types of organizational forms listed in Chart 1. The OLS and firm-fixed-effects estimates for all years that firms had the M-form structure and those in which they chose another form for organizing economic activity are included. These results are shown in Tables 7 and 8, respectively. The results for both measures of performance are listed. There were 332 observations in this sample. 73% of all the firms in the sample were M-forms at some point in time, while only 27% included non M-form years. When the sample is restricted to include only years that firms had adopted the M-form (Table 7), the coefficients on the control variables have the correct signs and produce results similar to those previously discussed. Diversification has a negative and highly significant impact on current profitability (ROI) in the firm-fixed-effects model (column 2). However, in the long-run, diversification has a positive and significant effect on firm value (column 3) in the simple OLS analysis. But when firm-specific effects are taken into consideration, this variable has no significant impact on expected-future-value when the firm organizes economic activity through the M-form. This is an important addition to the existing literature, and helps to

resolve puzzling results between previous studies that find diversification reduces firm value and what firms actually do in the business world.

Table 8 includes results for the short- and long-run measures of performance in years that firms did not adopt the M-form structure. Diversification has a negative and statistically significant impact on short-run profitability of the firm in the OLS and fixed-effects models. However, when the within-firm variation in the independent variables are controlled, this impact is slightly reduced. Diversification in non-M-form years has a negative and significant influence on the expected future value of the firm (ADJQ) in the OLS model, but has an insignificant impact when firm-fixed effects are explored. One of the main distinctions between M-form and non-M-form years is that diversification has a significant and negative impact on the firms' current and future performance in non-M-form years. Past studies, which investigated the effect of diversification, did not include the firm's organizational structure and therefore overestimate the impact of diversification on firm performance. Overall, it appears that a diversification strategy has no impact on future firm performance, if the correct organizational form is in place to implement this strategy. This is an important addition to the existing literature.

The sample is restricted to firms that switched to the M-form structure at some time during the sample to better understand the impact of this organizational form on firm performance. There are twenty-one firms that meet this criterion and they are approximately 36% of the entire sample. Table 14 reports the means and standard deviations of firms before and after they adopted the M-form structure. The short-run profitability of the firm (ROI) is unaffected by a switch to the M-form structure, while the average expected future value of the firm is significantly increased. This confirms the

belief that it takes time before a change in structure leads to an increase in performance. When the M-form structure is implemented, the average size of the firm and its cash-flow margin are increased, while the debt-to-equity ratio is reduced. It is interesting to note that when the firm adopts the M-form structure the average number of segments it operates in increases as well. This lends weak support for Williamson's theory that the M-form structure may reduce the cost of diversifying.

I now report the results of the OLS and fixed-effects models for both ROI (Table16) and industry-adjusted q (Table 15). These regression results confirm the summary statistics previously discussed. All of the coefficients on the control variables have the correct signs and are in line with economic intuition when ROI is the dependent variable. The size of the firm has a positive impact on current profitability (ROI). However, this is significant only in the fixed-effects regression when all control variables are included in the regression analysis, along with explanatory variables representing organizational structure, a five-year lag of organizational structure, and the number of firm segments. The debt-to-equity ratio is negative and significant in all of the fixed-effects models. The measure of the firm's cash flow margin has a positive and statistically significant effect on current profitability across all firms but is not significant within each firm. The more interesting result that emerges lies with the organizational structure and diversification variables. In the OLS results the presence of the M-form does not have a significant effect on current performance, although, it has a negative and significant impact on the short-run profitability measure when firm-fixed effects are utilized. The sign on the diversification coefficient is negative in all the models are reported in Table 16 and is statistically significant in all the OLS regressions when ROI is

the dependent variable. Diversification has a negative impact on ROI in the fixed-effects models but its coefficient is only significant in one of the four regressions.

Table 15 includes estimates using a sample of firms that adopted the M-form structure when the long-run measure of performance is the dependent variable. Sales, which measures firm size, is the only variable that has a positive and statistically significant effect on adjusted *q* in the eight regressions reported in Table 15. Therefore, firm size has a positive influence on the firm's future performance. A firm's debt-to-equity ratio has a significant impact on future expected profitability (ADJQ), but alternates signs in the OLS and fixed-effects models between a positive and negative, respectively. This implies that, within each firm, the debt-to-equity ratio has a negative impact on expected future profitability. The expected future performance within each firm is no longer affected by the firm's diversification strategy nor by its organizational form.

I have shown that diversification has a significantly negative impact on current performance. However, it is worthwhile to investigate distinctions between diversified and non-diversified firms using the same models previously discussed. Diversified firms operate in two or more segments while non-diversified firms operate in only one segment. Among multiple-segment firms, there were broadly four types: firms which diversify, those that refocus, those that do both and, finally, conglomerate firms that did not change the number of segments in which they operate. Table 9 gives an overview of the distribution of firms by their diversification strategy. Single segment firms represent 15% of the firms in the entire sample. Firms that implement a diversification strategy are approximately 32% of the sample. Firms that chose to refocus their business strategy

made-up only 10% of the sample, yet nineteen firms, or approximately 32%, both diversified and focused over the entire sample period. Approximately 14% of the firms were multi-segments and did not change their number of segments over the eleven-year period.

The sample consists of more diversified firms than non-diversified firms, with 350 and 206 respective observations. Table 11 reports estimates using the dependent variable profitability (ROI) in the analysis. Firm size has a positive and significant impact on current and expected future performance. The debt-to-equity ratio has a negative and statistically significant impact in all the models where ROI is the dependent variable. Current performance is positively affected by the firm's cash flow margin in four of the six models. The presence of the M-form structure has no significant impact in the OLS results but has a negative and significant effect on the profitability measure in the firm-fixed-effects model.

The estimates for multi-segment firms using industry-adjusted *q* to measure the performance of diversified firms are reported in Table 10. These results are somewhat different and less statistically significant compared with the measure of current performance (ROI). The coefficients on firm size remains positive and significant in the OLS and fixed-effects results, which follows economic intuition since diversified firms are usually larger than firms that are non-diversified. The debt-to-equity ratio has a negative impact on expected future performance across all firms (in the OLS results) and a negative but insignificant impact within each firm (in the fixed-effects results). For diversified firms, the presence of the M-form structure has a positive and significant impact on expected future value as reported in the first column of Table 10. However,

the M-form structure has a negative and statistically significant impact when firm-specific characteristics are considered. When the M-form structure has been in place for at least five years, LAGM has a positive and significant impact on the industry-adjusted *q* of diversified firms. This inference disappears in the fixed-effects model. These results lend support to Campa and Kedia's proposition that firms choose to diversify because of unobservable firm-specific characteristics and therefore simple OLS and firm-fixed-effects estimates are biased. Ideally, a sample selection model would be employed to determine what effect a diversified M-form firm has on performance. Unfortunately, this type of model cannot be estimated in this paper due to data collection problems and the time period of the sample.

The same exercise for a sample of non-diversified firms is performed. The estimates for non-diversified firms, using ROI and industry-adjusted *q* as the performance measures, are reported in the Tables 12 and 13. There are some interesting differences between the sample of non-diversified and diversified firms when current profitability (ROI) is used to measure performance. For non-diversified firms, cash flow has a negative and insignificant impact on profitability but a positive effect for diversified firms. Current performance is negatively affected by the debt-to-equity ratio for single and multi-segment firms. The biggest distinction between the two samples using ROI as the left-hand-side variable is the effect that the M-form structure and its lagged value have on performance. For diversified firms, the M-form structure and its five-year lag did have a positive influence on profitability in at least one of the regressions, but both of these variables are negative sign and significant for non-diversified firms.
These results weakly support the theory that the M-form structure is best suited for large

diversified firms. When expected future profitability (ADJQ) is the dependent variable the estimates for non-diversified and diversified firms are similar and are reported in Table 12. The significant impact that the M-form structure has on expected future value disappears when firm-fixed effects are included.

CHAPTER 7

CONCLUSIONS

This paper merges two pieces of the existing literature into a comprehensible model of corporate performance. The empirical literature on corporate performance and organizational form has documented mixed results for the M-form structure. The majority of the diversification literature finds that firms which operate in multiple-segments are discounted relative to more focused firms. By looking at the effect both a firm's organizational structure and its diversification strategy have on performance, some of the idiosyncrasies that plague the current literature are eliminated.

Industry and firm characteristics greatly influence the firms' overall performance. When an industry-adjusted measure of Tobin's *q* is used, and firm-specific characteristics are controlled, the negative and significant impact found in the simple OLS estimates disappears (Table 5). The multidivisional structure has a negative and highly significant impact on the firms' current profitability even after industry and firm-specific characteristics are considered (Table 6). However, the M-form structure does not affect the value of the firm when a firm-fixed effects-model is estimated and industry effects are included in the analysis. Therefore, when firms adopt the M-form structure, it has a negative impact on profitability but no long-run effect on firm value.

When diversified firms are examined, the M-form structure has a negative and highly significant impact on short-run profitability in the fixed-effects analysis (Table 11). However, organizational structure has a positive influence on the expected-future-

value of the firm in the OLS analysis (Table 10). Also, using simple OLS, a five-year lag of organizational structure has a positive and significant influence on long-run firm value (column 6). However, the performance of the sample of non-diversified firms is negatively and significantly impacted by the presence of the M-form structure in the short-run using either OLS and fixed effects analysis (Table 13, columns 6 and 7). A puzzling result is found in Table 12. Past studies claim that the M-form structure is best suited for the large diversified firm, so the presence of the M-form structure in a non-diversified firm should have a negative effect on performance. But, the M-form structure has no long-run significance on firm performance in single-segment firms. Therefore, the presence of the M-form structure does not affect long-run value in diversified or non-diversified firms using the fixed-effects analysis.

When the sample is restricted to firm years when the M-form was in place, more definitive results emerge regarding diversification. Table 7 confirms that diversification has a negative and significant impact on current profitability even when firm and industry specific characteristics are controlled. Although, diversification has a positive and significant influence on long-run value using simple OLS analysis (0.31), it has no effect on performance when firm-fixed effects and industry traits are considered. As expected, diversification has a negative and significant impact on current profitability when the sample includes only years when firms had a non-M-form organizational structure. This impact remains negative and highly significant in the OLS model using the expected future value measure, but has no effect in the long-run when the fixed-effects model is employed (Table 8).

Although this paper proves that the multidivisional structure does not decrease firm value, there is little support that adopting the M-form structure increases profitability or expected future value. Ideally, a sample selection model would have been used to estimate these effects. However, it is virtually impossible to obtain segment-level data for the statistical analysis because they are unavailable for the time period of the sample (1963-1973). The previous studies overestimate the diversification discount because they fail to investigate if the firm has the necessary M-form structure in place to implement its diversification strategy. These results bring the current literature in line with real-world business strategies that are regularly implemented, namely; the multidivisional structure and diversification strategy do not decrease firm performance.

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APPENDIX

Chart 1: Classification of Organizational Structure

U-form: centrally controlled. The functional departments (sales, manufacturing, engineering, etc) are given daily operating responsibilities with the head of each of the departments a member of the executive office. The top executives not only coordinate long-term strategic planning for the firm but coordinate and evaluate the activities of the individual departments (operating duties).

U-H form: U-forms with subsidiaries. U-form may include subsidiaries which operate separately and independently from the rest of the corporation--M-form controls are lacking.

H-form: divisionalized like M-form but does not have internal control system. Found among conglomerates in 1960s.

M'-form: transitional form of the M-form. Usually, M-form system in place, but some portion of the structure is missing or ineffective in implementation.

Mbar-form: divisionalized but members of executive office still involved in daily operating decisions.

X-form: similar to U-H. Major part of X-form is centralized like the functional structure. But includes subsidiaries which have the same control relationship to the major part of the firm like the divisions of the M-form to the head office. The executive staff of the large functional division serves as staff of the entire firm.

CHART 2 ORGANIZATIONAL HISTORY

CUSIP	NAME	YEARS	TYPE
24735	American Broadcast	1942-53	U
		1953-66	U-H
		1966-73	M
32393	Anaconda	1935-71	H
		1971-73	M
35229	Anheuser-Busch	1950-72	U-H
39483	Archer-Daniels-Midland	1950-56	U (or U-H)
		1957-72	M
42170	Armco Steel	1935-67	U-H
		1967-73	M
53501	Avon Products	1935-70	U
		1971-73	U-H
56147	Babcock & Wilcox	1935-58	U-H
		1958-63	M'
		1963-73	M
74077	Beatrice Foods	1935-73	M
81689	Bendix	1935-64	H
		1965-68	M
		1969	H
		1970-73	M
87509	Bethlehem Steel	1935-73	U-H
97023	Boeing	1935-60	U
		1960-71	CM
		1971-73	M
99599	Borden	1935-67	M'
		1967-73	M
117043	Brunswick	1935-59	U
		1959-73	M
121691	Burlington Industries	1935-53	U-H (or H)
		1954-62	M'
		1962-73	M
144465	Carrier	1953-53	U
		1969-72	M
149123	Caterpillar Tractor	1935-73	U
150843	Celanese	1935-41	U
		1942-46	U-H
		1947-59	CM
		1960-61	M'
		1962-73	M
171196	Chrysler	1935-55	U
		1955-57	CM
		1958-73	U (or U-H)
191216	Coca-Cola	1935-67	U-H
		1968-73	M

231021	Cummins Engine	1935-58	U
		1958-67	U-H
		1968-69	M'
		1970-73	U-H
235811	Dana	Until 1964	U
		1964-74	M
244199	Deere	1935-54	U
		1954-69	U-H
		1970-73	M'
260543	Dow Chemical	1935-63	U-H
		1963-73	CM
263534	DuPont	1935-73	X
318315	Firestone Tire	1935-73	X
345370	Ford Motor	Until 1946	U
		1946-62	M'
		1968-73	M
369604	General Electric	1935-46	U
		1946-51	M'
		1951-73	M
369856	General Foods	1935	H
		1936-46	U (or U-H)
		1946-52	M'
		1952-73	M
370334	General Mills	1935-37	H
		1937-73	M
374280	Getty Oil	1935-49	H
		1949-59	CM
		1959-73	M
402237	Gulf Oil	1935-55	U
		1956-68	M'
		1968-73	M
423074	Heinz	Until 1966	U-H (orH)
		1966-74	M
438506	Honeywell	1935-41	U
		1941-61	M
		1961-73	M
440452	Hormel (George)	1935-65	M'
		1965-73	M
456866	Ingersoll-Rand	1935-64	U
		1964-73	M
459200	IBM	1936-56	U
		1956-66	M'
		1966-72	M
478160	Johnson & Johnson	1935-73	M
489314	Kennecott Copper	1936-67	U-H
		1968-73	X (with one

			division H)
494368	Kimberely-Clark	1935-49	U
		1950-60	U-H
		1960-65	CM
		1965-73	M
532202	Liggett & Myers	Until 1964	U
		1964-69	X
		1970-73	M
532457	Lilly (Eli)	1935-73	U-H
604059	Minnesota Mining (3M)	1935-44	U
		1944-48	U (or X)
		1948-73	M
607059	Mobil Oil	Until 1959	U-H
		1959-73	M
620076	Motorola	Until 1941	U
		1946-56	CM
		1956-68	M'
		1968-73	M
666807	Northrop	1939-1953	H
		1959-73	M
713448	Pepsico	1950-64	U (or U-H)
		1964-73	M
715824	Pet	1935-59	U (or U-H)
		1959-61	M'
		1961-73	M
721510	Pillsbury	Until 1958	U
		1958-68	M'
		1969-73	M
742718	Proctor & Gamble	Until 1956	U (or U-H)
		1956-66	CM (or M')
		1966-73	M
745791	Pullman	Until 1964	H
		1964-73	M'
747402	Quaker Oats	1935-41	U
		1942-70	U-H (may be X since 1966)
		1970-73	M
751277	Ralston-Purina	Until 1956	U

		1956-64	U-H
		1965-66	M'
		1967-72	M
761763	Reynolds Metals	Until 1969	U
		1969-74	CM
882508	Texas Instruments	1935-51	U
		1951-53	U-H
		1954-56	M'
		1957-73	M
909160	Uniroyal	1935-57	CM
		1957-60	M'
		1960-73	M
903293	U.S. Gypsum	Until 1965	U-H
		1960-67	M' (or M)
		1968-73	M (or M')
912078	U.S. Industries	Until 1950	U
		1950-73	H (may be M' since 1969)
989349	Zenith Radio	1935-73	U (or U-H)

CHART 3 Profile of Firms' Organizational Structure and Diversification

Single-Segment Firms

Always M-form 2
- General Foods
- Hormel

Switched to M-form 6
- Anaconda
- Carrier
- Coca-Cola
- Ford Motor
- Heinz
- Ralston-Purina

Never M-form 1
- Avon Products

Diversified Firms

Always M-form 7
- Babcock & Wilcox
- Beatrice Foods
- Celanese
- Getty Oil
- Honeywell
- Minnesota Mining & Manufacturing
- Texas Instruments

Switched to M-form 2
- Liggett & Myers
- Proctor & Gamble

Never M-form 9
- Chrysler
- Cummins Engine
- Deere
- Dow Chemical
- DuPont
- Kennecott Copper
- Pullman
- Reynolds Metals
- Zenith Radio

Table 1 Summary Statistics

	All Firms	M-form Years	Non-M-form Years
Total	59 Firms	43 Firms	16 Firms
% of Firms		73%	27%
ADJQ	0.62727	0.4897	1.07354
	1.76	1.29	2.64
Tobins Q	2.0187	NA	NA
	1.77		
Sales	1913.41223	2046.91783	1715.53786
	2650.33	2955.46	2109.72
DE	2.55295	2.82282	1.71115
	6.5	6.77	6.05
ROI	0.070807	0.065519	0.08317
	0.04	0.03	0.05
CFM	0.046204	0.042963	0.05823
	0.04	0.03	0.04
D	2.55755	2.71988	6.72603
	2.07	1.77	6.66

The table displays the means and standard deviations for firms according to different restrictions place on the sample. Column 1 includes the averages of all the firms in the sample. The second column includes only years that firms had the M-form structure in place. Finally, column 3 reports descriptive statistics for years that another organizational form is utilized. ADJQ is the industry-adjusted Tobin's q. Tobin's Q is the unadjusted for industry effects. Lsales is the log of sales. DE is the debt-to-equity ratio. ROI is the return on invested capital. CFM measures the firm's cash flow margin. All previously mentioned variables are measure in millions of dollars. Finally, D gives the average number of segments in each of the samples.

Table 2
Diversified Firms

	All Firms	M-form Years	Non M-form Years
ADJQ	0.39873	0.49443	0.21989
	1.24	1.32	1.06
Sales	1987.06151	2014.12570	1936.48254
	2266.41	2408.70	1981.70
DE	2.87357	2.79963	3.01176
	7.14	6.93	7.55326
ROI	0.0619	0.06176	0.06216
	0.03	0.03	0.03
CFM1	0.0528	0.04916	0.05962
	0.04	0.04	0.04
D	3.4743	3.5	3.41803
	2.13	1.62	2.87

The table displays the means and standard deviations for diversified firms (based on the number of segments a firm operates in at the 2-digit level) according to different restrictions place on the sample. Column 1 includes the averages of all the firms in the sample. The second column includes only years that firms had the M-form structure in place. Finally, column 3 reports descriptive statistics for years that another organizational form is utilized. ADJQ is the industry-adjusted Tobin's q. Lsales is the log of sales. DE is the debt-to-equity ratio. ROI is the return on invested capital. CFM measures the firm's cash flow margin. All previously mentioned variables are measure in millions of dollars. Finally, D gives the average number of segments in each of the samples.

Table 3 Non-diversified Firms

	All Firms	M-form Years	Non M-form Years
ADJQ	1.01557	0.47932	1.56234
	2.34	1.22	3.00
Sales	1788.27995	2118.80827	1451.27068
	3201.1	3908.43	2234.50
DE	2.00819	2.87366	1.12576
	5.19	6.32	3.54
ROI	0.08594	0.02939	0.09837
	0.04	0.03	0.053
CFM1	0.035	0.02939	0.04070
	0.03	0.05	0.04
Segments	1	1	1
	0	0	0

The table displays the means and standard deviations for single-segment firms (as identified by their 2-digit SIC code) according to different restrictions place on the sample. Column 1 includes the averages of all the firms in the sample. The second column includes only years that firms had the M-form structure in place. Finally, column 3 reports descriptive statistics for years that another organizational form is utilized. ADJQ is the industry-adjusted Tobin's q. Lsales is the log of sales. DE is the debt-to-equity ratio. ROI is the return on invested capital. CFM measures the firm's cash flow margin. All previously mentioned variables are measure in millions of dollars. Finally, D gives the average number of segments in each of the samples

TABLE 4 Tobin's Q Performance Model (unadjusted)

VAR	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
C	2.72495***	NA	2.64836***	NA	2.71774***	NA
	(-4.5297)		(4.40523)		(4.52561)	
Sales	-0.05799	-0.16982**	-0.05271	-0.06499	-0.03835	-0.05930
	(-0.6909)	(-2.09203)	(-0.62497)	(-0.76698)	(-0.45447)	-(0.62606)
DE	-0.03**	-0.03016*	-0.02911**	-0.02844	-0.02742**	-0.03014*
	(-2.5744)	(-1.65898)	(-2.48540)	(-1.57527)	(-2.34020)	(-1.66257)
M	-0.3685**	0.08811	NA	NA	-0.40186**	0.08728
	(-2.417)	(0.90081)			(-2.04368)	(0.89151)
Lagm	NA	NA	NA	NA	-0.12947	-0.11784
					(0.64004)	(-1.15704)
D	NA	NA	-0.25839**	-0.17871**	-0.23721**	-0.16760*
			(-2.23695)	(-1.97053)	(-1.98614)	(-1.84112)
R^2	0.02398	0.89926	0.02251	0.89988	0.03101	0.90029

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Eight panel regression estimates are reported in this table for the OLS and firm-fixed effects models. The dependent variable is Tobin's *q* and is unadjusted for variation in *q* across industries. All the variables are the same as reported in the previous tables, except for Lagm. This indicates if the M-form structure was in place five-years prior to each observation year. T-statistics are reported in parenthesis.

Table 5 Industry-Adjusted Tobin's Q Performance Model

VAR	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
C	0.96202* (1.61120)	NA	0.89580 (1.50152)	NA	0.95772** (1.60732)	NA
Sales	-0.00886 (-0.10630)	0.18059** (2.15208)	-0.00435 (-0.05204)	0.23415** (2.66905)	0.00899 (0.10734)	0.21597** (2.19875)
DE	-0.03211** (-2.77298)	-0.02833 (-1.50750)	-0.03133** (-2.69531)	-0.02800 (-1.49810)	-0.02938** (-2.52732)	-0.02785 (-1.48133)
M	-0.31850** (-2.10540)	0.00970 (0.09589)	NA	NA	-0.43519 (-2.23059)	-0.00100 (-0.00983)
Lagm	NA	NA	NA	NA	0.25691 (1.28006)	0.06319 (0.59825)
D	NA	NA	-0.22270** (-1.94282)	-0.11657 (-1.24145)	-0.22289** (-1.88089)	-0.12043 (-1.27560)
R^2	.023047	.890608	.021890	.890946	.030692	.891025

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Eight panel regression estimates are reported in this table for the OLS and firm-fixed effects models. The dependent variable is industry-adjusted Tobin's *q*. All the variables are the same as reported in the previous tables, except for Lagm. This indicates if the M-form structure was in place five-years prior to each observation year. T-statistics are reported in parenthesis.

Table 6 Return on Investment (ROI) Performance Model

Variable	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
C	0.07353***	NA	0.07287***	NA	0.07415	NA
	(5.64999)		(5.64455)		(5.78189)	
CFM	-0.01506	0.03116	0.03379	0.03833	0.01173	0.02129
	(-0.32487)	(0.59639)	(0.73677)	(0.73375)	(0.25453)	(0.41362)
Lsales	0.00115	0.00331	0.00101	0.00416**	0.00171	0.00970***
	(0.60329)	(1.41769)	(0.53609)	(1.70852)	(0.91265)	(3.62323)
DE	-0.00097***	-0.00261***	-0.00087***	-0.00274***	-0.00084***	-0.00262***
	(-3.85665)	(-5.04269)	(-3.43502)	(-5.31901)	(-3.35875)	(-5.16048)
M	-0.01278***	-0.00862***	NA	NA	-0.01105**	-0.00843***
	(-3.87564)	(-3.09415)			(-2.64125)	(-3.07397)
Lagm	NA	NA	NA	NA	0.00116	-0.00910***
					(0.27105)	(-3.07397)
Lsegment	NA	NA	-0.01202***	-0.00823***	-0.01083***	-0.00804***
			(-4.86573)	(-3.17551)	(-4.24630)	(-3.14997)
R^2	.056317	.806184	.070529	.828010	.087043	.835094

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Eight panel regression estimates are reported in this table for the OLS and firm-fixed effects models. The dependent variable is return on invested capital. All the variables are the same as reported in the previous tables, except for Lagm. This indicates if the M-form structure was in place five-years prior to each observation year. T-statistics are reported in parenthesis.

Table 7 Estimates for All M-form Years
Dependent Variable:

	ADJQ		**ROI**	
Variable	OLS	Fixed Effects	OLS	Fixed Effects
Constant	-1.67944**	NA	0.02304	NA
	(-2.87697)		1.61362	
Lsales	0.27517***	0.34062***	0.00642**	-0.00223
	(3.4452)	(3.50789)	(3.19325)	(-0.85642)
DE	-0.01307	-0.025297	-0.00054**	-0.00273***
	(-1.25834)	(-1.07422)	(-2.10896)	(-4.32725)
CFM1	NA	NA	-0.01816	-0.08583
			(-0.34996)	(-1.56861)
D	0.30695**	-0.08325	-0.00120	-0.00906***
	(2.87433)	(-0.90906)	(-0.45137)	(-3.68755)
R^2	0.07057	0.88872	0.05386	0.86138

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

This table reports four panel regression estimates for all observation years that the M-form structure was present. Results using both performance measures are listed and t-statistics are reported in parenthesis.

TABLE 8 Estimates for Non-M-form Years
Dependent Variable:

	ADJQ		**ROI**	
Variable	OLS	Fixed Effects	OLS	Fixed Effects
Constant	3.05282** (-2.72981)	NA	0.10834*** (-4.71902)	NA
Lsales	-0.23724 (-1.47274)	0.18831 (-1.00082)	-0.00218 (-0.62712)	0.01638** (-3.13212)
DE	-0.03902 (-1.57480)	-0.03199 (-1.00018)	-0.00104** (-2.06910)	-0.00232** (-2.67186)
CFM	NA	NA	0.01688 (-0.21105)	0.08291 (-0.83042)
D	-0.84215*** (-3.56310)	-0.23108 (-1.10188)	-0.02277*** (-4.79371)	-0.01075* (-1.89194)
R^2	0.09534	0.90351	0.14203	0.83385

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Table 8 reports four panel regression estimates for all observation years that the M-form structure was present. Results using both performance measures are listed and t-statistics are reported in parenthesis.

TABLE 9 Distribution of Firms by Diversification Profile

Firms which were always single segment	9
Firms which diversify	19
Firms that diversify once from 1 segment to more	6
Firms that diversify once from multiple segment to more	5
firms that diversified multiple times	8
Firms which refocus	6
Firms that refocus once from multiple to single	4
Firms that refocus once from multiple to multiple	2
Firms that refocus multiple times	0
Firms that both focused and diversified	17
Multi-segment firms that didn't change number of segs	8

Table 10 Diversified Firms
Dependent Variable ADJQ

Variable	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
Constant	-1.20253**	NA	-1.15484**	NA	-1.13020**	NA
	(-2.17398)		(-2.12938)		(-2.0569)	
Lsales	0.20745**	0.15716**	0.19827**	0.12619*	0.19749**	0.15848*
	(-2.77302)	(-2.13778)	(-2.67326)	(-1.6666)	(-2.65744)	(2.04872)
DE	-0.02029*	-0.00471	-0.02060**	-0.00793	-0.02066**	-0.00471
	(-2.17681)	(-.29964)	(-2.23097)	(-.50514)	(-2.23363)	(-0.29950)
M	0.26906**	-0.19582*	NA	NA	-0.05432	-0.19524**
	(-1.98109)	(-1.88900)			(0.29430)	(-1.87083)
M(-5)	NA	NA	0.41681**	-0.02523	0.45230**	-0.00568
			-3.24062	(-.24268)	(2.56371)	(-0.05540)
R^2	0.05509	0.89362	0.07252	0.89237	0.07276	0.89363

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Table 10 reports six panel regression estimates for all diversified firms in the sample. The performance measure is industry-adjusted *q*. T-statistics are reported in parenthesis.

TABLE 11 Diversified Firms
Dependent Variable: ROI

Variable	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
Constant	0.02449** (-1.78816)	NA	0.02441* (-1.7999)	NA	0.02511* (-1.82992)	NA
LSALES	0.00439 (-2.26239)	0.00654*** (-2.49995)	0.00430** (-2.21126)	0.00745** (-2.78849)	0.00429** (-2.20456)	0.00939*** (-3.46221)
DE	-0.00048** (-2.05032)	-0.00195*** (-3.52319)	-0.00048** (-2.04479)	-0.00215*** (-3.90546)	-0.0005** (-2.0536)	-0.00196*** (-3.60021)
CFM	0.12910** (-2.9186)	0.01796*** (-0.28929)	0.13194** (-2.98927)	0.01495 (-0.24146)	0.13078** (-2.95175)	-0.00282 (-0.04603)
M	0.00083 (-0.24547)	-0.01214*** (-3.30207)	NA	NA	-0.0016 (-0.36229)	-0.01107** (-3.04762)
M(-5)	NA	NA	0.00243 (-0.75641)	-0.01310*** (-3.5567)	0.00351 (-0.80111)	-0.01202*** (-3.31960)
R2	0.087	0.75015	0.08835	0.7893	0.0887	0.79572

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Table 11 reports six panel regression estimates for all diversified firms in the sample when ROI is the dependent variable. T-statistics are reported in parenthesis.

TABLE 12 Non-Diversified Firms
Dependent Variable ADJQ

Variable	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
Constant	2.67669** (2.16156)	NA	3.02364** (2.42561)	NA	2.76709** (2.22568)	NA
Lsales	-0.16019 (-0.89217)	0.10311 (0.41859)	-0.24559 (-1.38086)	0.18868 (0.83409)	-0.17180 (-0.95374)	0.06379 (0.24103)
DE	-0.02935 (-0.93262)	-0.08931* (-1.65021)	-0.04856 -(1.55840)	-0.08676 (-1.60102)	-0.03331 (-1.04702)	-0.08885* (-1.63735)
M	-0.98221** (-2.98238)	0.19361 (0.91027)	NA	NA	-0.79753** (-2.04148)	0.19410 (0.91032)
Lagm	NA	NA	-0.86637** -(2.32527)	0.09796 (0.40801)	-0.38576 (-0.88013)	0.09918 (0.41285)
R^2	0.06054	0.90206	0.04472	0.90168	0.06415	0.90216

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Table 12 reports six panel regression estimates for all non-diversified firms in the sample when industry-adjusted *q* is the dependent variable. T-statistics are reported in parenthesis.

TABLE 13 Non-Diversified Firms
Dependent Variable ROI

Variable	OLS	Fixed Effects	OLS	Fixed Effects
Constant	0.10831*** (4.62718)	NA	0.11023*** (4.69391)	NA
LSALES	0.00031 (-0.09466)	0.00733 (1.37402)	0.00057 (-0.16243)	0.00913 (1.59217)
DE	-0.00103* (-1.73781)	-0.00439*** (-3.75333)	-0.00112* (-1.86272)	-0.00441*** (-3.76803)
CFM	-0.16065 (-1.48599)	0.01289 (0.13985)	-0.16208 (-1.49906)	0.00982 (0.10636)
M	-0.02327 (-3.84396)	-0.00889 (-1.92059)	-0.02056** (-2.74309)	-0.00889** (-1.92007)
Lagm	NA	NA	-0.00831 (-1.00538)	-0.00448 (-0.86312)
R^2	0.09800	0.87660	0.10254	0.87714

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Table 13 reports six panel regression estimates for all non-diversified firms in the sample when ROI is the dependent variable. T-statistics are reported in parenthesis.

Table 14

Summary Statistics on Firms that Changed Organizational Structure

	Before M-form	**After M-form**
ADJQ	0.37754	0.48523
	1.19	1.37
Sales	1646.23693	2467.17735
	2546.30	3740.00
DE	2.97994	2.39324
	6.22	0.03
ROI	0.07018	0.06952
	0.03	0.03
CFM1	0.03749	0.04169
	0.03	0.03
Segments	1.62821	2.31429
	0.88	1.62

Table 15 Firms that Switched to the M-form Structure

	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
C	-1.666** (-2.56368)	NA	-1.64188*** (-2.52513)	NA	-1.65544** (-2.53437)	NA
Lsales	0.30050*** (3.25491)	0.22996 (1.48715)	0.30051*** (3.33175)	0.19556 (1.59358)	0.30261*** (3.26847)	0.07221 (0.36067)
DE	0.00138 (0.09438)	-0.05567** (-2.11208)	0.00089 (0.06035)	-0.05559** (-2.13349)	0.00231 (0.15571)	-0.0526*** (-1.98052)
M	-0.02918 (-0.15644)	0.00207 (0.01995)	NA	NA	-0.06046 (-0.30173)	0.03228 (0.30138)
M(-5)	NA	NA	NA	NA	0.19215 (0.82941)	0.12791 (1.00993)
D	NA	NA	-0.07725 (-0.51818)	0.09458 (0.78236)	-0.08821 (-0.57483)	0.09149 (0.75361)
R^2	.049040	.873189	.050123	.873590	.053208	.874264

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Table 15 reports the eight panel regression estimates of firms that adopted the M-form structure over the eleven-year sample period. The dependent variable is industry-adjusted *q* and T-statistics are listed in parenthesis.

Table 16 Firms that Switched to the M-form Structure

Dependent Variable ROI

Variable	OLS	Fixed Effects	OLS	Fixed Effects	OLS	Fixed Effects
C	0.05263** (3.19529)	NA	0.05798*** (3.50762)	NA	0.05783*** (3.48207)	NA
Lsales	0.00172 (0.68980)	0.00491 (1.13153)	0.00103 (0.42530)	-0.00224 (-0.64046)	0.00103 (0.41376)	0.01635** (2.98542)
DE	-0.00029 (-0.79904)	-0.0035*** (-4.74639)	-0.00031 (-0.85431)	-0.00381*** (-5.13137)	-0.00025 (-0.69277)	-0.00373*** (-5.1500)
CFM	0.17999** (2.58019)	0.08076 (1.22057)	0.22865** (3.11358)	0.06353 (0.94673)	0.23371** (3.14800)	0.08217 (1.26971)
M	-0.00237 (-0.52151)	-0.00897** (-3.07838)	NA	NA	-0.00224 (-0.46033)	-0.01123*** (-3.82537)
M(-5)	NA	NA	NA	NA	0.00717 (1.27992)	-0.00988** (-2.85941)
D	NA	NA	-0.00726* (-1.89395)	-0.00500 (-1.44973)	-0.00776* (-1.95449)	-0.00531 (-1.60043)
R^2	0.05548	0.83443	0.06994	0.82814	0.07713	0.84350

*statistically significant at the 10% level
** statistically significant at the 5% level
*** statistically significant at the 1% level

Table 16 reports the eight panel regression estimates of firms that adopted the M-form structure over the eleven year sample period and the dependent variable ROI. T-statistics are listed in parenthesis.