
THE IMPACT OF FIRM STRATEGY TYPE ON TRANSITION TIME FOR M-FORM ADOPTION

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Introduction

Historically, firms have utilized the functional form of structure in which the firm has been organized along such functional lines as marketing, finance, and engineering [24]. With organizational expansion, more and more firms have turned to the multidivisional structure (M-form) to better handle the more demanding information processing and decision making requirements ([4], [5], [6], [7], [19], [24]).

Chandler [3] has argued that a proper match between strategy and structure is necessary in order for firms to obtain optimal economic efficiency. Therefore, the movement toward an M-form structure by diversifying firms should serve to enhance their operating efficiency.

Several studies ([1], [10], [15]) have examined the link between structural change and performance. These studies have confirmed the positive impact of M-form adoption on firm performance using such accounting based performance measures as return on assets and return on investment. What is less understood is the length of time required by firms to complete the transitional period from the functional or holding company form to the M-form, and the effect of this time lag on estimates of post-change performance. The concept of transition time refers to length of time between the first actions to reorganize to the M-form and the completion of the multidivisional structure with centralized corporate staff, decentralized operations, and appropriate monitoring and control systems. To date, most studies have implicitly assumed that transition time is reasonably short and similar for all firms. This study explicitly examines the time period required for firms in three strategy categories to change their structures to the M-form and the implications of different transition periods on estimates of post-change performance.

The purpose of this study is two-fold. First, the present research determines whether M-form implementation time varies among firms. The determination of each firm's actual implementation time can be obtained only through extensive qualitative research via direct contact with the firms involved. The second purpose of this study is to document M-form implementation time by diversification strategy. Hoskisson [10] found an increase in the average performance of unrelated diversified firms, a decrease in the average performance in vertically integrated firms, and no change in performance of

related diversified firms. His transition time is the same for all firms. If M-form transition time does vary across strategy categories, then Hoskisson's [10] findings that firms' post-change performance vary across strategy categories may be overstated, in that his findings fail to consider implementation time.

The Multidivisional Structure

The M-form structure was initially developed by General Motors and the DuPont Co. in the 1920's [3]. While its adoption was initially slow, more and more firms have converted to this structure since World War II [18]. The mid-1960's was a period of especially rapid conversion by firms from the transitional functional form to the M-form structure ([10], [18]).

Several studies have focused on the benefits of the M-form structure ([1], [10], [15], [24]). These studies suggest that the M-form overcomes many of the shortcomings of the traditional functional form by shifting operational decision making and responsibility to decentralized product or geographic divisions. This benefits the firm in two ways. First, it serves to improve the firm's efficiency as decisions are made by managers closer to the firm's production and distribution functions ([1], [8], [24]). Second, it allows the separate divisions to be granted greater operational autonomy, thereby reducing the routine decision making activities of top managers. The separation of the general office from operational concerns allows top managers to concentrate on broad strategic issues, while not being burdened by the performance results or operational issues of the various functional parts [1].

The notion that the M-form improves performance among all firms adopting this structure was questioned in a study by Hoskisson [10]. His study examined the effect that conversion to the M-form had on firm performance in three different strategy categories: vertical integration, related diversification, and unrelated diversification.

Hoskisson theorized that implementation of an M-form structure would lead to differences in performance for firms in the three categories. Firms' average annual ROA during the ten years before M-form adoption were compared to their average annual ROA after adoption. It was assumed that the implementation time was one year for all firms. His findings revealed an average increase in performance, among unrelated diversified firms after adoption of the M-form, a decline in average performance for vertically integrated firms, and no change in performance for related diversified firms. His post-change performance results for both vertically integrated and related diversified firms failed to demonstrate the benefits of the M-form adoption for these strategy categories. Although several explanations were offered by Hoskisson for his findings, the role of M-form implementation time was not considered. Implementation time was viewed as reasonably fast and similar across strategies.

Theory and Hypotheses

The relationship between a change in structure and a change in performance is an important area of study, since the process of changing structure and adopting the M-form can be very disruptive for a firm. Due to the disruptive nature of implementation, it is likely that firms desire to complete a structural change in the shortest possible time period, as the implementation phase might require a time period from one to several years to complete.

The difficulty that a firm encounters in implementing the M-form may be a function of the relationships among its various diversified activities. Patterns of interdependence among a firm's functional units are a function of its diversification strategy [22].

An organization can possess from one to three types of interdependence among its parts: pooled, sequential, and reciprocal interdependence ([12], [22]). Thompson states that the various types of interdependence are coordinated through different mechanisms. Pooled interdependence among units is coordinated most effectively through standardization, sequential interdependence through planning, and reciprocal interdependence through mutual adjustment and feedback among units. The three types of coordination, in the order presented, placed increasingly heavy burdens of communication and decision making on the top management team.

The various units in an unrelated diversified firm would predominantly possess a great deal of pooled interdependence. The utilization of the simplest mechanism of coordination, standardization, would be appropriate for a firm utilizing an unrelated diversification strategy. Thus, it seems reasonable to assume that a firm using this strategy should have a relatively short M-form implementation time. A vertically integrated firm would exhibit pooled, as well as sequential interdependence, and would utilize planning as the mechanism for coordination for this strategy. Following from these theoretical premises, the average transitional time required for structural change would be greater for the vertical integration strategy than for the unrelated strategy.

Finally, a related diversified firm would tend to possess all three types of interdependence among its units. The most sophisticated mechanism for achieving coordination, mutual adjustment, would seem appropriate for this strategy. Mutual adjustment among the firm's various units implies extensive feedback and coordination in order to capture optimal operating efficiency. Mutual adjustment involves additional administrative costs and coordination problems, and the effective coordination of the firm's units is often time consuming and difficult to obtain [12]. Accordingly, the average transitional time required for related diversified firms to change their structures and adopt the M-form would appear to be greatest for this strategy category. Thus, the following is hypothesized:

Hypothesis 1: The average transitional time period required for unrelated diversified firms to change their structures to the M-form will be shorter than for related diversified firms or vertically integrated firms.

Hypothesis 2: The average transitional time period required for vertically integrated firms to change their structures to the M-form will be shorter than for related diversified firms.

Research Methods

In order to test the hypotheses, an analysis of the transitional period was conducted by examining the length of the implementation period for each firm to complete the structural change to the M-form. This study provided a unique opportunity to apply both qualitative and quantitative research techniques. The qualitative aspect was achieved through personal contact and telephone interviews with company officials having access to information regarding their firm's process of M-form implementation. The factual knowledge, as well as the opinions and "best estimates" of these officials were solicited in order to develop an accurate assessment of each firm's change process.

Sample

The sample consisted of firms pursuing three different strategy categories. The sample was obtained from the firms used in the Armour and Teece [1] and Hoskisson [10] studies, since the prior studies have identified the dates that the sample firms initiated the change to the M-form and the firms' strategies. Due to the unavailability of adequate data, four firms were dropped from the sample used in the Hoskisson study. The firms included in the sample are presented in Table 1, along with the corresponding transitional years that were obtained, as outlined below.

Table 1: Firms and Related Strategies

I. Vertically Integrated Firms

ALCOA ('66-'68)	Mobil Oil ('59)
B.F. Goodrich ('50-'53)	Occidental Petroleum ('68-'71)
Burlington ('62)	Phillips Petroleum ('73-'74)
Cities Service ('66)	Shell Oil ('60)
Continental Can ('50)	Standard Oil (Calif.) ('54)
Crown Zellerback ('64-'68)	Standard Oil (Ind.) ('56-'60)
Getty Oil ('59)	Standard Oil of Ohio ('60-'61)
Int'l Paper ('72-'73)	St. Regis Paper ('68-'69)
Kaiser Aluminum ('58)	Sun Oil ('68-'70)
Kennecott Copper ('64-'66)	Union Oil ('63)
Marathon Oil ('60-'62)	

Table 1: Firms and Related Strategies (Continued)**II. Related Diversified Firms**

Allied Chemical ('71-'72)	Honeywell ('62)
Ashland Oil ('67-'69)	IBM ('65-'66)
Bendix ('65)	Ingersoll Rand ('63-'64)
Borden ('68)	Monsanto ('71)
Burroughs ('66)	Philip Morris ('67)
Celanese ('63)	Proctor & Gamble ('66)
Coca Cola ('67-'68)	Quaker Oats ('71)
CPC ('67)	Ralston Purina ('68)
Dow Chemical ('62-'63)	R. J. Reynolds ('69-'70)
General Foods ('49-'52)	J. P. Stevens ('71)
Heinz ('67)	White Motor Corp. ('68-'69)

III. Unrelated Diversified Firms

AMF ('58)	ITT ('68)
Borg Warner ('69-'70)	Lear Siegler ('62)
Brunswick ('69)	Ogden ('69)
Colt Industries ('67-'68)	Textron ('61-'62)
Dart Industries ('61-'62)	U. S. Industries ('69)
DAYCO ('66)	Raytheon ('59)
FMC ('61)	SCM ('61-'62)
Gulf & Western ('66-'67)	

NOTE: Years in parentheses indicate transitional years.

Measures

The transitional period consists of the period required for the firm to actually complete the change from the F-form, FS-form, or H-form to the M-form. The time period was identified by the formation of a corporate office with associated staff, decentralization to semi-autonomous divisions, and/or the indication of appropriate M-form control such as cash flow allocation [11]. The transitional period was measured in years.

Identification of the Transitional Period

Data were required to determine the exact length of time it took for each firm in the three strategy categories to actually complete the transitional process and fully implement the M-form. This involved extensive qualitative research, and some judgment [16]. The number of years in the transitional period was determined by direct conversation with company archivists and individuals in the firms' investor relations departments, careful examination of annual reports and press releases, and reviews of Moody's Industrials and Standard & Poor's Stock Reports.

The beginning of the transitional period was indicated by a decision by the firm's top management team to adopt the structural change. The decision to change structures was immediately reported in the financial press for 48 of the 58 firms in the sample. The dates and general contents of the press releases were obtained through telephone conversations and written correspondence with company officials and archivists. Data on the remaining 10 firms were obtained through (1) telephone conversations with the firms and (2) analysis of each firm's annual financial reports for the estimated year of change. No discrepancies between the two sources were found. The reliability of the data was aided by using both sources.

The end of the transitional period was determined in a similar qualitative manner. Company officials provided initial estimates as to the approximate date by which the restructuring had been accomplished. Available press releases were obtained to confirm estimates provided by the firm. Whenever a conflict arose between the sources as to the exact dates of restructuring, company officials were contacted to reconcile the differences. In the minority of cases (8 out of 62) in which data were unobtainable from one of the two sources (i.e., the firm or the financial press), the firm's financial statements for the selected years were carefully analyzed. In such cases, the year prior to the year in which accounting results were reported based upon a new divisionalized basis, was considered the final year of the transitional period. At this point, four firms were dropped from the sample due to discrepancies about the exact timing of the end of the transition period. Based upon the need to rely upon accounting results in some of the cases, it was decided to use entire years as the basic unit of analysis for the length of the transitional period, rather than months.

It seemed reasonable to expect the length of the transitional period to covary with firm size, irrespective of diversification strategy or its associated coordination problems. Smaller firms may be able to implement the M-form faster than larger firms. Therefore, the effect of firm size was controlled in the present study by using the firms' yearly sales at the beginning of the M-form transition period as a covariate. The sales figures were obtained from Moody's Industrials.

Results and Discussion

After obtaining the average number of years required by the firms in the sample to implement the M-form, a one-way analysis of covariance technique was used to test for significant differences in transition time for firms in the three strategy categories. The results are presented in Table 2.

**Table 2: M-Form Implementation Time by Firm Strategy
Analysis of Covariance**

Source	DF	SS	MS	F-Statistic
Between Groups	2	6.48	3.24	3.20*
Comparisons				
VI vs. UD Strategy	5.03*			
VI vs. RD Strategy	4.18*			
UD vs. RD Strategy	.39			
Covariate (Sales)	1	.24	.24	.24
Error (Within Groups)	54	54.62	1.01	
Totals	57	61.34		

* $P < .05$ $\text{Eta}^2 = .1056$

The results from the analysis provide support for Hypothesis 1. Unrelated diversified firms completed the transition to the M-form in the shortest time period, 1.40 years. The pairwise results were obtained by using the Fisher LSD technique. An analysis of the pairwise contrasts of the transition times between the unrelated diversified firms (1.40 years) and vertically integrated firms (2.24 years), as well as the transition times between the related diversified firms (1.55 years) and vertically integrated firms was found to be statistically significant ($P < .05$). The difference in transition times between the unrelated and related diversified firms was not significant.

Hypothesis 2 was not supported, as related diversified firms were able to complete the transitional period more rapidly than the vertically integrated firms. It might be surmised that the large number of oil companies represented in the sample of vertically integrated firms might have heavily influenced the findings of this study, as well as the findings of the Hoskisson study. This is because vertical integration within the oil industry implies vast and complex linkages between the various units connecting the production facilities to the elements of the distribution chain. It seems logical that changing to the M-form would be more difficult in such a scenario and would require a longer time period to adjust and bring together the various units with their own input and output requirements. This might explain the findings of the present study that, contrary to theory, vertically integrated firms required the longest time periods to change their structures.

This study has several limitations that should be considered. The use of a relatively small sample size is a possible limitation to the generalizability of the findings. An additional limitation involves the time frame of the study, as most firms in the sample adopted the M-form during the 1960's. With expanded information processing and decision making capabilities, firms in the 1990's might be able to restructure at more rapid speeds, with strategy type playing a reduced role in the process.

Due to factors not measured in this study, alternative explanations for the findings cannot be ruled out. As alluded to above, a firm's ability to implement the M-form

may vary as a result of industry type, in addition to the influence of strategy type. Industry type may be a significant moderating variable of strategy type. Also, the quality of a firm's management and its ability to manage change might be a major factor influencing the results. These important issues await further research.

Conclusions

The findings indicate that the time required for firms to implement the M-form is usually much longer than the one year period indicated in prior research. Major structural reorganizations, such as the adoption of the M-form, apparently takes years, and sometimes several years, to complete. Implementation time is an apparently important factor for researchers interested in the performance effects of such major structural changes.

The results also indicate that implementation time varies by diversification strategy, providing an expanded explanation for Hoskisson's [10] earlier findings. The combined results from the two studies show that vertically integrated firms had the poorest post-change performance, and at the same time required the longest time period to complete the structural change. The combined results also show that the related diversifiers had slightly better post-change performance than the vertically integrated firms and required less time to complete the change. Finally, these results indicate that the unrelated diversifiers had the greatest improvement in post-change performance, while requiring the shortest time period to complete the change. The performance effects of M-form adoption, therefore, may depend upon diversification strategy, as it affects the length of the implementation time.

The findings of the study should also prove useful to top managers contemplating M-form adoption. Major structural reorganizations obviously take time, but the length of time may depend on the firm's diversification strategy. To the extent that transition time is a function of the complexity of the coordination problems that need to be resolved, it seems that structural reorganizations for vertically integrated firms may be far more complex and time-consuming than those for related and unrelated diversifiers. It would be prudent for managers of vertically integrated firms to weigh the possible benefits of M-form adoption against the costs to their time and energy, especially when it may be for protracted periods.

The findings of this study, combined with those of Hoskisson [10], also suggest that managers should attend to the possible performance effects of transition time. Of the firms that Hoskisson identified as achieving the greatest performance gains from implementing the M-form, we found that they also managed the transition much more rapidly than other firms. While still speculative, faster may be better. Anecdotal evidence ([3], [23]) indicates that major reorganizations can be very tumultuous and stressful for organization members, causing major disruptions in operations and sub-par performance. The longer the transition time, the longer may be the period of sub-par performance, combined with greater delays in achieving the performance benefits of the new structural form. To avoid excessive delays in M-form implementation and

the negative consequences that may result, top management can take a more active role in speeding the implementation process. This may be especially critical in firms pursuing strategies that may otherwise require lengthy transition periods, such as vertically integrated or related diversified firms.

In this study, previous assumptions about M-form implementation time were empirically examined, and contrary evidence was found. It seems useful for future research on the implementation of the M-form to examine the independent and joint effects of diversification strategy and implementation speed on firm performance. Larger sample studies that could examine the possible moderating effects of industry, top management characteristics, and information technologies also appear to be warranted. Overall, it is hoped that this study represents a useful extension of our understanding of M-form implementation and provides a basis for future research on this important topic.

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