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Logistics partnerships: An exploration of form and influencing factors leading to a normative model of partnership building

Gardner, John Thomas, Ph.D.

The Ohio State University, 1989

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LOGISTICS PARTNERSHIPS:
AN EXPLORATION OF FORM AND INFLUENCING FACTORS LEADING
TO A NORMATIVE MODEL OF PARTNERSHIP BUILDING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy in the Graduate
School of The Ohio State University

By

John Thomas Gardner, B.S., M.B.A

* * * * *

Ohio State University
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ACKNOWLEDGEMENTS

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Finally and most importantly, I must thank my family for their consistent support. The understanding my wife, Lynne, showed throughout the process was pivotal in overcoming the difficulties encountered. Without her love and concern this project could never have been completed.
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A recent phenomenon in the business community has been a greater focus on more coalitional dyadic relationships. This phenomenon was reflected in the advent of, for instance, systems selling, strategic partnering, and supply chain management. In his recent work, Porter (1985) identified coalitions as a means of gaining competitive scope. These coalitions would be a suggested means of gaining some or all of the advantages of integration without actually investing in the process/activity in question. Macneil (1981) offered a means of classifying relationships between firms in the grey area between complete vertical integration and the discrete market transactions. These discrete transactions were the kind the economists generally assume, arm’s length style relationships. Porter’s coalitions and Macneil’s relational contract construct focused on alternatives to the strict make or buy dichotomy. In the area between vertical integration and discrete transactions Macneil proposed a relational contract based relationship. This grey area between make and buy was the
central phenomenon of interest for this dissertation. Porter's term coalition was used instead of Macneil's term, relational contract.

The phenomenon of coalitional relationships, as used in this study, was characterized by planned interdependence and shared risks. This type of relationship offered a mechanism for controlling risk through a partnership style of planning and problem solving. A potential competitive advantage was provided by entering into a more partnership based relationship with channel partners. This style of relationship was designed to deal with risk in two particular ways: 1.) the *ex ante* efforts at preempting risks and 2.) the *ex post* efforts at controlling the effects/costs of risk factors. This coalitional style of relationship was in contrast to discrete, transaction based relationships which typically manage risk through a portfolio approach, and to total vertical integration which attempts to manage risk through bureaucratic or organizational mechanisms. Using the portfolio approach, a shipper might utilize a large number of carriers in order to minimize the risks of work stoppages, rate changes, poor customer service, and similar risks. Entering into a coalitional relationship would involve controlling risks and mitigating risk through coordinated management across buyer and seller organizations. Tools for this purpose included extending the planning horizon for the relationship, sharing of
operational information, instituting operating controls, sharing benefits and burdens, and planning.\(^1\) These coalitions would be entered into to gain vertical scope or geographic scope. Vertical scope gained through coalition building would offer the advantages of vertical integration while coalitions to enhance horizontal scope would expand the number of countries or regions served. In this analysis, the phenomenon of interest was the case of a firm choosing to enter into a more coalitional relationship with a carrier or warehouser in lieu of vertically integrating into transportation or distribution. Finding evidence of the existence of this phenomenon, searching for possible causes and identifying any potential trend toward more coalitional relationships were the focus of this work.

The conceptual groundwork for this study stemmed from work in the area of relational contracts laid by Macneil (1981); Palay (1984); Noordewier, John, and Nevin (1986); and others. The relational contract literature provided a mechanism for classification of governance structures ranging from discrete market transactions to complete vertical integration. Defining and measuring the coalitional relationship construct and its component dimensions could help in understanding the customer supplier relationships which fall within the area between the make

\(^1\) See Appendix A for definitions of these terms.
and buy choices. Thus, the coalitional nature of dyadic relationships was measured using adaptations of the classification schemes presented in the literature cited above. The ability to measure the degree of coalitional relationship attained on a continuous scale helps to clear up some confusion in definitions among such things as systems selling, strategic partnering, and relationship selling. While Shapiro (1985) attempted to clear up the distinctions among these terms in a more piecemeal fashion in his work, they each could also be seen as differing degrees of coalitional relationships using the coalitional construct developed in this study. The particulars of this classification scheme are explicated further in sections that follow.

**Research Problem**

The research problem to be addressed was the measurement and description of the phenomenon of coalitional relationships. This alternative to vertical integration should be explored as a prerequisite to fully understanding integration decisions. As Harrigan (1983) pointed out, a major component of the vertical integration decision would be the question of what form the relationship will take. Also, the popular perception of a trend toward more strategic and involved relationships between channel members has led to calls for additional investigation (Shapiro,
If these more strategic and involved relationships have in fact been the trend, then the ability to measure the phenomena would be important to the understanding of the dynamics of these more coalitional relationships. In this study the context of interest was the shipper-carrier relationship and the shipper-public warehouser relationship.

The overall research question has three parts:

1.) Can relationships be classified according to how coalitional they are? In particular, can an interval measure, multidimensional scale be designed to show the degree of planned interdependence and risk management which occurs in the relationship?

2.) How coalitional are relationships in distribution networks, and how do managers see these relationships as ideally developing?

3.) Does the extent of coalition formation vary across classes of dyads, looking at various characteristics of each firm?

These three parts each yielded a separate set of hypotheses and were developed in subsequent sections.

Stated in terms of questions logistics managers would more likely ask, the research questions would translate into questions such as the following. How does a manager know when a partnership style relationship has been achieved? What are the components of a partnership style relationship? Is there a general trend toward more partnership in logistics channels? What should a logistics manager look for in a perspective partner? Answering these questions was the focus of the research.
Scope of the Research

This research attempted to produce and test a new scale to be used for measuring the nature of relationships falling between pure vertical integration and pure discrete market transactions. This coalitional relationship construct was examined within two logistics channel settings. First, the boundaries of the construct of coalitional relationships are examined. Next the boundaries imposed by the context are examined. Finally, the scope of the descriptive portion of the research which looks at the status of the construct within the context is examined.

The coalitional relationship construct related to the nature of business-to-business dyadic relationships. The issue was how channel members interact on a repetitive, long term basis. In particular, what form did the relationship take, independent of the number of resource transformations involved, the proportion of needs supplied, or the number of functional areas which were involved (Harrigan, 1983). The research developed and utilized a measuring device for this question of relationship form. The study examined integration form as it exists apart from the extremes of ownership and discrete transaction. Since these were buyer-seller relationships, the paired sets of buyer and seller form the unit of interest.
In this study only the perceptions of the seller were examined. It is reserved for future study to examine perceptions on both sides of the transaction, and to look for objective rather than perceptive measures independent of respondents' personal interpretation of the relationship.

To develop the concept of coalitional relationships a number of contexts could have been used. The choice of the context helped determine the scope of this research. The relationship of channel members with channel facilitators offered a rich context with a broad range of styles of relationships between channel member and channel facilitator. In the shipper-carrier and shipper-warehouser relationships, a number of observers have identified a trend toward more strategic partnerships (Bowman, Foster and Weart, 1987; Chambers, 1988; Marcus, 1987; Martin, 1988; Muller, 1987; Quinn, 1988; Treleven, 1987; and Wasserman, 1988). The context of the study was limited to these shipper-carrier and shipper-warehouser relationships. The scope of the study was designed to provide additional evidence for the validity and usefulness of the construct of coalitional relationships, anticipating a series of replications in varying contexts and measurement methods. The support for validity of the construct was derived from the verification of the foundations built on the relational contract literature. The usefulness was demonstrated by the
successful use of the coalitional relationship construct in the channel facilitator context.

The descriptive portion of the study was bounded by the results of the initial scale development portion, and the limits imposed by the sample frame. To be descriptive, the scale must first have been shown to measure what it purports to measure. Convergent and divergent reliability were evidenced through the LISREL model's output of path coefficients measuring convergence within a component construct, and modification indices measuring the potential strength of constrained paths in the model. Thus, a model with good convergent and divergent validity would have significant path coefficients within each component construct and small modification indices to other constructs. Reliability traditionally has been tested in this type of model through a hold out sample, however, the necessary sample size for this process was not achieved. (Burnkrant and Page, 1982; Peter, 1979; Churchill, 1979).

Given that the earlier stages of the research show that the coalitional relationship construct is likely being measured reasonably, the scope of the descriptive portion of the study is limited to the two groups of interest, carriers and warehousers. Further, only a limited set of possible independent variables were chosen. The set was limited both due to the lack of literature base to guide the selection,
and the limits of respondents' patience and their security concerns. Confidential information such as profitability and pricing were excluded due to the likely adverse effect on compliance, not due to a lack of interest in the insight these variables might have provided. The scope of the research is further clarified by the hypotheses.

Hypotheses

The hypotheses were presented in three groups representing the various sections of the research question. The hypotheses relating to part three were further broken into three sets. This presentation is in summary form, with detailed development of the variables and their relationships given in Chapter Three. In Chapter Three each hypothesis is examined more fully. The presentation of the hypotheses here is intended to help define the scope and content of the study.

Part One Hypotheses

The first set of hypotheses addressed the question, could this phenomenon be classified? These hypotheses addressed a measurement issue involving consistency within dimensions and distinctness between dimensions. Five dimensions were developed and extended from the literature. These are: extendedness, operating information exchange,
operating controls, sharing of benefits and burdens, and planning. Each dimension was measured using three to seven scale items. The first research question was: were these five dimensions five distinct constructs which each drive their respective measures? A related sub-question was: were the dimensions orthogonal or oblique? This research question generated a set of hypotheses, as follows.

H1 The coalitional relationship construct is composed of five dimensions: extendedness, operational information exchange, operating controls, sharing of benefits and burdens and planning.

H2 The factor loadings for the paths between the measured variables and the latent variable dimensions are significantly different from zero.

H3 The five dimensions are orthogonal.

At this point the path the research took depended on the outcome of the above tests. These hypothesis tests were performed using the confirmatory factor analytic model. Within this model all of the above questions were testable. A specification search for a variation on the proposed model with a better fit was conducted.

In the second stage of scale validation, case studies were conducted. A small number of firms reporting relatively polar extreme values for the scale were interviewed more extensively to determine the nature of their relationships with their selected shippers. This analysis is qualitative in nature. A protocol for the interview was used to insure basic consistency across firms,
but the responses were open ended and interactive, with the interviewer probing for detail in the responses. In this manner an additional measure was available to confirm the overall validity of the scale. No formal hypothesis testing was possible using this limited and qualitative data. Both confirmation of the findings of the factor analysis and probing for roots and evolution of relationships were included in the protocol phase.

Part Two Hypotheses

Part two involved assessing how coalitional the firms' current relationships are, the desired degree of coalition, and the size of the difference between the actual and the ideal relationship. The desired degree of coalition was measured by having respondents evaluate the same scale items a second time, circling their ideal position on the scale. A factor score weighted sum of these ideal measures constituted the ideal score on the coalitional relationship scale. For this and all of the remaining hypotheses, the warehouser and the carrier groups were analyzed separately. The purely descriptive portion which reported the measured coalitional nature of the two groups did not involve hypothesis testing. The question of the differences between perceived and desired scores was testable. The hypothesis to be tested here was:
H4 There is no difference in the current and ideal coalitional scores in the population.

Results from the testing of this hypothesis indicated the direction the firms would like their relationship to progress. A trend toward more partnership in relationships was reflected in a more coalitional ideal score than the actual score. Since there is no theoretical or empirical guidance on whether the ideal score should have been more, less or equal to the perceived score, the hypothesis is nondirectional.

Firms which were trying to refine an already coalitional relationship could be very different from those with currently quite discrete relationships in terms of congruity of actual and ideal scores. By dividing the sample into high and low coalitional groups, the following variation of the above hypothesis was suggested:

H4a There is no difference in the actual and ideal coalitional scores for highly coalitional relationships as opposed to minimally coalitional relationships.

This form of the hypothesis related to ideal coalitional relationship scores complemented the simpler formulation found in hypothesis H4.

Part Three Hypotheses

Part three focused on identifying differences in coalitional scores across classes of firms, and was designed
to identify partnership candidate choice parameters operating in the area of partnership building. There were three sets of hypotheses in this part. First, the actual perceived scores could vary across groups. Next, the ideal scores may vary across groups. Finally, the degree of difference between perceived and ideal scores may vary across groups. These three groups of hypotheses were labeled as sets one through three. Further, each group of hypotheses were separated into those which were driven by Williamson's transactions cost analysis (TCA) and those which were more atheoretical in nature.

The first hypothesis set of interest concerned the potential causes for the actual state of affairs, as measured by the manager's assessment of the relationship as it stands. The independent variables of interest included two separate groups. The first group was composed of the transaction cost analysis derived factors: perceived risk, unsecured investment, amount of customer specific investment, and the degree of uncertainty. This group was termed the theoretical group since the hypotheses and expected results were suggested in the transaction cost analysis theoretical framework. The second group was composed of atheoretical factors: size of firm, type of

---

2 The actual score was represented by the X’s requested on the questionnaire scale, while the ideal score was represented by the O’s on the scale. See Appendices *** for the questionnaires.
customer, relative dependence, age of firm, status of EDI implementation, number of additional services, length of the relationship with the customer, and the number of shipments per period. This group was termed atheoretical due to the lack of any specific unifying and underlying theory which strongly suggested the likely results of testing of any of this group’s individual hypotheses. Thus, the hypotheses concerning the actual coalitional scores were:

Set One – Actual Coalitional Scores
Transaction Cost Analysis Group

H5 The actual coalitional scores will correlate positively with the amount of environmental risk perceived.

H6 The actual coalitional scores will correlate positively with the amount of unsecured front end investment.

H7 The actual coalitional scores will correlate positively with the degree of uncertainty in the relationship.

H8 The actual coalitional scores will correlate positively with the amount of specific investment.

Atheoretical Group

H9 The actual coalitional scores will not correlate with the size of the respondent firm.

H10 The actual coalitional scores will not correlate with the percentage of revenue the selected customer represents.

H11 The actual coalitional scores will not correlate with the age of the firm.

H12 There is no difference in actual coalitional scores of firms with and without EDI projects.
H13 The actual coalitional scores will not correlate with the number of additional services a respondent firm offers.

H14 The actual coalitional scores will not correlate with the length of customer relationships.

H15 The actual coalitional scores will not correlate with the number of total shipments made quarterly.

H16 There is no difference in actual coalitional scores of firms with different types of customers.

The first group, the transaction cost analysis group of hypotheses, is stated in alternative form as a result of the theoretically based expectations for these relationships. For the atheoretical group, there were no strong indications in the literature of the direction of the relationship. The development and support for these specific hypotheses were discussed in detail in subsequent chapters.

The next set of hypotheses involved the ideal ratings on the coalitional relationship scale. This set examined each of the eleven independent variables while using ideal coalitional scores as the dependent variable. Hypotheses H17-H28 mirrored H5-H16 except ideal score replaced the actual score as the dependent variable. The hypotheses are as follows:

Set Two - Ideal Coalitional Scores
Transaction Cost Analysis Group

H17 The ideal coalitional scores will correlate positively with the amount of environmental risk perceived.
H18 The ideal coalitional scores will correlate positively with the amount of unsecured front end investment.

H19 The ideal coalitional scores will correlate positively with the degree of uncertainty in the relationship.

H20 The ideal coalitional scores will correlate positively with the amount of specific investment.

A theoretical Group

H21 The ideal coalitional scores will not correlate with the size of the respondent firm.

H22 The ideal coalitional scores will not correlate with the percentage of revenue the selected customer represents.

H23 The ideal coalitional scores will not correlate with the age of the firm.

H24 There is no difference in ideal coalitional scores of firms with and without EDI projects.

H25 The ideal coalitional scores will not correlate with the number of additional services a respondent firm offers.

H26 The ideal coalitional scores will not correlate with the length of customer relationships.

H27 The ideal coalitional scores will not correlate with the number of total shipments made quarterly.

H28 There is no difference in ideal coalitional scores of firms with different types of customers.

The development and support for these specific hypotheses were developed in detail in subsequent chapters.

Yet another set of hypotheses was possible by looking at the differences between ideal points across the same ten hypotheses. Hypotheses H31-H43 mirrored H5-H17 with the
actual score replaced by the absolute value of the difference in the actual rating and ideal rating. A value for this difference for each question for each respondent made up a new set of variables. The overall value for this difference was termed the change score. Each respondent then had a unique change score. This change score showed which firms were most satisfied with the current levels of coalition but did not allow the likely future direction of changes to counteract one another. Thus, this measure was the total absolute deviation from ideal. Hypotheses concerning the change scores were:

Set Three - Change Scores
Transaction Cost Analysis Group

H29 The change scores will not correlate with the amount of environmental risk perceived.

H30 The change scores will not correlate with the amount of unsecured front end investment.

H31 The change scores will not correlate with the degree of uncertainty in the relationship.

H32 The change scores will correlate with the amount of specific investment.

Atheoretical Group

H33 The change scores will not correlate with the size of the respondent firm.

H34 The change scores will not correlate with the percentage of revenue the selected customer represents.

H35 The change scores will not correlate with the age of the firm.
H36 There is no difference in change scores of firms with and without EDI projects.

H37 The change scores will not correlate with the number of additional services a respondent firm offers.

H38 The change scores will not correlate with the length of customer relationships.

H39 The change scores will not correlate with the number of total shipments made quarterly.

H40 There is no difference in change scores of firms with different types of customers.

The above hypotheses were thus grouped into three distinct parts and part three was further divided into three separate sets of related questions. From the initial three research questions came a total of 42 testable hypotheses.

Methodology

The research was conducted in two phases. In the first phase a large sample quantitative analysis was conducted. In the second phase a small sample qualitative assessment was done.

The first phase of the research consisted of a series of self report measures using key informants within channel facilitator firms. The measures were designed to capture the five dimensions of the coalitional relationship construct in such a way that they could be combined into a single overall score. Additional measures were included to capture independent variables which could offer insights
into the factors that influence coalition building. The research first looked at the components of the coalitional relationship construct using the confirmatory factor analysis model. The factor analysis process yielded a set of factor scores used in building an overall coalitional score. The resulting single score was then used to test the independent variables for their relationship with the dependent variable, the coalitional score.

The scale produced to capture the degree of coalition present was a semantic differential style scale with bipolar descriptors as anchors. Multiple measures of all five items were used to capture as much as possible within the limited time available with the respondents. A specific customer relationship was the focus of the responses, rather than a typical customer relationship since the unit of analysis was the dyadic relationship. The respondents were asked to choose a core customer, which should have increased the number of partnership style relationships included in the survey.

The confirmatory factor analysis stage of the research involved pooling the two groups into one sample, relying on the assumption that the relationships among the various
dimensions of coalitional relationships would be very similar across groups even if the overall scores for each dimension would be different. This pooling was designed to allow a large enough sample to test a model with many measured variables.

The results of the successful confirmatory factor analysis specification search were used to generate a single coalitional relationship score, a change score, and an ideal score. Each of these dependent variable formulations were then tested against the sets of independent variables. The tests included both t-tests and correlations.

In phase two of the research a focused personal interview was conducted. A case summary was produced for each interview and compared across groups, high and low coalitional scores and warehousers and carriers. This resulted in a qualitative assessment of both the value of the construct and its five dimensions and the nature of the development of coalitions.

Sample

The sample was a combination convenience and judgment sample taken from the membership list of CLM. After duplication of firms was eliminated by subjectively selecting the most appropriate title of the multiple members
from the same firm, and after firms clearly not primarily in the warehousing or transportation business were dropped, the entire United States based warehousing and transportation sections of the membership lists was sampled. Mail survey instruments were used, eliciting key informants' perceptions of the current and ideal status of a specific customer and supplier relationship along with the potential causal factors. In phase two a small convenience subsample was drawn from the respondents at the polar extremes for further qualitative data gathering.

Limitations

The research findings which resulted from this investigation were limited in applicability by two factors. First, the nature of the research question limited the conclusions to the particular constructs and relationships involved. Second, the context of the tests limited the generalizability to other contexts. Each of these limitations were explored further below.

The research question's three parts limited findings to the components of the construct of coalitional relationships, the perceived status of this construct in the chosen distribution channel relationships, and the perceived differences between ideal and desired relationships. The research did not attempt to identify the causal factors
which drive the need for coalitional relationships. The potential causal factors explored in this research would need to be confirmed in a future study in which the transactions cost framework would be posited to drive the amount of coalition building in a dyadic relationship or in which the currently atheoretical causal factors would be tied together theoretically and tested. The research also examined only the form of relationships which approach true integration. The breadth, depth and intensity are not considered in the scale. The research also did not look at the terms of the relationship, i.e. price, customer service levels, dates, etc.

The research did not address power and conflict as individual constructs, as this is an entirely different perspective on channel relationships. The coalitional relationship construct offered a very different approach to channel relationships, one of risk management and risk sharing. Power, and thus conflict, was seen as a competing world view, not components of the constructs of interest.

The research examined partnership at the level of dyadic relationships, one buyer with one seller of services. It did not describe the range or mix of relationships a firm might have with various groups of customers or vendors. Further, the research focused on the perceptions of the logistics service suppliers.
The exploratory nature of the study along with the choice to sample only the suppliers of logistics services combined to limit the ability to fully capture and define the dimensions of coalitional relationships or to fully identify the workings of transaction costs in this context. The scale developed could not capture richness and detail of the five dimensions of coalitional relationships without multiple iterations of refinement. The current study attempted to capture enough detail to basically identify high and low levels of coalitional relationships and refinement was left to future studies. Similarly, the measures of transaction cost variables were necessarily be much simpler than those found in a study focusing entirely on that theory.

The research question's second and third parts, the descriptive portions, were limited to looking for simple differences in coalitional degree in this particular pair of populations, warehousers and carriers. The results could only be generalized beyond this domain with caution. Further, the range of independent variables was limited, due to a lack of foundation literature and the limits of respondent patience and trust.

The context of the study limited generalizations in a number of important ways. It did not look at the range of possible relationships across channels. Only two channels
were examined: public warehouser-shipper, and carrier-shipper relationships. Inferences about other channels should be approached with caution. Since the individual relationships reported were self-selected, inferences about the nature of the set of all relationships across even these channels must be made with caution. It was possible that the self-selection process over-represented more complex and interesting relationships, and ignore simple ones, or vice-versa.

**Contributions**

The contributions from this research fell into two classes. The first class was made up of the contribution to academic understanding of channel relationships. The second class of contributions offered potential tools for channel managers.

For academic advancement this research had a number of objectives. First, the groundwork was provided for a classificatory scale which could be used to locate relationships on a continuum of degrees of coalition. This scale would represent an extension of the empirical work of Noordewier et. al. (1986). The form of the extension was: 1.) a single overall score for the construct was developed, 2.) additional validity checks were employed through confirmatory factor analysis and qualitative measures, and 3.) an exploratory search for potential independent
variables was conducted. These extensions should facilitate the use of the relational contract stream of research in channels research questions. In this respect, the construct was defined, its components identified, measures proposed and some measures of validity were provided.

Next, this research confirmed the perception of many sources which suggest that relationships among shippers, carriers and warehousers are, in fact, becoming more and more coalitional. The integration of the measures into a single score was necessary for any attempt to integrate the relational contract literature and concepts into the transaction cost analysis model. This allowed the relaxation of the transaction costs analysis assumption of only two integration choices facing the firm, make or buy. Finally, the research explored a number of variables for possible significant relationships with the coalitional relationship construct. The exploration of a large set of partnership building partner choice parameters along with the openendedness of the qualitative phase offered the possibility of building a model incorporating more than just the coalitional relationship and the transaction cost variables.

In addition to the above contributions to the academic understanding of channel relationship building, the study offered a number of insights to logistics practitioners.
When practitioners know the range of potential areas of partnership building as embodied in the five dimensions of coalitional relationships they should be able to more effectively use partnership as a competitive tool. The results of the exploration of potential causal factors offered insights into the factors which promote coalition building. The differences in ideal and actual coalitional scores offered insights into the particular areas of the relationship that offer opportunities. Finally, the ability to measure the components of the partnership building process offered the ability to quantitatively analyze the firm’s current position with respect to its customer base.

**Organization**

The study is organized as follows. In Chapter I an introduction to the problem and a review of the research methods used was presented. In Chapter II a review of the literature was presented. Chapter III contained an overview of the methodology employed in the study. The findings for the two phases of the study were reported in Chapter VI. The final chapter, Chapter V, completed the presentation of the study with a summary, conclusions and implications.
CHAPTER II

LITERATURE REVIEW

Introduction

The first chapter gave an overview of the questions, hypotheses and methods involved in the study. This chapter offers a review of the literature designed to show the genesis of the research question and the hypotheses. The need for this study grew out of three sources, 1.) the evolution of the relational contract view of interfirm relationships, 2.) vertical integration studies examining the transaction cost approach and 3.) the recognition of the importance of understanding strategic alliances, strategic partnerships, value added partnerships, systems selling, etc. A review of literature concerning these three developments forms the first portion of the literature review. In the final section of the literature review, literature specific to the context of the study, the warehousing and transportation industries' customer relationships, is reviewed.
Why the Research Question?

The research question derived from the lack of a good set of measures for relationships between business units which fall between the discrete, stand alone market transaction and the total integration of the units within one corporate entity. This need was pointed up by Williamson's transaction cost analysis (Williamson, 1975, 1985), as well as by Stigler's and Mallen's economic analysis (Stigler 1951, Mallen 1973). All of these, as well as most other treatments of vertical integration, saw the choice as dichotomous, that was, either a make or buy choice set. An exception to this was the recent Harrigan (1983) article which lays out a number of dimensions of the vertical integration decision. This set of dimensions included the dimension of form of integration. Porter (1985) offered the observation that businesses could gain many of the benefits of vertical integration by forming coalitions with channel partners.

Relational contract literature has provided a means of dimensionalizing and measuring relationships along a spectrum from very transactional to highly relational. The highly relational pole of the spectrum was termed coalitional in this study. This work is exemplified by Macneil (1978, 1981); Macaulay (1963); Noordewier, John and Nevin (1986); and Palay (1984).
A relatively recent interest in strategic alliance, strategic partnership, and related styles of business relationships has emerged. The trade press related to logistics services has had numerous recent references to partnership building. The academic community has also recently produced a number of conceptualization efforts designed primarily at the definition of the phenomenon and an enumeration of the important issues. Examples of these efforts included Thackray (1988); Bowersox (1987, 1988); Shapiro (1985); Johnson and Lawrence (1988); and Cooper, Goodspeed and Lounsbury (1988).

Why this approach and these hypotheses?

The following discussion attempted to answer the questions of 1.) choice of approach to the problem and of 2.) the roots for the hypotheses proposed. The basic concepts derive from work by Macneil, Palay, Macaulay and Noordewier, John and Nevin. The first set of hypotheses, those pertaining to measurement of the constructs, all were driven by the work of these authors. The descriptive sets of hypotheses were based in large measure on trade literature and on a logical progression of descriptive needs.
Coalitional Relationships

In developing the coalitional relationship construct the body of literature focusing on relational contracts was assessed. The central focus of this body of literature was the notion that relationships between businesses often rely more on a set behavioral norms and expectations than on the letter of contract. The focus of this literature was in identifying and classifying the elements which make up this relationship oriented form of contractual agreement. The overall view of the advocates of the relational contract school was that norms and expectations which develop with relational contracts could be dimensionalized to assist in classification of relationships as more discrete or more relational. The following was a review of the relational contract literature.

Macaulay

The groundwork was laid for the examination of the contractual studies of coalitional relationships by Stewart Macaulay (1963). In his qualitative studies, Macaulay looked at businesses' use of and views of contracts as opposed to lawyers' views of contracts. His overall conclusion was that business was often well served by agreements which were governed by forces outside legal recourse emanating from contracts. In a comment on this analysis, Evans (1963) called for measurement and
specification of the conditions under which different degrees of "contractualness" were encountered. From this foundation, Macneil went on to describe his relational contract classification scheme.

From the area of legal scholarship in contract law came the concept of relational contracts. This concept was primarily developed by Macneil (1978, 1981). The relational contract approach looked at contracts as being much broader than written documents. In his work, Macneil explained contracts as something more akin to a set of expectations concerning behavior by the parties concerned with an exchange or series of exchanges. This relationship focused approach allows for classification of contracts into categories according to how relational they were. According to Macneil in his more recent model (1981), highly relational contracts were characterized by the following seven characteristics:

1.) Commencement, Duration and Termination
2.) Measurement and Specificity
3.) Planning
4.) Sharing verses Dividing Benefits and Burdens
5.) Interdependence, Future Cooperation, and Solidarity
6.) Personal Relations and Numbers
7.) Power: Unilateral and Bilateral

The above seven components of relational contracts were seen by Macneil as a set of classification variables. The final variable, power source, was expanded on at length, and
seems to be the focus of Macneil’s work. The other dimensions, however, were more influential on the current study. Macneil does not offer any indication of how these various components would interact, or if they were independent. From the discussion, unilateral and bilateral power were described as artifacts of the evolution of the relationship over time. Thus, the choices of form encompassed in the other six components would determine the nature and relative importance of the two types of power.

The individual dimensions are listed in Table 1. Since the power component appeared to be very interdependent on the nature of the other dimensions, the six components other than the power component were of the greatest interest for the current study.

**Palay**

A simplified and limited empirical test of a classification scheme was performed by Palay (1984). This research had as its focus confirming a portion of the transaction cost model using the relational contract model as proposed by Macneil. The supposition in Palay’s study was that the degree of specific assets required would drive contracts into more relational structures. Palay choose a different set of components for the coalitional relationship construct, which he referred to as governance structure.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Values at the extreme</th>
<th>Coalitional Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commencement, duration and termination</td>
<td>Part of ongoing relationship with no sharp beginning and no clear endpoint, a long term open-ended relationship</td>
<td>Has a clear beginning point, lasts a short while, and has a clear end, after which neither party has any expectations with respect to the other</td>
</tr>
<tr>
<td>Measurement and specificity</td>
<td>Inability to specify exact requirements of the relationship in advance, reliance on expectations or forecasts</td>
<td>Measurable and identifiable performance standards set in advance</td>
</tr>
<tr>
<td>Planning</td>
<td>Planning focuses on the PROCESS by which the parties will continue the relationship</td>
<td>Planning by each party is independent, and focuses on specifying the contract accurately</td>
</tr>
<tr>
<td>Sharing versus dividing benefits and burdens</td>
<td>Acceptance of short term burdens in expectation of longer term balancing of benefits and burdens</td>
<td>Immediate tit-for-tat behavior and/or clear delineation of all responsibilities at the outset</td>
</tr>
<tr>
<td>Interdependence, future cooperation and solidarity</td>
<td>Expectation of continued relationship in the absence of outside force such as a contract or legal obligation</td>
<td>Total reliance on contract or legal constraints</td>
</tr>
<tr>
<td>Personal relations and numbers</td>
<td>Many personal relationships within organizational relationship, individual character and background matters</td>
<td>No interpersonal relationships</td>
</tr>
<tr>
<td>Power: unilateral and bilateral</td>
<td>More unilateral power: after the commencement, each has power over the other in terms of choosing to offer or hold back resources</td>
<td>More bilateral power: each has resources to offer the other</td>
</tr>
<tr>
<td>Operating controls</td>
<td>Operating procedures, audit trails, sources or specifications for inputs, etc. all specified implicitly or explicitly</td>
<td>Only end results are specified, not operating procedures</td>
</tr>
<tr>
<td>Expected method of enforcement</td>
<td>Reliance on negotiation</td>
<td>Reliance on litigation</td>
</tr>
</tbody>
</table>
The components were enforcement, adjustments, information for long term planning, and information for structural planning. Governance structure varied discretely from market governance to mixed governance to relational governance. No indication was given as to how the components were combined to form the overall governance structure measure.

This research was primarily qualitative, with tabulations to support the qualitative findings. No formal hypothesis testing on the cross tabulation tables was performed since the sample size was small. The context was rail freight contracting, particularly interesting for the present study. The results were strongly in favor of the view that specific investment led to relational governance of the exchange.

For the current study there were a number of significant aspects to this research. First, the context, similar to the proposed context, gave strong evidence of variability both by component and for the governance structure construct overall. Next, the omission of the power construct implies Palay also may have viewed this as a separate consideration from the governance construct. He did not, however, justify or discuss this omission, so this was only by implication.
Noordewier, John and Nevin

Noordewier, John and Nevin (1986) offered the only rigorous empirical test of a coalitional relationship construct measurement scheme. They referred to the phenomenon as hierarchical relationships. Each of five dimensions, flexibility, sharing of benefits and burdens, exchange of information, operating controls, and extendedness, were measured using multiple measures. The study was intended as an extension of Williamson's transactions cost approach and an empirical test of the uncertainty component of transaction cost analysis. Since the focus was not on Macneil's relational contract concept, no attempt was made to integrate the scores on the various dimensions into an overall score of hierarchical degree. The 1986 working paper used a principal components factor analysis methodology which assumes orthogonality among the dimensions. This assumption of orthogonality was a stringent limitation on the model. While this assumption of orthogonal dimensions is likely driven by the methodology chosen, it is a difficult assumption to accept completely. The study assumed orthogonal dimensions, and excluded measures which loaded on more than one dimension. The overlap between exchanging information and managing operating controls should be quite possible, to give an example of when two dimensions might overlap. Their findings of identifiable dimensions offered encouragement
for the more demanding confirmatory factor analytic test of the coalitional relationship construct used in the present study.

In their study, they confirm the existence of the dimensions of hierarchical relationships which they posit. The reliability measure, coefficient alpha, showed reliability within each dimension, particularly after the deletion of selected variables. Exploratory factor analysis showed the dimensions to be distinct from one another, particularly after the deletion of additional variables.

**Dwyer, Shure and Oh**

Dwyer, Shure and Oh (1987) offered a presentation of Macneil's framework. This article introduced the concept of relational contract based exchange relationships into the marketing theory development debate. The authors presented a general description of the dimensions of what they term "relational exchanges" or as used in the present study, coalitional relationships. They offered two classes of elements, one being situational characteristics and the other being process characteristics. They presented twelve components within these two classes. The set is adapted directly from Macneil (1978, 1980). Power was retained in this set, as were measures relating to the personal relationships and communications style across the dyad. The
authors did suggest that a reduction to fewer than twelve dimensions would be a likely requirement to become useful to marketers. Further, no discussion of the potential overlap among the dimensions was included. No empirical testing of the model was attempted.

**Frasier, Spekman and O’Neil**

In their recent article Frasier, Spekman and O’Neil (1988) proposed a JIT exchange relationship style of OEM and supplier relationship. The resulting model utilized both relational contract and transaction cost elements. The characteristics of a JIT exchange relationship were a composite of both transaction cost variables and relational contract variables. The model indicates three distinct forms of relationship, 1.) market, 2.) relational, and 3.) JIT. The third style of relationship matched well with a highly coalitional relationship as used in the present study. The dimensions include six which could be considered as derived from relational contract literature and four from transaction cost approaches. No empirical tests were performed.

**Others**

Some insight into the need for a more relational approach to contracting within the logistics services
industry could be had from Cavinato (1984b). In a
discussion of transportation contracts Cavinato identifies
21 major items to be covered along with 57 specific
questions within those major items. This extensive listing
indicated the existence of serious difficulties with
prespecifying all contingencies and conditions as would be
required within the traditional contracting framework in the
logistics services field. Thus, the expectation that the
relational contract style of relationship would be likely in
the logistics services context was indirectly supported.

Summary

The relational contract approach to interfirm
relationships has gained attention over the past decade.
The approach has spread from the contract law debate into
the transactions cost analysis discussion of economics.
Recently, this approach has surfaced in the marketing
literature where it may help in understanding the nature of
exchange relationships.

Strategic Partnership

The concept developed in the above literature could be
linked to current trends and topics in logistics management
and marketing through linkages with the concept of strategic
partnership. This concept also goes by the terms strategic
alliance and value added partnership. The recent literature in this area is reviewed in this section.

**Thackray**

On the broadest level, strategic partnerships were discussed in Thackray's (1986) article concerning what was termed "America's vertical cutback." This discussion concerned the role of outsourcing replacing vertical integration as the norm in the United States economy. The dangers inherent in the process of "disintegration" were reviewed. The danger of loss of technological advantage is contrasted with the advantages of a more global viewpoint. Examples of international strategic partnering were offered as examples. The focus was on marketing and manufacturing partnerships rather than logistics partnerships.

**Bowersox**

Bowersox (1987, 1988) presented two discussions of strategic alliances in logistics. The term strategic alliance was used here as synonymous with partnerships. The contexts of both discussions were as applications of strategic logistics. According to Bowersox, strategic logistics would focus more on effectiveness than on efficiency as compared with its predecessor, integrated logistics. The third party alliances or partnerships in
logistics were presented as examples of this change of focus. The discussion in the second article (Bowersox, 1988) begins with an assessment of service partnerships. These included an event orientation, perishability, continuity in the relationship, and informality of the agreements. Notable was the list of environmental trends which generated this trend toward partnership formation. These include human resource shortages, quality emphasis, inventory reduction efforts, regulatory trends, technological changes and increased complexity of the business environment.

Partnership success ingredients discussed in Bowersox (1988) included selective matching, information sharing, role specification, ground rules, and freedom to exit. No serious attempt at defining the form that partnerships should take was made in this study. The elements of what this study would call the form of the partnership which were mentioned in the discussion included flexibility, planned sharing of benefits and burdens, and planning. While overall driving factors were mentioned, specific influencing factors for the choice of specific partners was generally not addressed beyond the discussion of selective matching. Share of business, future soundness of the partner, and corporate culture were presented as potential influencing factors in this selection process. In Bowersox, Daugherty, Droge, Rogers and Wardlow (1988) evidence was cited showing
an increase in the use of strategic alliances in what they term logistics leaders or leading edge firms.

Johnson and Lawarence

Johnson and Lawarence (1988) offered a description of what they term value-adding partnerships. The authors stated that the information revolution has allowed smaller firms in partnership relationships to achieve many of the advantages of economies of scale once reserved for the largest firms. This exploration of the partnership phenomenon used a set of examples to demonstrate the linkage to the value chain concept (Porter, 1985; Houlihan, 1985; and Jones and Riley, 1984) and presented a of the view of partnership as an alternative to traditional vertical integration.

Cooper, Goodspeed, and Lounsbury

In an article by Cooper, Goodspeed, and Lounsbury (1988) a number of environmental factors stimulating partnership development in logistics channels were presented as well as a listing of ingredients for successful partnership. The list of ingredients included:

1.) Commitment across organizational ranks
2.) Mutual need satisfaction
3.) Strong communications between the parties and within organizations
4.) Flexibility
5.) Organizational and cultural compatibility
6.) Sharing of goals, information, technology and risk
7.) Role specification and performance expectations
8.) Freedom to reposition
9.) Methods for measuring combined effectiveness

This enumeration of ingredients likely should not be seen as the various dimensions of a successful relationship, as some relate to the style of the relationship and others relate to other variables such as motivation, evaluation and organizational characteristics.

Anderson and Narus

In an analysis of partnership advantage in the manufacture and distributor realm, Anderson and Narus (1988) posited that mutual competitive advantage must result from a partnership. They then identified separate sets of variables for both the manufacturers and the distributors with each set focusing on outcomes. This approach did not attempt to capture the style of the relationship, but the potential rewards of partnership. The variables also appeared to be specific to the context of manufacturer and distributor relationships. The data analysis used a covariance structure model fitted to both the manufacturer and distributor samples.

Jackson

Barbara Bund Jackson (1985) offered a spectrum of buyer/seller relationships which ranged from an always a
share view to a lost for good view. These poles and the intermediate forms the relationships were not rigorously defined, but good examples were given. The contribution in relation to the current study was to reinforce the notion that these buyer/seller relationships offer a continuous spectrum.

Shapiro

Benson Shapiro's (1985) working paper offered a number of insights into the nature of the coalitional relationship, however, he fails to offer a name for the overall spectrum other than forms of selling. All possible inter-firm relationships were categorized as one of the following: transactions selling, systems selling, relationships selling and strategic partnership. These were offered as progressively more involved relationships. In the terms of this research they would range from discrete to highly coalitional. Shapiro's implications section offered some rewards and some traps in designing these relationships. These included the limitation on the number of strategic partnerships a firm could successfully manage. Shapiro's observations also indicated we should expect a relatively high percent of business devoted to a highly coalitional customer.
Farrell and Scotchmer

Farrell and Scotchmer offered a game theory analytic examination of the partnership building process. In this analysis partnership members are assumed to share benefits equally. In such a case, the result of their analysis was that an equilibrium always exists and is generally unique. The analysis assumes multiple potential partnership members rather than dyadic relationships. The overall conclusions focused on the ability of members to increase both average and marginal returns by forming partnerships with selected groups.

Wilmer, Knill, Modic, and Potter

A discussion of strategic alliances in international trade was presented in an article by Wilmer, Knill, Modic, and Potter (1988). This discussion described strategic alliances or partnerships through the use of informal case examples. The examples generally were manufacturer and supplier relationships. The central theme was the need for systems integration across firms.

Wasserman

Wasserman offered a prescriptive look at building partnerships between shippers and logistics service providers (1988). In this article the keys to partnership
success were listed as "interrelation" or a give and take relationship, accurate role perception, candid and honest communications, cooperative commitment, and a long term commitment. Wasserman saw partnership building as an evolutionary process.

Summary

The strategic partnership concept has gained attention recently, as evidenced by the above citations. The concept goes by many names and covers wide range of contextual settings.

Influencing Factors

The descriptive hypotheses were based a combination of literature, and logic. The theoretical influencing factors derived from the transaction cost analysis literature. The atheoretical influencing factors were derived from traditional business variables, observations in the academic and trade press, and basic logic. The discussion below first focused on the theoretical variables then on the atheoretical variables.

Transaction Cost Analysis

The transaction cost literature offered a theoretical basis for some variables which should influence the degree
of coalitional relationship present in a business to business relationship. The modern champion of this view of industrial organization was Oliver E. Williamson. The review of this theory begins with Williamson's treatment of transaction cost analysis.

Williamson

The basic concept of transaction cost analysis as presented by Williamson (1975, 1979, 1981, and 1985) involved the choice between market governance and hierachical governance of economic activity. The theory had its roots in the works of Coase (1937) and Arrow (1969). The dependant variable in this theoretical model was the choice to vertically integrate as opposed to securing a resource transformation in the marketplace. The independent variables were frequency of transactions, specificity of assets, and uncertainty. Williamson's earlier works tacitly viewed the vertical integration choices as dichotomous, either a make or a buy decision would be chosen. In the most recent work (Williamson, 1985) reference was made to choices beyond these two. For occasional transactions a trilateral governance structure, neoclassical contracting, would be used. In this instance, there would be a party, such as an arbitrator, assigned to settle disputes. The other manner of governance in this middle ground would be appropriate for frequent transactions. This governance
structure was Macneil’s relational contracting. Thus, it appears that Williamson sees the use of the relational contract classification schema as a reasonable dependant variable in assessing the value of the transaction cost analysis model he proposes.

The problem of concern for transaction cost analysis was the governance form for resource transformations. This represents a private ordering view of contractual relations. The rationale for transactions costs economics was the simultaneous existence of bounded rationality, opportunism and specific assets. In the absence of any one of the above there would not be any need for vertical integration and the difficulties inherent in private ordering would be eliminated. These three underlying factors give rise to the variables which Williamson proposes as the drivers of vertical integration.

The three variables were the presence of uncertainty, frequency of transactions, and the presence specific assets. For uncertainty the condition might arise directly or through excessive complexity such that the limits of bounded rationality would intervene. One example given referred to environmental risks which were too numerous or too complex thus yielding uncertainty (Williamson, 1975, pp 24). Williamson explicitly did not make any distinction between risk and uncertainty in this analyses.
Walker

Gordon Walker (1988) tied the transaction cost variable environmental risk to the strategic sourcing concept. Here strategic sourcing was closely akin to a partnership style relationship. Strategic sourcing was compared to the alternative of vertical integration. The author identified three types of risk: 1.) appropriation, 2.) technology diffusion, and 3.) end product degradation. The three are taken together to form a construct called strategic risk. Strategic risk along with the comparative abilities of the firm and the best outside supplier together determine the choice of make or buy. A small sample regression analysis was used to test the model.

Anderson and Weitz

In the marketing literature more and more channels researchers have been using the transaction cost approach in evaluating channel structure. Anderson and Weitz (1986) proposed a modification of the transaction cost model for use in evaluating the marketing productivity of vertical integration of marketing functions. In their model Williamson's three variables were split out into a number of separate issues. Economies of scale were split out from specific assets, a free riding potential variable made the opportunism assumption more explicit, inability to monitor
performance made bounded rationality more explicit, size of the transaction was substituted for frequency, and competition in the supplier market offered an additional measure of specific assets. The emphasis in this study was a dichotomous choice, make or buy.

The Anderson and Weitz model may have significant conceptual problems with the division of the transaction cost variables and the inclusion of underlying assumptions explicitly into the model. For instance, the authors suggested that economies of scale in the resource transformation would drive the firm to vertical integration. This ignores the common situation in which the economies of scale might exceed the ability of the buyer to integrate the function, as would often be the case in logistics services. The inability to monitor performance and the free riding potential variable potentially overlap. These last two variables were of interest for the present study, as elements of both would be found in the uncertainty surrounding the relationship independent variable developed here. No empirical test of the model was included in the research, however a set of measures was included with thirty one measures proposed. These measures were presented in the context of the choosing manufacturer's agents or using a corporate sales force.
Noordewier, John and Nevin

The Noordewier, John and Nevin (1986) study most closely resembles the study at hand. The goal of this research was to integrate the relational contract spectrum of possible relationships with one of the transaction cost variables, environmental uncertainty. This research chose a context in which only uncertainty was likely to vary, the purchase of ball bearings by manufacturers. The study approached the question by examining the relationship of the five previously discussed dimensions independently with the uncertainty variable. The uncertainty variable was measured by a number of context specific measured variables.

Other Transaction Cost Treatments

Some recent empirical studies should be noted here in order to contrast the goals and approaches that were possible within the transaction cost analysis approach. Dwyer and Oh (1988) studied the hierachical governance structure directly by measuring the amount of authority, formalization and participation of the various parties to assess the governance structure of coordinated vertical channels. Heide and John (1988) looked at alternative measures available for the control of risks arising from specific assets in the context of manufacturer's agents. In
particular, they examine the ability of agent middlemen to balance dependence by developing offsetting investments.

Achrol and Stern (1988) examined the environmental determinants of uncertainty in marketing channel decision making. This piece pointed out a quite complex schema for measurement of the environmental uncertainty construct, with from two to four measures for each dimension of environmental uncertainty. The methodology used in this study was similar to the the methodology employed in the current study. The researchers used a single manager’s perceptions from one pole of a dyadic relationship, the retailer/supplier relationship.

Transaction Cost Analysis Summary

The transaction cost analysis approach to vertical integration issues offered a rich diversity of prior research. The initial model has been modified, with assumptions such as the dichotomous choice between make and buy being relaxed. Empirical testing has begun to emerge in the literature. The complex nature of the independent variables has been tentatively explored. The transaction cost approach has not yet been empirically shown to be relevant in the choice of logistics services suppliers, however.
Logistics Service Supplier Relationships

Logistics service supplier relationships with their customers were discussed in a number of aspects. First there were observers who addressed both warehouser and carrier relationships with customers in general. Next, there were observers who addressed primarily warehouser and shipper relationships. Finally, there were observers who addressed primarily transportation and shipper relationships.

La Londe, Cooper, and Noordewier (1988) in an exhaustive study of shippers attitudes identified a number of important aspects of the relationship between shippers and carriers. The study found that shippers primarily want the following from carriers: 1.) reliable delivery, 2.) reliable pickup, 3.) consistent transit time, 4.) equipment availability, 5.) short transit time, 6.) shipment tracking ability, 7.) paperwork accuracy, 8.) claims response, 9.) equipment in good condition, and 10.) special equipment available. From Warehousemen shippers want: 1.) excellent clerical staff, 2.) a customer service measurement system, 3.) flexibility in space and labor, 4.) liability insurance, 5.) a computerized inventory management system, 6.) excellent claims response, 7.) a warehouse address/locator system, 8.) materials handling equipment flexibility, 9.) a
product recall system, and 10.) a productivity measurement system.

The growing importance of logistics contracts was the subject of an article in Distribution (1988). The article indicates the percent of logistics services purchased under contracts grew from 5.5% to 55% over the past ten years according to a reader poll. The two most important goals from the shippers' point of view for contracting services was to leverage volume for lower rates and to insure customer service levels.

A number of authors pointed out the importance of electronic data interchange in the logistics marketplace (Loar, 1988; Yanacek, 1988; and Harrington, 1987). Such services as electronic exchange of bills of lading, freight billing, remittance advice, funds transfer, and shipment advice were cited (Loar, 1988). These information exchanges were reported to improve both parties efficiencies.

Third Party Logistics and Outsourcing

Two phenomena noted in both the warehousing and transportation industries were a trend toward the use of third party logistics services and outsourcing of logistics services. The third party logistics services phenomenon was discussed in Morash (1986); Bowen (1988); Bowen and Sexton (1988); Quinn, Cooke and O'Laughlin (1988); Sexton and
Trenery (1987) and Muller (1988). Outsourcing was discussed in Cavinato (1988); Cooke (1988); and Quinn, Cooke and O’Laughlin (1988). While the distinction between the two phenomena was not been made consistently clear, outsourcing generally implies the shift of logistics services which were previously performed within the shipper’s organization to outside sources. Third party services often has been defined as service providers other than the transportation firm proper. Confusion existed in the sense that in outsourcing the third party would be the logistics service provider, of whatever nature. Third party logistics would consider the third party someone other than the traditional two parties, the shipper and the carrier.

The confusion engendered by the lack of specific and consistent definitions notwithstanding, these trends have been observed to coincide with closer relationships between logistics service provider and shipper. Bowen and Sexton (1988) offered survey data to support the current and future growth of third party logistics. While reduced costs and potentially greater service levels are cited as drivers of these trends, there was a reported balancing fear of loss of control of the system. Morash (1986) offered a justification for the emergence of third party channel facilitators using the channel separation concept. The third parties were posited to assist in either increasing transportation efficiency or customer service performance.
In an article on the evolution of the logistics concept, Langley (1986) indicated that the emergence of an "ultimate" third party who would take over the entire logistics function of a firm should be expected in the future.

Murray and Calaby (1988) make the connection between outsourcing and partnership explicitly in their discussion of the evolution of logistics. In this article the need for outsourcing were identified as: "1.) change in operating methods, 2.) change in market characteristics, 3.) quick response to competition, 4.) product or market repositioning, 5.) preparing for market expansion, 6.) reorganization."

Public Warehouse Industry Relationships

A good starting point for discussing public warehousing industry relationships would be the overview provided by Ackerman and Wise (1985). In their discussion of third party warehousing trends they defined public and contract warehousing and examined trends in users, providers, and emerging relationships. In the emerging relationship section there was a discussion of four types of relationships, 1.) affiliations, which are horizontal in nature, 2.) super customers, which are vertical in nature, 3.) joint ventures, which can be vertical or horizontal, and
4.) ownership. None of these matched up well with the notion of supplier and customer partnerships. Thus, in 1985 any trend toward strategic partnerships with customers may not have been sufficiently developed to warrant inclusion in this discussion of trends in warehousing, even though relationship style was specifically addressed.

Foster described the use of public and contract warehousing as a type of "logistics utility" (1987). Particular attention was given to the means of adding value to inventory. A number of cases were used to illustrate such value adding processes as reverse channel facilitation, packaging and display support, recycling processes, and JIT distribution support. The essence of the article was that the range of services provided by warehousers is expanding rapidly.

The trend toward third party distribution was outlined in Davisson (1986). This account used the cases of Whirlpool and GM decisions to switch from internal logistics operations to third party warehousers and carriers. The ability to develop relationships which deliver consistently high service levels while exiting a business which was not central to the shipper’s line of trade was cited as the driving force for this movement.

In a subsequent article Davisson (1987) discussed the shipper and carrier relationship as it relates to the the
occasional shipper. A case based argument was made for the importance of the occasional shipper to carriers. The article described a number of basically transaction oriented customers who require high customer service levels.

In an article on cost sharing Cavinato (1984a) indicated that shippers and third party service providers were increasingly sharing costs according to which party was in the best position in terms of labor, capital and other cost structures across the two firms. The implication not explicitly stated in the article would be that more planning was taking place, as well as more sharing of benefits and burdens.

Other articles used a case study based approach to warehouser and shipper relationships. These articles addressed the development of partnership, third party and outsourcing issues. Examples would include Muller (1988): Foster (1987) and Gordon (1987).

Transportation Industry Relationships

Marcus (1988) discussed the relationship of credible commitments to shipper and carrier relationships. This analysis combined credible commitments, relationships between the transactional exchange and vertical integration, along with Williamson's specific assets variable in the context of the transportation market. The author saw these
credible commitments as evolutionary. Flexibility and a willingness not to abandon the carrier for a temporary lower price were cited as characteristics of the credible commitment.

From the trade press there were also indications that the formation of partnerships by transportation firms with their customers was a current topic of discussion and concern. Cavinato (1984a) authored an article which relates to the presence of what would be termed in this study as coalitional relationships. Cavinato's study indicated the emergence in a few "leading edge" firms which were building "win-win" relationships. The examples of components of these relationships were bundling or unbundling of services, customized information exchange through electronic data interchange or customized reports, and shared management functions.

Harrington (1986) indicated that shippers and carriers were increasingly "trading in the old shipper-carrier adversarial role in favor of service 'partnerships'." The focus of the article was the evolving higher customer service levels required by shippers along with the increasing number of value adding services offered by carriers. The primary evidence that this was in fact producing partnership style relationships was a pair of examples cited. One relationship was the relationship
between Land O'Lakes and their carriers. The relationship's partnership elements were not clear through the article beyond a higher customer service commitment coupled with a lower price. Similarly, the example of Carolina Freight's use of EDI to inform both shipper and receiver of the state of shipments was offered as a way to increase customer service levels. This article does not attempt to define or exhaustively explore partnerships between shippers and carriers, only offer indications of what was involved.

In another Harrington (1985) article a number of elements of successful negotiation between shippers and carriers were presented in the form of case studies. The elements which were important to the present study were as follows. The importance of negotiating issues after the initial agreement was made was presented. The need for both parties to study on another's operations was emphasized. One shipping manager indicated that he looked on his relationships with carriers as long term relationships based on give and take. Willingness to adjust the day of the week a shipment originates with a preference for early in the week was an example of flexibility which would enhance a relationship from the carrier's point of view. A typical goal indicated in the shipper-carrier negotiation process according to the article was a win-win, long term relationship.
Other articles used a case study based approach to carrier and shipper relationships. These articles addressed the development of partnership, third party and outsourcing issues. Examples would include Lounsbury (1987); Taylor et al. (1987); Watson and Johnson (1988); Ettorre (1987); Bowman and Foster (1987); Curley (1987); and Foster (1987).

A number of authors have reviewed the general concerns in developing any relationship between carriers and shippers. Articles which reviewed the issues in developing contracts or negotiating in carrier and shipper agreements include Berry (1988); Cooke (1987); Callari and Farrell (1987); Flynn (1988); Quinn (1987); Estes (1987); and Foster (1988). Included in these discussions were the issues of style of negotiation, mode specific lists of contract components, payment methods, and discounts.

Summary

The above discussion of the forces relating to the atheoretical influencing factors associated with coalitional relationship formation covered the issues of third party services and outsourcing as well as other aspects of carrier and warehouser relationships.
Summary of the literature

This section presents a discussion of the relationship of the above literature to the current study. This discussion begins with the coalitional relationship construct. Next, the strategic partnership linkages with the literature are discussed. Finally, the influencing factors' theoretical and atheoretical components are summarized.

Coalitional Relationship Summary

The present study differed the from Noordewier, et. al. (1986) treatment in a number of important ways. First, the central focus of this study was the coalitional or hierarchical relationship construct itself, not its relationship with transaction cost analysis. Thus, the scale was be used for current and ideal measures. Also, a meaningful overall score on the multidimensional construct, coalitional relationship, was a major goal of the study. In this respect, the assumption of orthogonal dimensions did not seem necessary nor desirable in the present study, as each dimension was not tested independently as an effect variable in a causal model would be. The proposed scale was constrained to a shorter overall length, and presented in a different scaling context in order to be less taxing on the respondents.
In order to improve on the study by Palay a number of weaknesses of that study could be addressed. In evaluating Palay's study a number of areas in need of further research were evident: 1.) the measurement and scaling needs refinement, 2.) the sample size needs enlarging 3.) the measures need reliability and validity checks 4.) there was a need for a simpler and less time consuming method of measurement. Thus, the Palay study both encouraged the present research and points out areas for improvement.

The above classification schemes of Macneil, Noordewier et. al. and Palay were integrated into a set of components to form the coalitional relationship construct proposed for this research. The components of this construct were constituted as follows (see Table 1):

1. Extendedness: This component was nearly identical to Noordewier's "extendedness" and Macneil's "commencement, duration and termination".

2. Operational Information Exchange: This component takes encompasses parts of Noordewier's "exchange of information", Macneil's "measurement and specificity", and Palay's "exchange of information for long range planning" constructs. Also, the idea of investment in risk management was included here.

3. Operating Controls: From Noordewier's dimension of the same name, the ability to verify the methods of fulfillment of the exchange ex post.

4. Sharing Benefits and Burdens: Same as Noordewier and Macneil's dimensions with the same name. Palay's "expected method of enforcement" and "types of adjustments effectuated" dimension would be part of this component.
5. Planning: Assumes many pieces of Macneil's model, and was nearly equivalent to Noordewier's "flexibility" dimension.

In summary, the coalitional relationship construct was a composite of the work within this stream of research referenced above.

Strategic Partnership Summary

The concept of strategic alliances or strategic partnership were found not to have precise or consistent definitions. The components, drivers and results were also found not have wide agreement. The majority of academic work has been concentrated in the manufacturer and component supplier area. A total lack of empirical work in the logistics partnership area was apparent.

Theoretical Influencing Factors Summary

The transactions cost variables were found to have significant consistency in application across studies, as well as some success in empirical tests. The Noordewier, Nevin, and John (1986) represents the only empirical test to use a continuous dependent variable based on relational contract principles. Their test looked only at the environmental uncertainty variable. A number of marketing researchers have noted the need to integrate this middle ground between total vertical integration and discrete
market purchases (Heide and John, 1988; and Dwyer and Oh, 1988). There was some divergence of opinion as to the nature and operation of uncertainty, as reflected in Anderson and Weitz (1986) and Archol and Stern (1988).

Atheoretical Influencing Factors Summary

From the review of the literature relating to the relationships between carrier or warehousers and their customers, it was clear that a number of variables should be important in the selection process. Electronic data interchange would be an important consideration in the choice. The expressed opinion that partnerships are evolutionary would indicate that the history with a firm would be an important indicator of partnership. The view of the importance of customer service in general, as well as some indications of its importance in partnership building would indicate that customer service requirements should relate to partnership building. The concept of a limited number of strategic partnership possible would indicate that the share of business should influence partnership formation.

Summary

The literature review above indicated the sources of the classification framework and the economic theory which were addressed in this study as well as some background on
the context to be used. The classification framework from the relational contracting literature appears to require further empirical testing and be open to adjustments in the specific dimensions' numbers and meanings. The transaction cost analysis literature was more developed with more empirical evidence. The transaction cost framework, however, generally was not tested using a continuous measure of the firms between the extremes of discrete relationships and fully integrated operations. The context, logistics services providers, appeared likely to provide a range of degrees of coalitional relationship across firms. The context also facilitated linkage of the concept of strategic partnership with the relational contract concept.
Chapter III

RESEARCH DESIGN

Introduction

This chapter defines the variables, outlines the research steps and describes the data analysis methodology used in this study. There were two main phases to the research. First, there was a quantitative phase, which consisted of a study using a large sample mail questionnaire to provide quantitative support for the hypotheses presented earlier. The next phase was a qualitative effort to verify and expand on the findings of the first phase. Each phase is treated in turn in the following discussion.

Phase I - Quantitative Phase

The discussion of phase I below first traces the development of each hypothesis. Included is a discussion of each variable of interest, the rationale for each hypothesis, and the method for testing the hypothesis. Next, the steps in implementing the questionnaire were described.
Variables

The variables of interest were divided first into dependent variables and independent variables. The three dependent variables, actual coalitional relationship status, ideal coalitional relationship status, and the deviation between actual and ideal status were all derived from the coalitional relationship construct. The coalitional relationship construct itself had five dimensions, each indicated by multiple measured variables. See Figure 1 for a graphic depiction of the coalitional relationship model. The independent variables were divided into two groups, theoretical and atheoretical. The discussion of the variables and hypotheses below proceeds with the dependent variables discussed first, then the independent variables. Individual hypothesis development is included within the discussion of the relevant variables.

Dependent Variable

The dependent construct of interest was the degree of coalitional relationship a channel facilitator achieves with a given customer. This construct was composed of a number of latent variables, each of which required two or more measured variables for implementation. The dependent
Figure 1

CONCEPTUAL MODEL
(Carrier Questions)
variable was further divided into two separate measures, 
actual and ideal ratings.

The most important construct to measure and test was 
the central construct of the coalitional relationship. The 
overall construct of coalitional relationship was derived 
from the work of Macneil, Palay, and Noordewier, et. al. 
This construct was not identical to the relational contract 
construct used in any of the above studies, but most closely 
resembled the construct used by Noordewier, et. al. The 
general relationship of the coalitional relationship 
construct to the previous implementations was given in 
Table 1. See appendix A for the definitions of the five 
dimensions. A discussion of each dimension, or component 
construct, of the coalitional relationship construct is 
presented below. The relationship of the overall construct 
to the dimensions and the dimensions to the measured 
variables is given in Figure 1.

Extendedness dimension

The concept of extendedness within the coalitional 
relationship framework was defined as the extent to which a 
dyadic relationship is characterized by long term, open- 
ended, continuous exchanges. To develop a partnership would 
require a long term perspective of the relationship for a 
number of reasons. The extended viewpoint would be needed
in order to justify the sharing attitude which would accept deferred payback for current concessions and to justify the overhead involved in planning and integrating the two firms' management and operating systems. Macneil (1981) termed this long term perspective commencement, duration and termination. Noordewier, et. al. (1987) use the term extendedness for essentially the same construct. The measured variables chosen reflected the issues of long term perspective and lack of a distinct endpoint for the expected relationship. These long term perspectives were implemented in three items; "High Expectation of Long Term Relationship," "Very Loyal to This Customer," and "Focus on Future Transactions." The issue of termination is implemented in the item "Our Written Agreements Have Cancellation Clauses."

Operational information exchange dimension

The dimension of operational information exchange was defined as the exchange of information for operational purposes distinct from planning and control information exchange. This information exchange dimension incorporates elements of Macneil's (1981) measurement and specificity construct and Noordewier, et. al.'s (1986) exchange of information dimension. From the perspective of this study, information exchange was hypothesized to include both the information itself and the means of facilitating the
information flow. This kind of information exchange is greater in a coalition because it allows the reduction of risk through early detection of deviations from expectations, faster and more accurate operational information exchange, and through ease and speed of managerial information flow between the firms. These components of operational information exchange were implemented in the questionnaire items "We Use Software Compatible With Our Customer's Systems," "Many Direct Computer to Computer Links," and "Customer Shares Shipping Forecasts" respectively in the carrier questionnaire. In the warehousemen questionnaire the last measured variable was changed to "Customer Shares Production Forecasts."

Operating controls dimension

From Noordewier, et. al. (1986) came the notion of a distinct dimension of operating controls. The essence of this was the ability of the partners to closely monitor and influence the operating practices of one another. The alternative would be to rely only on performance measures, rather than process evaluation. This dimension was only operationalized from the customer's perspective. Three measures were used, two of which needed to be customized to match each industry of interest. For carriers the measures used were "Customer Monitors All Handling/Routing Methods," "Customer Requires Shipment Tracking Ability," and "Customer
Requires Frequent Fleet Status Reports." The warehousemen questionnaire included parallel items; "Customer Monitors All Handling/Processing Methods," "Customer Requires Accurate Internal Audit Trail," and "Customer Requires Frequent Inventory Status Reports."

Sharing benefits and burdens dimension

From the relational contract literature, a consistent theme was the sharing verses dividing of benefits and burdens. The essence of this dimension of relational contracts, or, as it was used here, coalitional relationships, was that the parties to an exchange relationship may wish to informally and voluntarily assume short term burdens in expectation of future benefits or in return for past benefits. In sharing the benefits and burdens the parties were managing risk, building trust and loyalty, and simplifying the explicit terms of the relationship while adding complexity to the implicit terms of the relationship. By sharing benefits and burdens the parties could enhance a partnership or coalition.

The view of Noordewier, John and Nevin (1986) summed up this dimension well.

Regardless of the language used, the critical issue is whether the parties are willing to assume burdens (at least temporarily) to insure that the exchange relationship itself will continue. The chief advantage of sharing benefits and burdens is that it makes adaptation to uncertainty more effective.
This view implied an important issue of time horizon in measuring the dimension, short term inequities would be balanced by a long term expectation of equity in the relationship.

Palay looked at the sharing versus dividing issue from more of a legal perspective. He sees the issue as one of how adjustments are made to changing conditions. Either parties could be flexible or hold to the original agreement, and the parties could either make unilateral or negotiated adjustments. Palay’s adjustments spanned the dimension of sharing versus dividing benefits and burdens and the dimension of planning as used in this study. Palay also looked at the issue of expected method of enforcement. This method of enforcement issue is seen as separate from style of adjustments, and is reflected in his interview question "What ultimately protects you from his not keeping his side of the understanding?" (Palay, 1984).

There were four measured variables derived from the concept of sharing versus dividing benefits and burdens. For a broad measure of overall viewpoint, an item with a positive pole "Customer Shares Risk" was included. This should measure the view of longer term balancing of benefits and burdens. To measure the shorter term working of sharing of benefits and burdens, a pair of measures was included. The pair consist of "High Customer Willingness to Help in
Difficult Situation" and "High Willingness to Help Customer in Difficult Situation". These two items were derived from Noordewier, et. al.'s item "Supplier makes an effort to help us during emergencies." These measures should identify the symmetry which would be associated with a strong partnership style of relationship. Finally, from Palay’s legal perspective, an item was included with the poles "High Willingness to Handle Exceptions by Negotiation" verses "High Willingness to Handle Exceptions by Litigation." These four measures make up the measurement items for sharing of benefits and burdens.

Planning dimension

The planning dimension was defined as the development of strategies and methods for facilitating the exchange process and dealing with the dynamics of the environment. The Planning dimension as used in this study was an integration of Macneil's "planning" construct, a mix of Noordewier, et. al.'s "flexibility" and "exchange of information" dimensions, and Palay’s "exchange of information for structural planning" dimension. Using Palay’s concept of separating types of information exchange helped clarify the distinction of the planning dimension. Here, planning is the exchange of information for the purpose of structuring the process by which the parties would maintain the relationship. Planning information
exchange, focused on the longer term, was separate from routine information exchange which was more focused on the immediate information needs of the relationship.

The actual measures proposed for this dimension reflected this focus on longer term, more global aspects of information exchange in order to be meaningfully distinguished from routine operational information exchange. Further, the questionnaire items covered the issues of levels, frequency, content, and polarity. The issue of levels was covered by the item with "Many Joint Committees/Task Forces" and "Many Corporate Levels of Communications." The frequency of planning was implemented by "Frequent Face to Face Planning Communications" and "Frequent High Corporate Level of Communication." The latter overlapped with the levels issue. The content of planning was addressed specifically in "High Exchange of Technical Information." The exchange of technical information was seen as a longer term planning aid. This longer term perspective fit well with the concept of the planning dimension being distinct from operational information exchange and operating controls communications. The polarity of the planning process was examined in the paired questions, "Customer Regularly Studies Our Operations for Planning" and "We Regularly Study Customer's Operations for Planning." Generally these were designed to focus on
the longer term and higher level aspects of the planning process.

**Dependent Variable Measurement Hypotheses**

The issue of whether the construct of coalitional relationships has been properly measured in its five dimensions generated the first set of hypotheses. This set of hypotheses was worded specifically to match the tool which was used in evaluating the measurement of the coalitional relationship construct. The choice of the factor analytic model, and specifically the confirmatory factor analytic model, as the tool for testing the measurement hypotheses was dictated by the basic desire to verify the relationship among the measured variables and their respective latent variables, the five dimensions. The factor analytic model offered strong evidence of validity and reliability for the dimensions and measures. The hypotheses regarding the measurement of the dependent variable were as follows:

H1 The coalitional relationship construct is composed of five dimensions, extendedness, operational information exchange, operating controls, and sharing of benefits and burdens. Stated another way, the population covariance structure is consistent with the model in Figure 2.

The first hypothesis, H1, was intended to verify the fit of the overall model. The model was specified in diagram form in Figure 2 and in matrix form in Figure 4.
Figure 2

LISREL MEASUREMENT MODEL
Figure 3

SIMPLIFIED MEASUREMENT MODEL
Figure 4

LISREL MATRIX FORM
MEASUREMENT MODEL
Figure 3 diagrams the alternative view of the structure of coalitional relationships, indicating no subdimensions.

While the chi-square goodness-of-fit test was available for evaluating this model, it was quite limited in that the null and the alternative hypotheses are reversed in a practical sense. Thus, the chi-square method of hypothesis testing for this purpose would be strongly affected by the sample size. To overcome this limitation, the chi-square test was supplemented by Bentler and Bonnet’s (1980) rho test. This test compared the chi-square results to that of a null model which states that the dimensions were not separate and identifiable. The values for rho would range from zero to one, with values of greater than 0.90 indicating a good overall fit. Bentler and Bonnet’s rho test was not a formal hypothesis testing method, but the application of a basic rule of thumb for this class of problem.

H2 The factor loadings, lambda i,j’s, for the labeled paths in Figure 2 are significantly different from zero.

The second hypothesis, H2, was concerned with the validity of individual measured variables as indicators for their respective dimensions. Thus, this hypothesis actually represented a separate test for each of the paths in the model. Ideally, it was expected that all of the paths would be significantly different from zero at alpha of 0.05. If
more than a small fraction of the paths were not significant, the model would become suspect even though the overall fit may have been good.

H3 The five dimensions are orthogonal - the values for \( \phi_{i,j} \) are not significantly different from zero.

The third hypothesis, H3, concerned the degree of orthogonality of the individual dimensions. This test was not as critical to the success of the measurement model. While orthogonal dimensions were desirable, the main issue was whether they were distinguishable. This hypothesis, if confirmed, would show stronger ability to distinguish the dimensions than a non-orthogonal finding. However, determining that the dimensions may be correlated in the population would only indicate that there was significant overlap in meaning for some of the dimensions. The null form was chosen here because the dimensions as described above would, in fact, be expected to be correlated. For instance, it would be hard to expect a high level of operational information exchange without some related planning associated. As in the case of H2, this hypothesis represented a number of individual tests to determine if the correlation among the latent variables as represented in the curved \( \phi_{i,j} \) paths in Figure 2 was different from zero at an \text{alpha} of 0.05 for each possible pair. There were ten such pairs.
The first step in performing these three hypothesis tests was the creation of a correlation matrix. This had the effect of normalizing the data in preparation for input to the confirmatory factor analysis model. The confirmatory factor analytic model was a special case of covariance structure modeling, therefore, the LISREL program was used to perform the calculations. All of the values were generated directly from the LISREL program except the rho statistic. For that, both the model of interest and the null model were run separately. Using the output of these two runs, rho was calculated.

**Specification Search**

A specification search was indicated by failure of some or all of the above hypotheses. Therefore, the specifications search procedure was required. This procedure followed the methodology outlined by Long (1983). First, the paths with nonsignificant path coefficients were dropped and the fit tests rerun. This modification could be visualized by eliminating an arrow pathway in Figure 2. In particular, we would expect to drop some of the correlation paths, as these were added on the grounds that we couldn’t expect the factors not to be correlated. Thus, while all of the lambda paths were expected to be significantly different

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1 phi(i,j) paths
than zero, the correlation paths were included only to provide for the possibility that they differ from zero. Next, if needed, the possible new paths with the largest modification indices would be included. This modification would be the equivalent of adding an arrow pathway in Figure 2. Any additions to the free paths using modification indices should be done one at a time since the values of the modification indices are all interdependent.

If at the end of this initial specification search process a satisfactory model was not found, the two subsamples, carriers and warehousemen could be separated out and a simplified model run on the smaller samples which would result. The model would need to be pared down in the number of measured variables due to degree of freedom limits. The resulting specification search on the subsample would proceed in an identical manner to the initial specification search detailed above.

By its nature a specification search would be subject to the possibility that the resulting model would be a capitalization on chance and therefore only applicable to its particular data set. The results of a specification search should be considered exploratory until verified by one or more independent samples. There would be available a second sample, the ideal scores. While this was not an independent sample, it could be used to offer some
confirmation of the specification search results. Thus, at the end of the specification search, the resulting model could be tested exactly as the figure 2 model was, but using the ideal score data.

Dependent Variable Measurement and Hypothesis Testing

The dependent variable in this study was actually separated into three closely related measures of coalitional relationship. First there was the actual coalitional relationship score, next the ideal coalitional relationship score, and finally, the absolute value of the difference of the first two, called the change score. The following discussion first examined the construction of the composite coalitional relationship scores and then looked at the various hypotheses concerning these dependent variables.

The formation of a single measure for each dependent latent variable was accomplished in three steps. First, the factor scores derived from the final LISREL model were multiplied by the raw scores and summed for each of the five dimensions. This yielded a summary score for each dimension which was corrected for each measured variable's impact on its respective dimension. Next, to determine whether these individual scores could meaningfully be combined into a single coalitional relationship score it was determined that the five dimensions move generally together. If this was
not the case then the dimensions were likely not operating as component constructs of coalitional relationships as posited. The test for this was a simple examination of the correlation matrix for the set of the five component construct scores. If any of the correlations were negative and significantly less than zero at an alpha of 0.05, then the meaning of a sum of the dimensional scores would be suspect. Finally, the simple sum of the five dimensional scores were used as a summary measure of the overall degree of coalition present in a relationship.

There was an important issue of homogeneity in the sample which needed to be addressed. The sample consisted of a number of subgroups. The first and largest source of heterogeneity in the sample was the split between warehousers and carriers. Since these two subgroups operate in such widely differing environments with such widely differing standards for operating, these could only be pooled to examine the broadest concepts which should transcend the styles of doing business and the environmental forces involved. Even here, the assumption of homogeneity should be challenged and tested by running the factor analytic model individually and on the pooled model as sample size permits. Each of these subsamples was further dividable into more specific subgroups such as type of customer, size, operation characteristics and so forth. Unfortunately, while these subgroups may behave differently
in many aspects in regards to coalition building, the sample size limitations on the subgroups made testing the measurement model on any meaningful subgroup beyond the warehouser/carrier subgroup level impossible.

Another issue of importance in building the three variations on the coalitional relationship scores; actual, ideal and change scores, was the correct choice of factor scores to be used. The options were as follows. First, all of the summary scores could be constructed using the factor scores derived from the actual ratings. This choice follows the assumption that the relationship given in the LISREL model depicting the quality of each measure in measuring its respective latent variable was highest for the actual ratings. This measure of quality was reflected in the factor scores derived from factor analyzing the actual ratings. Second, each set of ratings, the actual, the ideal, and the differences, could be factor analyzed and used to create a summary score using a unique set of factor scores. This method would assume that the ability of individual scale items somehow change in their ability to measure the dimensions or that the dimensions change in meaning for the three cases. Either the assumption in the first option or the second option needed to be made. The choice for this study was to accept the first assumption on the grounds that the actual ratings most likely reflected reality, while the ideal and the change score ratings may
have a structure not grounded in reality. As a result, the factor score weightings used to create the three dependant measures of coalitional relationships were in each case those derived from the actual scores.

**Failure of the Specification Search**

In the event that the specification search resulted in no justifiable variation of the initial model with a satisfactory fit, then an alternate model with no subcomponents would have been tested. The model in Figure 3 would have been tested using hypothesis H1a. This model would suggest that the construct of coalitional relationships has but one dimension, yielding the following hypothesis as an alternative to H1-H3.

H1a The coalitional relationship construct is composed of only one dimension. Alternatively, the population covariance structure is consistent with the model in Figure 3.

This simplified model suggests that a coalitional relationship was an inseparable whole with no distinguishable subcomponents using the measured variables available in this study. It would still be possible that a different set of measured variables would produce component dimensions.
Ideal and Actual Coalitional Scores Hypotheses

With summary scores for the coalitional relationship construct available, three possibilities for dependent variables existed. First, the actual perceived level of coalition developed was used. Next, the firms' view of an ideal coalitional relationship with the customer was of interest. Finally, the absolute deviation of the actual from the ideal, which was called the change score, was examined. Before these dependent measures were tested against a number of potential causal factors, some descriptive hypotheses were possible. The first descriptive hypothesis asked about the existence of a disparity between current actual and ideal scores. This hypothesis first took the form of a simple difference in the scores, as follows.

H4 There is no difference in the current and ideal coalitional scores in the population.

Next, there could be a strong difference in scores at one extreme of the scale, but not at the other. It seems reasonable that for highly coalitional relationships there would not be much room for additional change and the parties may have achieved the relationship sought. For low coalitional relationships, the parties may see the advantages to greater partnership but have yet to implement their desires. To capture the effect of non uniform differences in actual and ideal scores the sample was split into two groups, high and low actual coalitional score
groups. The question then was whether there was a
difference in the size of the change score between the two
groups. The hypothesis was as follows.

H4a There is no difference in the actual and ideal
cooalitional scores for highly coalitional
relationships as opposed to minimally coalitional
relationships.

These two hypotheses, H4 and H4a, were tested using
simple t-test procedures. H4 was tested using the dependent
t-test procedure and H4a used the independent t-test
procedure. For the independent t-test, the two groups were
selected according to the values for the coalitional scores
for actual perceptions. The tests would be conducted at the
traditional alpha level of 0.05.

Independent Variables

The independent variables were divided into two types,
theoretical and atheoretical. The theoretical constructs
were based on Williamson's transaction cost framework, and
thus were expressed as latent variables each yielding two
measured variables. The atheoretical independent variables
came from a number of atheoretical sources. The
atheoretical set represents traditional variables of
interest in business research. A detailed description of
each variable, its related hypothesis or hypotheses, and the
means of testing the hypotheses follows.
The Theoretical Independent Variables

The theoretical independent variables were those which were derived from transaction cost analysis theory. They make up four measured variables which attempt to measure the latent variables, uncertainty and specific assets, used by Williamson (1985, pp. 52-63). The third major influence in transaction cost theory, frequency of transaction, should be uniformly high in the industries chosen. Each of the two variables, uncertainty and specific assets, was included in two locations and in two forms within the questionnaire. While the four measures were derived from Williamson's treatment of transaction costs, three of the measures contained some modifications from a strict interpretation of these dimensions. A brief discussion of Williamson's treatment of these variables and the modifications incorporated within this study follows.

Williamson described uncertainty as follows:

"Many of the interesting issues with which transaction cost economics is involved reduce to an assessment of adaptive, sequential decision-making. Contingent on the set of transactions to be effected, the basic proposition here is that governance structures differ in their capacities to respond effectively to disturbances." (Williamson, 1985, pp. 56-57)

Williamson then went on to describe three types of uncertainty: primary, secondary, and behavioral. Primary uncertainty was identified as the inability to know the state of nature in the future, secondary uncertainty as that
which comes from innocent breakdowns in communications, and behavioral uncertainty as that which would be attributable to opportunism. From Williamson's 1985 work it appears that all of these constitute uncertainty which would promote vertical integration.

In the current study uncertainty was operationalized as perceived environmental risk and in terms of uncertainty surrounding the relationship. The uncertainty questionnaire item included a list of sources of uncertainty such as volume of business, terms of business, and financial uncertainty; all basically primary uncertainties, the typical focus in operationalizations of uncertainty in transaction cost studies (cf. Noordewier, et. al., 1986). The word 'surrounding' was chosen to connote external uncertainty. The alternative item asked only for an assessment of environmental risk. Within the warehouser and carrier management communities it was felt that risk and uncertainties were not meaningfully distinguished, and a succinct pole for the scale was desired. The transaction cost assumption of risk neutrality allows the substitution of risk for uncertainty without any distortions due to risk aversion (Williamson, 1985, p. 388-389). The uncertainty concept in transaction costs analysis has bounded rationality (Simon, 1957) and opportunistic behavior as its

2 See Appendix C, question I-A-7 and I-A-11-2 in the carrier questionnaire for the respective questions' exact wording
underlying assumptions. These two assumptions combine to assure uncertainty's importance.

Specific assets are described by Williamson (1985) as follows:

"Asset specificity arises in an intertemporal context. ...parties to a transaction commonly have a choice between special purpose and general purpose investments. Assuming that contracts go to completion as intended, the former will often permit cost savings to be realized. But such investments are also risky, in that specialized assets cannot be redeployed without sacrifice of productive value if contracts should be interrupted or prematurely terminated.

Thus the difficulty of redeploying assets for alternate usage and their efficiency in alternative usages determine the extent of specific assets involved in a relationship. The specific assets issue was covered by the inclusion of two questions, one which spells out many examples of specific assets and the other which emphasizes financial investments. In the first case the examples covered the areas of capital investment, managerial investment, and systems design investment. These examples included Williamson's physical asset and human asset specific investments, while site specificity was not specifically included. In the second question referring to specific assets the reference was to unsecured front end investments, which would likely be interpreted more as financial

3 See questions I-A-6 and I-A-11-15 in the carrier questionnaire in Appendix C for specific wording of the two items.
investment commitment even though other than financial front end investments were clearly possible. Additionally, a broader spectrum of redeployability would be included by focusing only on front end investments. In other words, unsecured front end investments should include all specific asset investments as well as readily redeployable assets, also termed "non-specific" assets in the transaction cost literature. This terminology was chosen for its familiarity and usage in the warehousing and transportation industries and at the expense of including some theoretically unimportant investments.

All four of the questions designed to measure the theoretical independent variables were scaled using a semantic differential style seven point scale. This scaling allows for the treatment of the resulting data as interval scale data. The choice of correlations as the relationship was driven by the measurement level of the data and the desire to use the maximum amount of information contained in the data. The alternative approach would have been to have the independent variables rescaled into categorical high and low groups, allowing t-tests or blocked ANOVA analysis, but potentially valuable information would have been lost in the categorization process. As a result of having used this additional information, there was an acceptance of the assumption of a linear relationship between the independent
and dependent variables. The hypotheses which result from the above discussion were as follows.

H5 The actual coalitional scores will correlate positively with the amount of environmental risk perceived.

The degree of perceived risk was intended to be one operationalization of the transaction cost latent variable titled "uncertainty". Williamson's (1981) theory calls for this latent variable to drive the firm toward vertical integration. To the extent that the latent variable would operate in the area between discrete transaction style relationships and total vertical integration, this measured variable should cause firms to increase the strength of partnership. Specifically, environmental risk was the more closely focused of the two measures of Williamson's uncertainty latent variable, as this measure would not be changed by the amount of partnership which was present for a given relationship. The measure was a bipolar seven point scale with the anchors "high risk environment" and "low risk environment." Since this measure was assumed to be a continuous spectrum for both independent and dependent variables, the relationship between perceived environmental risk and coalition building were be tested with a correlation. Since Williamson's framework indicated that uncertainty should move firms to vertical integration, this hypothesis was stated in a directional manner. The test
would be against the null of $\rho$ being equal to or less than zero with $\alpha=0.05$.

H6 The actual coalitional scores will correlate positively with the amount of unsecured front end investment.

Williamson's specific asset construct was operationalized here as unsecured front end investment. The wording for the scale poles was "customer requires large unsecured front end investment" and "customer requires no unsecured front end investment." This choice of wording would likely measure financial investment better than managerial opportunity cost investment, although the wording does not preclude this interpretation. The broader concept of specific assets was treated in H8. Again a correlation was the specification of the relationship to be tested. Since Williamson's framework indicates that deployment of specific assets should move firms to vertical integration, this hypothesis was stated in a directional manner. The test would be against the null of $\rho$ being equal to or less than zero with $\alpha=0.05$.

H7 The actual coalitional scores will correlate positively with the degree of uncertainty in the relationship.

This hypothesis concerns an alternative operationalization of Williamson's uncertainty construct. This operationalization was more direct in the wording with the two poles of the seven point bipolar scale being "very uncertain" and "not at all uncertain." The meaning of
uncertainty may be slightly different for managers than 'risk' as used in H14. The other difference was the placement in the survey. By placing this question separate from the coalition scale a lead-in explanation was possible. The lead-in gives examples of sources of uncertainty to be considered in answering the question. A serious problem with this particular wording was that it did not account for the amount of uncertainty which was present before any coalition building took place versus the uncertainty which remained. Since Williamson's framework indicated that uncertainty should move firms to vertical integration, this hypothesis was stated in a directional manner. The test would be against the null of $\rho$ being equal to or less than zero with $\alpha = 0.05$.

H8 The actual coalitional scores will correlate positively with the amount of specific investment.

This operationalization of Williamson's specific assets latent variable was broader since the scale was prefaced with examples which included capital investment, managerial investment, and unique systems development. These examples should have keyed managers to consider investments other than direct financial investments. The actual poles used were "Very large specific investments in this customer" and "Very small specific investments in this customer." Since Williamson's framework indicates that the presence of

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See item I-A-6 in the questionnaire in Appendix C for the lead-in explanation.
specific assets should move firms to vertical integration, this hypothesis was stated in a directional manner. The test was against the null of \( \rho \) being equal to or less than zero with \( \alpha = 0.05 \).

Hypotheses H5 through H8 were tested using Pearson correlation coefficient, \( \rho \), as the test statistic. The tests employed the traditional \( \alpha \) level of 0.05. Transaction cost theory would suggest that all of the correlations would be positive.

The Atheoretical Independent Variables

The atheoretical group of hypotheses concerning the drivers actual coalitional scores was made up of eight hypotheses derived from traditional research variables, logical causal factors or both. These variables were grouped together only on the basis of their lack of theoretical grounding. The order did not imply any relationship among them, nor their respective expected importance. A short rationale for each hypothesis and its measurement was offered after each hypothesis. The description of the analysis followed the presentation of the entire set of hypotheses below, as there was a great deal of similarity in analysis methods and choices across the set.

H9 The actual coalitional scores will not correlate with the size of the respondent firm.
Note here that the size at issue was the size of the warehouseman or carrier not the chosen customer. The three competing logical possibilities were: (1.) small firms were driven to more coalitional relationships in order to differentiate their services and gain competitive advantage offsetting larger scale economies, (2.) larger firms have an enhanced ability to choose strategic partners from their customer base and the managerial resources to dedicate to the coalition building process, and (3.) there was no effect of size on coalition building. These possibilities were sorted out by examining the results of the correlation test. Negative, positive or no significant correlation would each support the respective possibilities, one, two or three. If any of the firms approached the size needed to enjoy monopsony power, this would offer a confound to the above interpretation. Only in the case of railroad carriers over specific routes would this be a likely situation within the industries surveyed here.

H10 The actual coalitional scores will not correlate with the percentage of revenue the selected customer represents.

This hypothesis was predicated on the grounds that coalition building was a resource drain and maximum degrees of coalition would only be associated with the most important customers. The suggestion has been made that only a very few true strategic partnerships were possible for a given firm (Shapiro, 1985). The expectation was that the
correlation would be positive if this was true. The test was against the null of $\rho$ being equal to zero with $\alpha=0.05$.

$\text{H11}$ The actual coalitional scores will not correlate with the age of the firm.

Building coalitional relationships would take time, and learning to successfully build them would no doubt take longer. This factor would drive the correlation above to be positive. The competing possibility was that partnerships were better understood by the entrepreneurial firm with new offerings. The entrepreneurial emphasis on coalition building would lead to an inverse relationship in the correlation hypothesis test. The test was against the null of $\rho$ being equal to zero with $\alpha=0.05$.

$\text{H12}$ There is no difference in actual coalitional scores of firms with and without EDI projects.

In this hypothesis, the working assumption was that third party logistics service suppliers provide EDI services primarily in order to build stronger relationships with their customers, not in order to minimize their own costs. If this was the case there should be higher average coalitional scores for intermediaries with EDI projects than those without such projects. From this set of expectations, a $t$-test was indicated. The test was against the null of the two groups means being equal with $\alpha=0.05$.

$\text{H13}$ The actual coalitional scores will not correlate with the number of additional services a respondent firm offers.
This hypothesis was derived from the expectation that firms would add services to cater to the needs of strategic partners. This expansion of services would likely not always be limited to serving the highly coalitional customer(s), however. This expectation would drive the correlation be positive for firms with large sets of services. The alternative possibility was that full service firms were trying to appeal to all potential customers, and do not single out particular customers for special treatment. This second possibility would have the opposite effect of producing a negative correlation. The test was against the null of $\rho$ being equal to zero with $\alpha=0.05$.

$H14$ The actual coalitional scores will not correlate with the length of customer relationships.

This hypothesis was driven by logic similar to $H7$, but here the question was the length of the particular buyer and seller relationship. The expectation was that the prime candidate for partnership building was the long term customer where the groundwork had been laid, or where partnership was an evolutionary process. This expectation would lead to a likely direct relationship with length of relationship and one portion of one dimension, the trust portion of the extendedness dimension. The alternative expectation for a negative relationship would be the use of partnership to induce new customers to begin a long term buyer-seller relationship. The test was against the null of $\rho$ being equal to zero with $\alpha=0.05$. 
H15 The actual coalitional scores will not correlate with the number of total shipments made quarterly.

This hypothesis related to the frequency of dealing with the selected customer's business. This independent variable represented the transaction density and should be distinct from, but related to, dollar volume of business. If the relationship required frequent individual activities related to each shipment then the incentives would be greater to develop a more involved relationship in order to streamline the information flows, anticipate changes in demand, and so forth. From this perspective, a larger number of shipments per period would match a more coalitional relationship yielding a positive correlation. The test was against the null of \( \rho \) being equal to zero with \( \alpha = 0.05 \).

H16 There is no difference in actual coalitional scores of firms with different types of customers.

For this hypothesis the only expectation was that management styles and environmental forces in different lines of trade might cause the propensity to form coalitions to vary across lines of trade. The correct level of aggregation for industry type was problematical. The limiting factor was the sample size and the methodology used to test for differences. In this case the sample was relatively small, limiting the number of industry types which were used. While the chosen customers were initially coded into 11 groups, the final analysis was based on a
simple comparison of the largest group with all others. It was entirely possible that actual differences in specific lines of trade would be masked by this broad level of aggregation forced by sample size constraints. The use of a blocked ANOVA on the combined warehouser and carrier data sets would have limited the number of types such that the smallest group have about 20 members. The small cell sizes obtained in this research precluded the use of this method. A simple t-test of the largest industry grouping versus all other industry types was used. The narrowest categorization of customers as coded from the open ended question was: food industry, chemical industry, pharmaceuticals, automotive, electrical/electronic, general merchandising, industrial manufacturing, paper/packaging, building products, consumer durables, and other. These categories formed the basis for further aggregation where needed. The largest group of the 11 turned out to be the food industry for both subsamples. The test was against the null of the means of the two groups being equal with alpha=0.05.

**Summary of A Theoretical Variables and Hypotheses**

The relationships between the hypotheses and the measured variables along with reference to the actual measured variables used were found in Table 2 and Appendix B respectively. This set of hypotheses would be used
<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Hypotheses</th>
<th>Questions</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can this phenomenon be measured with a multidimensional scale?</td>
<td>H1</td>
<td>A-11: Nos. 1-23 Less Nos. 2 &amp; 15 A-11: Nos. 1-23 Less Nos. 2 &amp; 15</td>
<td>LISREL $\chi^2$ Goodness of fit Bentler &amp; Bonnet's $r$</td>
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<td></td>
<td>H2</td>
<td>A-11: Nos. 1-23 Less Nos. 2 &amp; 15 A-11: Nos. 1-23 Less Nos. 2 &amp; 15</td>
<td>LISREL t-Test on each path</td>
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<td>H3</td>
<td>A-11: Nos. 1-23 Less Nos. 2 &amp; 15 A-11: Nos. 1-23 Less Nos. 2 &amp; 15</td>
<td>LISREL t-Test on each path</td>
</tr>
<tr>
<td>Alternatively: can this phenomenon be measured with a unidimensional scale?</td>
<td>H1a</td>
<td>A-11: Nos. 1-23 Less Nos. 2 &amp; 15 A-11: Nos. 1-23 Less Nos. 2 &amp; 15</td>
<td>LISREL $\chi^2$ Goodness of fit Bentler &amp; Bonnet's $r$</td>
</tr>
<tr>
<td>Is there a trend in coalitional scores to ideal scores?</td>
<td>H4</td>
<td>A-11: Nos. 1-23 Less Nos. 2 &amp; 15 A-11: Nos. 1-23 Less Nos. 2 &amp; 15</td>
<td>t-Test</td>
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<tr>
<td>Is the trend in coalitional scores different for high and low values?</td>
<td>H4a</td>
<td>A-11: Nos. 1-23 Less Nos. 2 &amp; 15 A-11: Nos. 1-23 Less Nos. 2 &amp; 15</td>
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<td>H6</td>
<td>I-A-11: No. 15 I-A-11: No. 15</td>
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<td>H7</td>
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<td></td>
<td>H9</td>
<td>II-B-3</td>
<td>II-C-3</td>
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<td>H11</td>
<td>II-B-5-a</td>
<td>II-C-4-a</td>
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Table 2 (Cont.)
Relationship Among Research Questions, Hypotheses, Questions, and Tests

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<th>Hypotheses</th>
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<td>Are coalitional scores different across classes of firms? (cont.)</td>
<td>H12</td>
<td>II-A-1</td>
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<td></td>
<td>H13</td>
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<td>II-C-1</td>
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<td>H28</td>
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<td>Are the change scores different across classes of firms?</td>
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<td>H38</td>
<td>I-A-2</td>
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<td>H40</td>
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primarily as input in refining the theoretical base for explaining partnerships.

The hypotheses in the above set, H8-H16, which were stated in terms of correlations used Pearson correlation coefficients as the test statistic. The choice of correlations as the relationship was driven by the measurement level of the data and the desire to use the maximum amount of information contained in the data. The alternative approach would have had the independent variables rescaled into categorical high and low groups, allowing t-tests or blocked ANOVA analysis, but potentially valuable information would have been lost in the categorization process. In order to gain the maximum use of this information, the assumption of a linear relationship between the independent and dependent variables was required.

Not all of the hypotheses above used correlations. For H12 and H16 a simple independent t-test was used. For the final atheoretical hypothesis, H16, an ANOVA could have been run using a limited number of categories of line of trade for the customer firm had the cell sizes been larger. The ANOVA would also have had to have been run on the combined warehouse and carrier data set, using these two groups as a blocking variable. ANOVA would be indicated over MANOVA since only the effect of industry type on the coalitional
score was of interest here. If the interest were in the effect of industry type on individual dimensions of the coalitional construct, MANOVA would be the correct choice. While this might be an interesting question, degrees of freedom limitations preclude such in depth analysis of this particular question.

For all of the above tests, an alpha level of 0.05 was used in hypothesis testing. Each test was treated as an independent test, and no correction of alpha was required. This procedure follows the less conservative approach to hypothesis testing as outlined in Meyer (1972). In other words, no assertion of the probability of a type II error occurring anywhere in the set would be made and a probability of error for each given test was acceptable at a 1 in 20 level.

Hypotheses Concerning Ideal Scores

The same set of independent variables used in the previous set of 13 hypotheses were used to test possible causal factors for the ideal coalitional relationship dependent variable. Some factors that could be driving coalition building could be hidden by the relative newness of this trend. If this was the case, different results might be found by rerunning the tests for H5-H16 and substituting the ideal coalitional score for the actual
coalitional score as the dependent variable. The interest here was more in the variance in findings between ideal score hypothesis set and actual score hypothesis sets rather than the findings for ideal coalitional scores standing by themselves. The hypothesis set was as follows, with the individual justification for each independent variables paralleling the justifications given for set one.

**Set Two - Ideal Coalitional Scores:**

**Transaction Cost Analysis Group:**

H17 The ideal coalitional scores will correlate positively with the amount of environmental risk perceived.

H18 The ideal coalitional scores will correlate positively with the amount of unsecured front end investment.

H19 The ideal coalitional scores will correlate positively with the degree of uncertainty in the relationship.

H20 The ideal coalitional scores will correlate positively with the amount of specific investment.

**Atheoretical Group:**

H21 The ideal coalitional scores will not correlate with the size of the respondent firm.

H22 The ideal coalitional scores will not correlate with the percentage of revenue the selected customer represents.

H23 The ideal coalitional scores will not correlate with the age of the firm.

H24 There is no difference in ideal coalitional scores of firms with and without EDI projects.

H25 The ideal coalitional scores will not correlate with the number of additional services a respondent firm offers.
H26  The ideal coalitional scores will not correlate with the length of customer relationships.

H27  The ideal coalitional scores will not correlate with the number of total shipments made quarterly.

H28  There is no difference in ideal coalitional scores of firms with different types of customers.

Testing for this set of hypotheses was exactly parallel the testing of H5-H16 respectively.

Hypotheses Concerning Change Scores

The deviation of the actual from the ideal may be driven by any or all of the same factors which drive the overall construct. In this case the dependent variable was the absolute value of the difference between the ideal and the actual coalitional scores. The choice of absolute values focused on the degree to which firms had achieved their goals in terms of coalition building. Absolute values were used to focus on goal versus reality congruity rather than the overall direction of the differences. To measure the dependent variable in this case, the sum of the differences on individual coalitional scale items were multiplied by the factor scores to generate a difference total for each dimension. The sum of these differences comprised the change score.

The alternatives to an absolute value approach were to look at the simple difference in the two values. Looking at
the simple difference would allow movement toward partnership to balance out movement away. This alternative would have had the effect of measuring the trend for the relationship overall as opposed to measuring the overall forces for change in the relationship. Both were interesting questions, however, in order to keep the number of hypotheses within manageable limits only one set was chosen. The more basic question, that of the desire for change, was chosen over the more specific question of which direction the net of the desired changes would tend.

The hypotheses using change score as the dependent variable were completely analogous to the set H5-H17 with the exception of the four theoretical variables. For these variables the directional nature of the hypotheses was dropped.

While the four theoretical variables all relate to transaction costs theory, nothing identified within that framework would suggest any specific relationship between uncertainty or specific assets and the degree of satisfaction with a supplier relationship. The only influence identified was the possibility that an equilibrium process which effectuates transaction cost outcomes would somehow link satisfaction to these variables. If temporal data on the stability of the reported value of each variable was available, then a case could be made for a relationship.
Unfortunately, there was no ability to identify the timing of any changes in the levels of these four dependant variables.

Thus, while the four theoretical variables have origins in transaction costs analysis, this entire set of hypotheses is of interest only in a descriptive sense. The hypotheses were as follows:

**Set Three - Change Scores:**

**Transaction Cost Analysis Group:**

H29 The change scores will not correlate with the amount of environmental risk perceived.

H30 The change scores will not correlate with the amount of unsecured front end investment.

H31 The change scores will not correlate with the degree of uncertainty in the relationship.

H32 The change scores will not correlate with the amount of specific investment.

**Atheoretical Group:**

H33 The change scores will not correlate with the size of the respondent firm.

H34 The change scores will not correlate with the percentage of revenue the selected customer represents.

H35 The change scores will not correlate with the age of the firm.

H36 There is no difference in change scores of firms with and without EDI projects.

H37 The change scores will not correlate with the number of additional services a respondent firm offers.
H38 The change scores will not correlate with the length of customer relationships.

H39 The change scores will not correlate with the number of total shipments made quarterly

H40 There is no difference in change scores of firms with different types of customers.

Testing for this set of hypotheses was exactly parallel the testing of H5-H16 respectively.

Summary of the Variables and Hypotheses

The above discussion identified the variables used, their operationalizations, the hypotheses tested and the type of testing procedure for each hypothesis. The hypotheses attempted to cover the issues of measurement, description, and indications of causality involved in development of the coalitional relationship construct.

Treatment of the Two Subsamples

Generally, the testing of hypotheses H5-H43 was done first using the data for the carrier subsample and then repeated for the warehouser subsample. This separate treatment of the subsamples was done to insure that important correlations were not masked by differences in the two samples. It was entirely possible that different causal factors were at work in the two groups, or that while the same causal factors were present, small variances in
particular independent variables would provide low observed correlations. An example of a factor which dictated the separate treatment of the two subsamples would be the greater reliance on contracts in the public warehouse industry. The exception for this procedure would have been in the case of ANOVA analysis. Here the two subsamples could be included in a single sample while using subsample membership as a blocking variable. This pooling would increase the power of the tests in those cases where both groups have similar responses to the independent variable in question.

**Questionnaire Design**

The design of the questionnaire required development of both measures of coalitional relationship strength and measures of independent variables as outlined above. The layout and presentation, including scaling were also important considerations in designing the data collection instrument. For the dependent variable construct of interest, coalitional relationship, multiple measures of each dimension were considered necessary. The desire for multiple measures of the five dimensions indicated a scale with from 15 to 35 items if the target was three to seven measures for each dimension.
The measures for the dimensions of coalitional relationships were culled from a slightly longer list of possible items derived from previous studies. The goal was to have from three to seven measures of each dimension, depending on the subjective richness of the dimension. Respondent fatigue factors and space in the mail survey dictated a one page limit for the scale. The result was a practical maximum of 25 items.

The measures were posed as polar anchors of relationship attributes that would vary from not at all coalitional to very coalitional. Thus, each item was designed to have a high positive and a high negative value in relation to both the dimension they attempted to measure, and the overall coalitional relationship construct. This \textit{a priori} designation of the valence of the measures allowed for an additional validity check using correlations between dimensions and sign checks on the \textit{lambda} coefficients in the LISREL analysis. All \textit{lambda} coefficients were expected to be positive.

Measures of independent variables were chosen for their applicability and to meet the constraints of respondent time and willingness to disclose. Thus, measures where posed in the least threatening and least taxing manner. For instance, industry type and size for the chosen customer was posed as one open-ended style question. There was a risk
that this information would not be as useful as more specific itemization of the options, but the trade off in respondent ease and confidentiality was clear. The main criterion which limited the detail in the independent variable questionnaire development was a belief that a six page questionnaire was a maximum to which these groups would respond.

Layout and presentation of the questionnaire was critical, due to the assumed lack of time and commitment on behalf of the average respondent. The scale chosen for the bipolar items was a seven point semantic differential scale, as this was seen as simpler and less time consuming than a scale with labels on each value. Also, the poles were such that the opposite pole was not always just the negation of the statement. This lack of simple negation for the items made a Likert-like scale's dependence on agree or disagree much less attractive. Typesetting, grey bar separation of questions, colored paper, overleaf folding and relatively large type were all used to enhance response rate.

Pretest and Revision

The questionnaire was pretested using a small number of local warehousers, carriers, and logistics professionals.

5 See item I-A-11-14 or I-A-11-17 in the questionnaire in Appendix C.
The pretest was conducted using half hour personal interviews. In these interviews the respondent was first requested to proceed through the questionnaire as though it had arrived in the mail, and he/she were motivated enough to complete it, making mental or actual note of any difficulty in understanding or responding. The total time to completion was noted and the respondent was asked to elaborate on any difficulties he/she encountered. The primary difficulty was with the example offered at the beginning of the semantic differential coalitional scale. The resulting revision was the substitution of boxes for the traditional :_:_:_:_:_:_:_: format. This allowed for the elimination of the examples which had confused respondents. No changes in item wording or selection were indicated, and the typical time to complete the questionnaire matched target time of twenty minutes.

Sample Selection

The sample was drawn primarily from the membership list of the Council of Logistics Management and supplemented through a listing of cold storage public warehouse firms found in the International Association of Refrigerated Warehouses membership list. In the case of duplicate listings for a given firm, the most senior manager was chosen. Consulting firms found within the listings were not sampled. The sample selection process involved an initial
choice of firms to sample by the Council of Logistics Management's customer service survey research team. These selections were then reviewed by practicing industry experts and adjusted as necessary. The resulting mailing consisted of 301 warehouse firms, of which 25 were from the cold storage listing, and 222 transportation firms.

The overall response rate was 40.5% for the warehouse firms and 39.6% for the transportation firms. The usable returns for warehouse firms numbered 118 and the usable responses for transportation firms numbered 85.

Implementation of the Questionnaire

Before and after mailing the questionnaires, a number of steps were taken to increase compliance. A letter from the president of the Council of Logistics Management was mailed in advance of the questionnaire mailing to alert and motivate the respondents. Timed to coincide with the estimated arrival of the questionnaire, phone contact with each potential respondent was attempted, encouraging participation. Included in the questionnaire packet was an additional letter from Professor La Londe urging compliance and restating the importance of the study. If no response was received from a potential respondent after a period of approximately three weeks, telephone contact was again attempted. If requested, a replacement copy of the
questionnaire was mailed either to the original subject or to an alternative subject deemed more appropriate by the target organization.

**Code and Edit Data**

Not all of the information was in usable form when the questionnaires were returned. The open-ended data needed to be coded for any statistically based analysis. Missing values were flagged for deletion at the time of analysis.

**Summary of Phase I Methodology**

The above discussion described the methodology which was employed in the research as well as some alternative procedures not implemented. The quantitative phase was designed to offer insights into all areas of the research question. However, the insights would be more comprehensive and rich if they could be augmented by qualitative methods paralleling the quantitative methods described above.

**PHASE II - Protocol Phase**

**Introduction**

In the protocol phase of the research three goals were sought. First, the sum and the components of the coalitional relationship construct were explored to gain
insight into why some measures failed and some measures were successful. This phase examined in a qualitative manner the results of the confirmatory factor analysis results from the survey. Next, the set of independent variables' relationship to the development of partnerships was explored. The independent variables were divided into two groups, transaction cost and atheoretical potential causal factors. The transaction cost factors were from Williamson (1985) and included risk and specificity of assets. The atheoretical factors included size of the firm, volume of business, and other possible influences on the development of coalitional relationships. Finally, any differences between the ideal and current coalitional relationship status as well the expected trends in the relationship were explored. The protocol phase was designed to qualitatively look at the same issues as the hypotheses which compare the ideal and the actual scale ratings in the survey. The above relationships of the hypotheses and the protocol items are depicted in Figure 5. To match the sets of hypotheses, the protocol was divided into an introduction; background information; a coalitional relationship components section; a section on causes which explores the independent variables; and, finally, a section on ideal and future expectations.
Construct Validity

H1-H3
The coalitional relationship construct is composed of five dimensions...

Primary Interview Questions

- Do you view your relationship with the customer as built on sharing benefits and burdens (both economic and noneconomic) or more on sharply dividing benefits and burdens at the outset?
- Do you expend more than the usual amount of time in planning in your relationship with this customer? Do you use planning with this customer to promote a partnership style of relationship?
- How extended do you see your relationship with this customer? What indicates the need for and extended relationship with a customer from your perspective, or is it all up to the customer?
- Do you see the method and volume of routine information exchange with this customer as a key ingredient in promoting a partnership style of relationship?
- Do you let this customer more closely monitor your operations than a typical customer? Do you see increased monitoring of your operations as a way to build partnership?

Mail Questionnaire Items

- SB1-SB4 Sharing of Benefits and Burdens
- PL1-PL7 Planning
- EX1-EX4 Extendedness
- OI1-OI3 Operational Information Exchange
- OC1-OC3 Operating Controls

Figure 5
Relationship of Hypotheses to Interview Questions and Survey Questions
Causal Factors - Overall

Primary Interview Questions

What situations would prompt you to initiate or attempt to initiate a partnership relationship with a customer?

Mail Questionnaire Items

Various questions throughout the questionnaire.

Specific Causal Factors - Atheoretical

Follow-up Interview Questions

Would the size of your firm strongly effect your decision to pursue a partnership?

Mail Questionnaire Items

The coalitional scale items and "Number of terminals your firm had in 1987."

The actual coalitional scores will not correlate with the size of the respondent firm.

H10

The actual coalitional scores will not correlate with the percentage of revenue the selected customer represents.

Would a customer with a large share be a more likely subject for a partnership style of relationship?

The coalitional scale items and "What percent of your total revenue comes from this customer?"

H11

The actual coalitional scores will not correlate with the age of the respondent firm.

Can you identify any special advantage your firm would have in building partnerships due to the length of time you have been in business?

The coalitional scale items and "Number of years in the transportation business."

Figure 5 (Cont.)
Relationship of Hypotheses to Interview Questions and Survey Questions
Specific Causal Factors - Atheoretical

H12
There is no difference in actual coAional scores of firms with and without EDI projects

Follow-up Interview Questions

Would (or does) an EDI capability enhance your ability to develop partnerships?

Mail Questionnaire Items

The coAional scale items and "Does your organization currently participate in and EDI project?"

H13
The actual coAional scores will not correlate with the number of additional services a firm offers

Would a wider or narrower range of services you might provide change your ability to develop partnerships?

The coAional scale items and "Please indicate ... each of the following modes."

H14
The actual coAional scores will not correlate with the length of customer relationships

Would you be more likely to develop partnerships with longstanding accounts, or new accounts?

The coAional scale items and "How long has this customer been doing business with your firm?"

Figure 5 (Cont.)
Relationship of Hypotheses to Interview Questions and Survey Questions
Specific Causal Factors - Atheoretical

H15
The actual coalitional scores will not correlate with the total shipments made quarterly

Follow-up Interview Questions
Is the number of shipments made per period a key element in choosing a partnership candidate?

Mail Questionnaire Items
The coalitional scale items and "How many shipments did your firm handle for this customer in the past quarter?"

H16
There is no difference in actual coalitional scores of firms with different types of customers

Would the line of trade of the customer be a key element in choosing a partnership candidate?

The coalitional scale items and "Please describe the core customer..."

Figure 5 (Cont.)
Relationship of Hypotheses to Interview Questions and Survey Questions
Specific Causal Factors - Transaction Costs

**H5**
The actual coalitional scores will not correlate with the amount of environmental risk perceived

Would a high risk environment cause you to seek a partnership with a customer?

The coalitional scale items and "High Risk Environment" vs. "Low Risk Environment"

**H6**
The actual coalitional scores will not correlate with the amount of unsecured front end investment

Would a customer needing a large unsecured front end investment cause you to seek a partnership?

The coalitional scale items and "Customer Requires Large Unsecured Front End Investment"

**H7**
The actual coalitional scores will not correlate with the amount of uncertainty in the relationship

Would a large degree of uncertainty surrounding a relationship cause you to seek a partnership with a customer?

The coalitional scale items and "Please indicate the degree of uncertainty you feel exists..."

**H8**
The actual coalitional scores will not correlate with the amount of specific investment

Would a customer who required a large investment in equipment, facilities, training, managerial talent or such cause you to seek a partnership?

The coalitional scale items and "How would you rate your overall investment in your relationship with this customer..."

**Figure 5 (Cont.)**
Relationship of Hypotheses to Interview Questions and Survey Questions
Current and Ideal Relationships
Hypotheses H4 and H4a

Primary Interview Questions

H4
There is no difference in the current and ideal coalitional scores in the population

Mail Questionnaire Items

The coalitional scale items for the actual evaluation and for the ideal evaluation.

Figure 5 (Cont.)
Relationship of Hypotheses to Interview Questions and Survey Questions

Is this relationship structured as you would ideally like? How would you like to see this relationship evolve and how do you feel the customer wants it to evolve?
The methodology used to implement this qualitative stage of the research was a combination judgment and convenience sample of selected respondents of the mail survey. Specifics on the sample, protocol development, and analysis are described in first section of this discussion. Next, the relationship of the protocol questions and the earlier phase of the research is presented. Finally, the actual documents for the implementation of the protocol phase are presented.

Methodology

The methodology employed in the protocol phase had a number of important components which needed to be laid out in some detail. They were: 1) Choice of focused personal interview method; 2) Unit of analysis; 3) Sample selection; 4) Sample size; 5) Inducements to comply; 6) Length constraint; 7) Content development; and 8) Analysis of the interviews. Each topic is considered in turn in the discussion of methodology for the protocol phase.

Choice of Focused Personal Interview Method

The focused personal interview method, also referred to as in-depth or depth interview method, (Cox, 1979 and Parasuraman, 1986) was chosen as a result of the goals of
this portion of the research. The goals were posited in terms of exploring the results of the large sample survey in greater depth. The exploratory nature of this phase suggested a qualitative approach which allowed respondents the freedom to discuss in depth, allowing the respondents to share insights freely. Specifically, a nonstructured, nondisguised personal interview method was indicated. Cox (1979) suggests the following:

Industrial survey research is often designed to examine the awareness, attitudes, intentions, motivations, and behavior of a limited number of knowledgeable persons in considerable depth. In such situations, the individual depth (and focused group) interview is the preferred approach. Such interviews are marked by their relative lack of structure with the interviewer seeking to encourage the respondent(s) to express freely ideas and thoughts about the subject. (p. 245)

Since the function of this phase was a counterpoint and extension of the already completed structured mail survey, this intensive personal interview approach appeared to be the best alternative. Telephone interviews, while less expensive and time consuming from the researcher’s perspective, would potentially limit the information complexity, information amount, and the information accuracy (Cox, 1979). All three of these limitations would be potential problems in this phase of the research. The above factors indicated a focused nonstructured personal interview format. The net result of phase I taken with phase II was a combination of two very different methodologies which would balance the strengths and weaknesses of both phases.
The unit of analysis for this portion of the research continued to be the selling side of the dyadic relationship. However, here there was a possibility to get two levels of management involved to assure a more representative viewpoint of the firm and to look at the relationship from a larger perspective. The two levels consisted of an operations manager and a senior executive. The senior executive would typically be a president, CEO, or in a large organization, a division head or senior vice president.

Sample Selection

The sample for this phase that allowed depth analysis of the earlier large sample results was a return to the same sample to draw a selected group of extreme cases for additional questioning. This subsample attempted to represent both carriers and warehousers and contain those with particularly high or low values on the overall measure of coalitional strength for their selected relationship, as well as a limited number at the midrange. To achieve this, a hybrid of judgment and convenience sample of the mail survey sample was used. Picking a majority at the extremes of the opinions which were observed over the coalitional relationship spectrum made it easier to identify meaningful differences. The sampling approach attempted to include equal numbers of firms with highly coalitional relationships and minimally coalitional relationships, and a balance of
warehouse firms and carriers. Also, a preference for "representative firms" as judged by an expert in the field was used as a judgment criteria. A list of these firms was submitted by a long time researcher in the field of logistics. The convenience aspect reflected a preference for Midwest area firms and the fact that only firms which chose to comply were included.

Sample Size

The sample size for this type of research would generally be small due to the demands on time for both interviewing and analysis and the costs of interviewing. In addition, only a small sample of knowledgeable experts were required to attain convergence of opinion in many industrial research situations (Cox, 1979, p. 22). The sample size for this portion of the research was set at ten, four high extremes, two near the median, and four low extremes. Half of each group was targeted to come from transportation and half from warehousing. Due to the lack of compliance, scheduling, and location issues there were four transportation firms and six warehouse firms in the final protocol sample.
**Protocol Phase Sample Profile**

The protocol phase sample consisted of four firms in the top third of the coalitional relationship spectrum. Three of these were warehouse firms. Two firms were very near the median, one a warehouse firm and one a transportation firm. The lowest ranked firms fell in the bottom third of the coalitional relationship spectrum and consisted of two of each type of firm. The carriers included a barge line, two less than truck load carriers and one truck load carrier. The warehousers included a cold storage warehouser, a contract warehouser, and four public warehousers. The firms interviewed represented a spectrum of sizes, but did not include either extreme in size for their respective lines of trade.

**Inducements to Comply**

Inducements to comply included a letter requesting compliance from Professor La Londe, a phone solicitation and repeated assurance of confidentiality. The letter included the tie-in to the previous research, the importance of the effort, the handling of confidentiality and an offer of a debriefing on the results so far. The debriefing included a custom analysis of the respondents' standing in the entire sample on both the overall coalitional relationship scale and their position by dimension. In addition, another level
of management was contacted and invited to participate. Each of the two individuals were interviewed individually. If they chose they could have had the debriefing done jointly, after the questioning of both parties individually was completed.

Length Constraint

This focused personal interview process was limited by a total time constraint. The respondents were likely to only want to devote a maximum of one hour to this process, given their busy schedules. This maximum time factor limited the depth or the range of the questioning. As a result, the depth in exploring the dimensions of the construct was more emphasized than the individual causal factors.

Content Development

The content was developed from the hypotheses of the first phase of the research. Specific primary questions were asked for each broad area of the survey phase and follow-up or prompting questions for most of the specific hypotheses in the survey stage were asked if the information was not covered in the initial response by the executives. The specifics were covered in the content section below.
Analysis

The analysis of the results was qualitative in nature, derived from a three stage process. First, the interviews were taped and later transcribed into document form if the respondent agreed. Next, from each transcript and the field notes a short summary description, or case summary was produced. The case summary format was organized to parallel the hypotheses of the first phase. This structure for summaries allowed easier identification of the commonalties across classes of respondents and differences between classes. The final step was the integration of the case summaries into the overall qualitative findings.

The analysis did not use any statistical methods to support conclusions, as the sample size was too small for even non-parametric methods to be of any use. Conclusions were based on generally common responses across and within the case summaries of the various classes of respondents, for example, highly coalitional and minimally coalitional respondent groups.

Content

The specific content of the interview guides was driven by the hypotheses from the first phase of the research. These hypotheses were divided into three parts as in the original discussion of the hypotheses. Each part was
discussed in turn below. The flow of the hypotheses to both the interview questions and the mail survey items was given in Figure 5a through 5f. First a short discussion of the background information was in order.

In the background information section the protocol was designed to elicit demographics of both the respondent and the selected firm. These questions were kept to a minimum. Most pertinent information was gleaned from the quantitative questionnaire returned during Phase I of the research. The section headed "Background Information" contains the specific wording and sequencing of these items. See Appendix C for the two interview guides.

In the Coalitional Relationships Components section the question of whether coalitional relationships exist, and what form they take needs to be addressed. For the protocol, this task was broken into two parts. First, before the components were addressed, there was the question of how the relationship would be described without any coalitional relationship construct-related prompts. This area of questioning included questions on the evolution of the relationship, its strategic importance, how it compares to other relationships the firm has, and whether any partnership was recognized. These questions form the section titled "Overall Relationship" in the interview guide. Next, there was a set of hypotheses devoted to the
testing of the construct components - extendedness, operational information exchange, operating controls, sharing of benefits and burdens, and planning. These dimensions had 21 measures originally posited. Of these, only 12 were included in the final model. The question of greatest interest for this portion of the protocol was why the good ones were good and why the poor ones were poor. In Figure 5a the questions developed for each dimension were given opposite their sources in the model. These questions form the "Coalitional Relationship Components" section of the interview guide.

Next, there were a series of hypotheses which attempted to uncover possible causal factors in the structuring of a relationship. These factors were broken into the theoretically based and the atheoretical based potential causal factors. The theoretically based issues derive from the four hypotheses concerning Williamson's transaction cost analysis factors. These possible causes and their related primary and follow-up questions were given in Figures 5b through 5d.

Finally, there were interview questions dealing with how current and ideal relationships differ. This section focused on the expected and ideal evolution of the relationship into the future. Questions of satisfaction with the nature of the relationship, the expected and ideal
evolution of the relationship, and the perceived customer point of view were destined to offer more insight into this area. These questions were included in the "Ideal and Future Expectations" section.

Summary

The above discussion outlined the data analysis procedure used in this study. The two phases, while very different in methodology, were designed to complement each other. The design also attempted to integrate the two subsamples where possible, and provide parallel tests for comparison when combining the two was not possible.
Chapter IV

DATA ANALYSIS AND FINDINGS

Introduction

The results of the data analysis for the first phase, the mail survey phase, and the second phase, the case study phase, are presented in this chapter. The chapter is organized into two parts. In the first part each set of hypothesis tests on the mail survey data are presented in turn. In the second part the results of the personal interviews with the ten firms are presented. The resulting ten case studies were summarized in three sections, coalitional relationship components, independent variables, and ideal and future expectations.

Phase I - Hypothesis Testing

The discussion of data analysis for the first phase is organized into three sections. First, the results of the testing of the first three hypotheses concerning the structure of the component parts of coalitional
relationships along with the specification search which followed are reported. Next, the two sets of hypotheses concerning the differences between ideal and actual scores are reported. Finally, the results of the hypothesis tests pertaining to the change scores are reported.

In preparation for any analysis the coalitional relationship scale data were recast as -3 to +3 values, with the positive pole associated with the item anchor which was posited to be coalitional and with the negative pole attached to the discrete transaction anchor. This recasting helped track the variables visually, without referencing their polarity. Figure 6 Contains a listing of the positive pole of each measure and its variable name.
### Extendedness

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Positive Pole of the Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX1</td>
<td>High Expectation of a Long Term Relationship</td>
</tr>
<tr>
<td>EX2</td>
<td>Very Loyal to This Customer</td>
</tr>
<tr>
<td>EX3</td>
<td>Focus on Future Transactions</td>
</tr>
<tr>
<td>EX4</td>
<td>Our Written Agreements Have Cancellation Clauses</td>
</tr>
</tbody>
</table>

### Operational Information Exchange

| IE1 | Many Direct Computer to Computer Links (i.e. EDI, WINS) |
| IE2 | We Use Software Compatible With Our Customer's Systems |
| IE3 | Customer Shares Shipping Forecasts |

### Operating Controls

| OC1 | Customer Monitors All Handling/Routing methods |
| OC2 | Customer Requires Shipment Tracking Ability |
| OC3 | Customer Requires Frequent Fleet Status Reports |

### Sharing of Benefits and Burdens

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Positive Pole of the Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB1</td>
<td>High Customer Willingness to Help in Difficult Situation</td>
</tr>
<tr>
<td>SB2</td>
<td>High Willingness to Help Customer in Difficult Situation</td>
</tr>
<tr>
<td>SB3</td>
<td>Customer Shares Risk</td>
</tr>
<tr>
<td>SB4</td>
<td>High Willingness to Handle Exceptions by Negotiation</td>
</tr>
</tbody>
</table>

### Planning

| PL1 | Many Joint Commissions/Task Forces |
| PL2 | Frequent Face to Face Planning Communications |
| PL3 | Frequent High Corporate Level of Communications |
| PL4 | Many Corporate Levels of Communications |
| PL5 | High Exchange of Technical Information |
| PL6 | Customer Regularly Studies Our Operations for Planning |
| PL7 | We Regularly Study Customer's Operations for Planning |

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**Figure 6**  
CONCEPTUAL MODEL VARIABLES
Dependent Variable Measurement Hypotheses

Three hypotheses addressed the structure of the dependent variable, the coalitional score. The three hypotheses, H1, H2, and H3, concerned the overall fit of the model, the relationship of the measured variables to their respective hypothesized dimensions, and the degree of independence which exists between dimensions.

H1 The coalitional relationship construct is composed of five dimensions, extendedness, operational information exchange, operating controls, and sharing of benefits and burdens. Stated another way, the population covariance structure is consistent with the model in Figure 2.

This hypothesis was rejected based on a Bentler and Bonnet's rho value of 0.64 where a value above .90 was considered minimum to indicate a good fit. The chi-square value was 262.94 with 179 degrees of freedom, which was significant. In confirmatory factor analysis a significant chi-square value was an indication of a lack of fit. The root mean squared residual criteria for goodness of fit indicated a poor model fit also. This value was 0.10, higher than the desired value.

H2 The factor loadings (λ_{i,j}) for the labeled paths in Figure 2 are significantly different from zero.

In the initial model all of the λ paths were significant with the exception of λ(1,4), the path associated with the measured variable EX4. This measured
variable has "our agreements have cancellation clauses" as the positive pole.

H3 The five dimensions are orthogonal - the values for \( \phi_{i,j} \) are not significantly different from zero.

In the initial model six of the ten possible intercorrelations among the dimensions had estimated correlations with associated t-values that were significant at \( \alpha = 0.05 \). The pairs that were found to have estimated correlations that did not test significantly different from zero were: extendedness with operational information exchange, extendedness with operating controls, operational information exchange with sharing of benefits and burdens, and operating controls with sharing of benefits and burdens. The planning dimension tested as correlated with all of the other dimensions.

The lack of strong goodness of fit results led to the conclusion that a better model might be available through the conduct of a specification search. This specification search represented the next step in the data analysis process.

**Specification Search**

The goal of the specification search was to find the best possible model for the coalitional relationship construct’s component parts. In this process, the model
which was initially tested in the above three hypotheses was modified by dropping measured variables, adding or dropping paths, and dropping or combining latent variables. This process led to a model in which the five latent variables were each successfully measured by a subset of the original proposed measured variables for the respective latent variables.

The specification search portion of the data analysis progressed through three stages. In the initial stage a limited number of steps were undertaken to improve the model using a combined data set which included both the warehousemen and the carrier data. After this proved largely unproductive, the model was tested on a data set containing only the warehouse sample. After a successful specification search resulting in a pared down version of the original model, the resulting model was then tested on first the carrier data then the combined data set. The overall result was a simplified model containing each of the five posited dimensions, simple structure, and an excellent fit for both the warehouse data set and the combined data set, both carriers and warehousers. The fact that the model developed on the warehouse data set alone also fit the combined data set well gave some assurance that the results were generalizable across the two subsamples. In the following discussion, the three stages are described in detail.
To begin the first stage, the results of the initial model testing were examined for indications on which modifications to make. From examining the squared multiple correlations it appeared that EX4 and OC3 were contributing very little to the model. A squared multiple correlation value of less than 0.10 was considered low enough to suggest dropping the variables. These variables were subsequently dropped and the resulting 19 variable model was tested. The measures for goodness of fit improved only slightly. Bentler and Bonnet's rho was at .66, unacceptably low. Two variables stood out at this point as problems. First, EX3 had a low squared multiple correlation, indicating it should be dropped. Next, one of the operating controls variable, IE3, showed high modification indices for each of the other latent variables, indicating it was measuring a component of each of them. Since it was not discriminating well among the dimensions of coalitional relationships, this variable was also dropped for the subsequent runs. One of the two remaining operating controls variables, OC2 was low in terms of squared multiple correlation values, indicating low contribution to the model. Since removing this variable would have left only one measure of this construct it was retained. The next step in the first stage of the specification search was to run a 17 variable model.

The 17 variable model did not show a marked improvement in measures of fit over the first two. The model offered no
clear alternatives in terms of dropping variables. The squared multiple correlations showed only OC2 as questionable. Its squared multiple correlation was 0.096. Since there were practical considerations for keeping it centering around desire for at least two measures for each dimension, and it would round up to .10, it was retained. All of the t-tests of the lambda coefficients were significant, implying the variables did contribute to their respective latent variables. In terms of freeing up paths to allow any specific measured variables to load on alternative dimensions from the prespecified ones, there were no clear choices. There were four variables with modification indices between 10 and 13, but the gains in chi-square values which would result from freeing them (individually or collectively) would not be significant. The only area for exploration apparent was the restriction of selected pairs of correlations between the latent variables to equal zero. This set of restrictions was tried in a model with the seventeen variables remaining and fixing to zero those phi paths which had t-values of less than 1.96. This model had a Bentler and Bonnet’s rho of 0.76 and showed no clear path to proceed in the specification search. The modification indices were uniformly low, the t-values for all paths were significant, and the only squared multiple correlation below 0.10 was OC2. The path for
further improvements was not clear, and the model was not sufficiently strong to warrant use as it stood.

A possible source of the problem was seen as the pooling of the data from the carrier and warehousemen samples. In this process, it was originally felt that while differences in mean ratings might be reasonable, differences in the underlying structure would not be likely. For example, while the public warehouse firm's relationship would be closer, the various elements of coalitional relationships should vary together in a similar manner in both subsamples. To test if this was in fact the problem, two things were done. First, the means for the two groups for each of the 21 variables were compared using paired t-tests. Next the whole process of initial model testing and specification search was conducted on the larger of the two subsamples. The warehouse data was used in this process. If possible the transportation group would serve as a hold out sample to test the resulting model. Further, the resulting model would be tested against the pooled sample.

The model was initially tested on the warehouse subsample using all 21 variables even though the degrees of freedom problem would likely force a large reduction of the number of variables in the model. The rule of thumb was to have 8-10 observations for each measured variable in the model and the usable sample size for warehousemen was 112.
For the 21 variable model the overall fit was poor, and there were a number of variables to be dropped using the squared multiple correlation criteria. The following variables were dropped in the next iteration due to low squared multiple correlations: EX3, EX4, and PL4. In choosing to drop one of the operational control variables, the t-test values were used instead of the squared multiple correlations used previously. The t-tests indicated dropping OC1 at this point. The rationale for this was that this set of variables seemed problematic earlier, and the squared multiple correlations of these varied a good deal, depending on which variables were included in the model. Therefore the two with the strongest relationship to the construct were retained rather than the one with the weakest relationship with the entire model being dropped. The 17 variable model using warehouse only data showed a better fit, rho being 0.75. Clearly more reduction in the number of variables was needed to get down to the eight to one or the ten to one ratio of sample size to measured variables.

In the next iteration for the warehouse only specification search, there were no clear indicators that additional measures needed to be removed other than a poor fit and a small sample size. All of the t-values for the lambda paths were significant. The measured variable IE3 again had moderately high modification indices for three of the four latent variables which it was not supposed to
measure. These moderately high modification indicies for multiple dimensions marked it as a potential for dropping. The remaining options seemed to focus on reductions in the number of measured variables for any given dimension to be limited to three. Here, the list of remaining variables for SBB and PLN were examined for questions which asked essentially the same thing. For sharing of benefits and burdens, the first two entries, SB1 and SB2 were seen as mirror images of one another. The one of the two with the lower t-value (or standardized coefficient) was dropped. For the planning measured variable set, PL1, PL2, PL3 were seen as very similar and PL6 and PL7 were seen as very similar. The single best of each of these two sets were chosen based on the largest t-value.

The 12 variable model which resulted from this paring down was a very good fit with all lambda paths significant and all modification indices quite low. With a rho of 0.93 and a non-significant chi-squared value, this model met two stringent tests of fit. The only remaining avenue for improvement appeared to be the imposition of orthogonality on individual pairs of latent variables. This last attempted adjustment did not improve the model. When imposed orthogonality was tested, it resulted in a model with serious technical problems. The phi matrix was not positive definite, a violation of the model assumptions. When this happens, often it would be an indication of a
poorly fitting model or of too small a sample. The measures of fit also worsened, but these could not be relied upon given the improper \textit{phi} matrix in the solution. As a result of the above steps, the 12 variable model of Figure 7 was the final choice resulting from the specification search using the warehouse data set only. This set showed simple structure, with each measured variable loading only on its respective latent variable. Also, all of the latent variables were free to be correlated. The estimates of these correlations ranged from -0.014 to 0.729.

The next step was to try to validate the resulting model on the 78 usable respondents in the transportation subsample. This attempt met with repeated problems in improper solutions, typically \textit{phi} matrices which were not positive definite. This could likely have been due to the small sample size relative to the number of parameters to estimate. No conclusive results were possible using this data set on the 12 variable model.
Figure 7

FINAL MODEL AFTER SPECIFICATION SEARCH  
(Carrier Questions)
The final possibility was to use the 12 variable model on the combined data set. If the initial failure to find a good model were due to the two data subsets being fundamentally different, then we would expect to see the model from warehousemen fail in the larger sample. If the failure initially was due to not paring out the redundant measures, then the warehouse-only 12 variable model should fit nearly as well in the subsample. The result was a good fit, far better than the result of the initial specification search on the full data set. Bentler and Bonnet's rho was 0.94, an unexpected improvement over the value for the subsample on which the 12 variable model was developed. While the chi-square value became significant, this could happen simply due to a larger sample size regardless of fit. The root mean square residual measure of fit also improved from the subsample development model to the full sample test. The root mean square residual went from 0.065 to 0.054. This change was also an unexpected improvement of a measure of fit across the two model tests.

In the test of the 12 variable model on the entire sample, all indicators were of a good model. Measures of fit were all good, and the specific indicators of how the individual components behaved were excellent. All specified lambda paths were significant, no modification indices were large, and the phi matrix was well behaved. This final 12
variable model was used for subsequent measures of coalitional relationships.

Coalitional Relationships

The next set of hypotheses analyzed concerned the overall degree of coalitional relationship across respondent firms. This process required the formation of overall scores for each dimension and the coalitional relationship construct. The key was to utilize factor scores to summarize the dimensions into single scores. These scores could then be integrated into an overall score for the entire scale. The overall score was then used to test the remaining hypotheses.

The formation of an overall score for coalitional relationship strength required methods similar to those used in psychology to construct a composite score for a complex, multidimensional psychological construct such as IQ. The process involved the calculation of factor scores for each of the measured variables. Summing the factor scores for each dimension provided a single score for that factor for each respondent. Factor scores were needed in order to compensate for the fact that some individual measures may better represent the given dimension than others.

The factor scores used in this analysis were those which resulted from factor analyzing the actual coalitional
relationship ratings. These same scores were used as weightings for all composite score development; the actual, the ideal, and the change scores.

As a final step in developing the dependent measures, the correlation among the five dimensions needed to be examined for consistency. The sum of the measured variables for each dimension weighted by the respective factor scores were computed and cross correlated. All of the correlations were positive, as required. This result allowed the subsequent summation of the individual dimensional scores into an overall coalitional relationship score.

**Final Coalitional Score Model**

The final coalitional model consisted of 12 measured variables which measure the five dimensions of the original model. The overall fit of the final model was very good using each of the measures of fit. The Bentler and Bonnet’s rho was 0.94, the Chi-square value was 65.7 with 44 degrees of freedom, and the root mean square residual was 0.054. Each measured variable had a significant lambda value, indicating it does measure its relevant dimension. Additionally, each measured variable had a low modification index value for all other dimensions, indicating it measures only its related latent variable. The dimensions were allowed to be correlated in the final model, as no rationale
for limiting correlations to zero in some pairs while freeing others to be other than zero could be found. The resultant final model is presented in Figure 7.

Ideal and Actual Coalitional Score Hypotheses

The two hypotheses concerning the differences between ideal and actual coalitional scores were analyzed using both dependent and independent t-tests. The first to be analyzed concerned the existence of a disparity of ideal and actual scores for the items which make up the final model. The sum of the absolute value of the differences between ideal and actual ratings weighted by the factor scores was used to create the change score used as a measure of total difference between actual and ideal ratings. The two hypotheses were taken in turn. For each hypothesis the results were given first for the warehouse subsample then for the transportation subsample.

H4 There is no difference in the current and ideal coalitional scores in the population.

For this hypothesis, the results showed a significant difference between the two ratings using a dependent t-test. For warehousing, the weighted sum of the differences in ratings for the ideal and actual data showed a mean difference of -4.0. This mean of the differences between actual and ideal was significantly different from zero. The same value for the transportation subsample gave a mean
difference of -4.1. This mean was also significantly different from zero. For both groups, the hypothesis of no difference was rejected.

H4a There is no difference in the actual and ideal coalitional scores for highly coalitional relationships as opposed to minimally coalitional relationships.

The mean of the differences between actual and ideal scores for warehouse firms below the median was -9.2 and the mean for those above the median was -6.7 using an independent t-test. These two means were significantly different from one another. For transportation the means were -9.6 for the low group and -7.4 for the highly coalitional group. The transportation means were also significantly different from zero.

Theoretical Independent Variable Hypotheses - Actual Scores

The discussion of the next set of hypothesis testing results concerns the theoretical variables derived from transaction cost analysis. The results, again, were given first for the warehousing and then for the transportation subsamples. A summary of these results was given in Table 3.

H5 The actual coalitional scores will correlate positively with the amount of environmental risk perceived.

The correlation for the actual coalitional score with the environmental risk rating for warehousing was 0.17 which
Table 3
Results for Hypotheses 5 through 40

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Actual Scores</th>
<th>Ideal Scores</th>
<th>Change Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Warehouse</td>
<td>Transportation</td>
<td>Warehouse</td>
</tr>
<tr>
<td>Environmental risk</td>
<td>H5 ( r = 0.17 )</td>
<td>( r = 0.19 )</td>
<td>H17 ( r = 0.01 )</td>
</tr>
<tr>
<td>Unsecured front end investment</td>
<td>H6 ( r = 0.01 )</td>
<td>( r = -0.19 )</td>
<td>H18 ( r = 0.06 )</td>
</tr>
<tr>
<td>Degree of uncertainty in the relationship</td>
<td>H7 ( r = -0.29 )</td>
<td>( r = -0.24 )</td>
<td>H19 ( r = -0.15 )</td>
</tr>
<tr>
<td>Amount of specific investment</td>
<td>H8 ( r = 0.21 )</td>
<td>( r = 0.36 )</td>
<td>H20 ( r = 0.35 )</td>
</tr>
<tr>
<td>Size of the respondent firm</td>
<td>H9 ( r = 0.01 )</td>
<td>( r = 0.06 )</td>
<td>H21 ( r = 0.06 )</td>
</tr>
<tr>
<td>Percentage of revenue the selected customer represents</td>
<td>H10 ( r = -0.04 )</td>
<td>( r = 0.04 )</td>
<td>H22 ( r = 0.04 )</td>
</tr>
<tr>
<td>Age of the respondent firm</td>
<td>H11 ( r = 0.04 )</td>
<td>( r = 0.07 )</td>
<td>H23 ( r = 0.08 )</td>
</tr>
<tr>
<td>Presence of an EDI project (X=with, Y=no)</td>
<td>H12 ( \bar{X} = 4.2 )</td>
<td>( \bar{Y} = 2.9 )</td>
<td>H24 ( \bar{X} = 8.3 )</td>
</tr>
<tr>
<td></td>
<td>H25 ( \bar{X} = 4.2 )</td>
<td>( \bar{Y} = 5.4 )</td>
<td>H26 ( \bar{X} = 8.2 )</td>
</tr>
<tr>
<td>Number of additional services offered</td>
<td>H13 ( r = 0.03 )</td>
<td>( r = -0.05 )</td>
<td>H25 ( r = 0.08 )</td>
</tr>
<tr>
<td>Length of customer relationship</td>
<td>H14 ( r = -0.17 )</td>
<td>( r = 0.00 )</td>
<td>H26 ( r = 0.02 )</td>
</tr>
<tr>
<td>Total shipments made quarterly</td>
<td>H15 ( r = -0.24 )</td>
<td>( r = 0.00 )</td>
<td>H27 ( r = 0.27 )</td>
</tr>
<tr>
<td>Line of trade of the selected customer (X=Largest line of trade)</td>
<td>H16 ( \bar{X} = 4.2 )</td>
<td>( \bar{Y} = 3.5 )</td>
<td>H28 ( \bar{X} = 8.2 )</td>
</tr>
</tbody>
</table>

\[
\begin{array}{ccc}
\text{H5} & \text{H17} & \text{H29} \\
\text{H6} & \text{H18} & \text{H30} \\
\text{H7} & \text{H19} & \text{H31} \\
\text{H8} & \text{H20} & \text{H32} \\
\text{H9} & \text{H21} & \text{H33} \\
\text{H10} & \text{H22} & \text{H34} \\
\text{H11} & \text{H23} & \text{H35} \\
\text{H12} & \text{H24} & \text{H36} \\
\text{H13} & \text{H25} & \text{H37} \\
\text{H14} & \text{H26} & \text{H38} \\
\text{H15} & \text{H27} & \text{H39} \\
\text{H16} & \text{H28} & \text{H40} \\
\end{array}
\]

Indicates the related null hypothesis was rejected. Note: The sample sizes vary across tests.
was significantly greater than zero at alpha=0.05
significance level and n=114. The same correlation for
transportation was 0.19 with n=70. The expected positive
correlation was present only in the warehouse subsample.

H6 The actual coalitional scores will correlate
positively with the amount of unsecured front end
investment.

The correlation for the actual coalitional score with
the amount of unsecured front end investment rating for
warehousing was 0.01 which was not significantly greater
than zero at alpha of 0.05 significance level with n=115.
The same correlation for transportation was 0.19 which was
not significantly greater than zero at alpha of 0.05
significance level with n=72. The expected positive
correlation was not present in either subsample.

H7 The actual coalitional scores will correlate
positively with the degree of uncertainty in the
relationship.

The correlation for the actual coalitional score with
the degree of uncertainty in the relationship for
warehousing was -0.29 which was not significantly greater
than zero at alpha of 0.05 significance level with n=115.
The same correlation for transportation was -0.24 which was
not significantly greater than zero at alpha of 0.05
significance level with n=72. The expected positive
correlation was not present in either subsample. In fact, a
significant negative correlation was present in both
subsamples. If a two tailed test or a negative correlation
test had been performed, the results would have been significant for both subsamples.

H8 The actual coalitional scores will correlate positively with the amount of specific investment.

The correlation for the actual coalitional score with the amount of specific investment for warehousing was 0.21 which was significantly than zero at alpha of 0.05 significance level with n=115. The same correlation for transportation was 0.36 which was significantly greater than zero at alpha of 0.05 significance level with n=72. The expected positive correlation was present in both subsamples.

Atheoretical Independent Variable Hypotheses - Actual Scores

The discussion of the next set of hypothesis testing results concerns the atheoretical variables. The results, again, are given first for the warehousing and then for the transportation subsamples. A summary of these results is included in Table 3.

H9 The actual coalitional scores will not correlate with the size of the respondent firm.

The correlation for the actual coalitional score with the size of the respondent firm for warehousing was 0.01 which was not significantly different from zero at alpha of 0.05 significance level with n=111. The same correlation for transportation was 0.06 which was not significantly different from zero at alpha of 0.05 significance level with
n=60. Neither a positive nor a negative correlation was present in either subsample.

H10 The actual coalitional scores will not correlate with the percentage of revenue the selected customer represents.

The correlation for the actual coalitional score with the percentage of revenue the selected customer represents for warehousing was \(-0.04\) which was not significantly different from zero at alpha of 0.05 significance level with n=114. The same correlation for transportation was \(-0.04\) which was not significantly different from zero at alpha of 0.05 significance level with n=71. Neither a positive nor a negative correlation was present in either subsample.

H11 The actual coalitional scores will not correlate with the age of the firm.

The correlation for the actual coalitional score with the age of the firm for warehousing was 0.04 which was not significantly different from zero at alpha of 0.05 significance level with n=112. The same correlation for transportation was \(-0.07\) which was not significantly different from zero at alpha of 0.05 significance level with n=67. Neither a positive nor a negative correlation was present in either subsample.

H12 There is no difference in actual coalitional scores of firms with and without EDI projects.

An independent t-test which groups firms according to the status of EDI projects gave the following results. There was no difference between the means of the warehouse
firms with and without EDI projects at \( \alpha = 0.05 \) significance level. The respective means were 4.2 and 2.9 with respective sample sizes of \( n=80 \) and \( n=34 \). There was a difference between the means of the transportation firms with and without EDI projects at \( \alpha = 0.05 \) significance level. The respective means were 5.4 and 2.0 with respective sample sizes of \( n=65 \) and \( n=16 \).

H13 The actual coalitional scores will not correlate with the number of additional services a respondent firm offers.

The correlation for the actual coalitional score with the number of additional services a respondent firm offers for warehousing was 0.03 which was not significantly different from zero at \( \alpha = 0.05 \) significance level with \( n=114 \). The same correlation for transportation was -0.05 which was not significantly different from zero at \( \alpha = 0.05 \) significance level with \( n=59 \). Neither a positive nor a negative correlation was present in either subsample.

H14 The actual coalitional scores will not correlate with the length of customer relationships.

The correlation for the actual coalitional score with the length of customer relationships for warehousing was -0.17 which was not significantly different from zero at \( \alpha = 0.05 \) significance level with \( n=114 \). The same correlation for transportation was 0.00 which was not significantly different from zero at \( \alpha = 0.05 \) significance level with \( n=72 \). Neither a positive nor a negative correlation was present in either subsample.
H15 The actual coalitional scores will not correlate with the number of total shipments made quarterly.

The correlation for the actual coalitional score with the number of total shipments made quarterly for warehousing was $-0.24$ which was significantly different from zero at alpha of 0.05 significance level with $n=106$. The same correlation for transportation was 0.00 which was not significantly different from zero at alpha of 0.05 significance level with $n=60$. Neither a positive nor a negative correlation was present in the transportation subsample. A meaningful positive correlation was found for the warehouse subsample.

H16 There is no difference in actual coalitional scores of firms with different types of customers.

An independent t-test which groups firms according to the broad line of trade of the customer gave the following results. There was no difference between the means of the warehouse firms in the foods related line of trade and all others at alpha=0.05 significance level. The respective means were 4.2 and 3.5 with respective sample sizes of $n=66$ and $n=49$. There was a difference between the means of the transportation firms in the foods related line of trade and all others at alpha=0.05 significance level. The respective means were 4.0 and 5.2 with respective sample sizes of $n=33$ and $n=48$. 
Theoretical Independent Variable Hypotheses - Ideal Scores

For the following hypotheses, tests identical to those performed for H5 through H16 were conducted, this time using the ideal scores. The results are given below.

H17 The ideal coalitional scores will correlate positively with the amount of environmental risk perceived.

The correlation for the ideal coalitional score with the amount of environmental risk perceived for warehousing was 0.01 which was not significantly greater than zero at alpha of 0.05 significance level with n=101. The same correlation for transportation was -0.15 which was not significantly greater than zero at alpha of 0.05 significance level with n=71. The predicted positive correlation was not present.

H18 The ideal coalitional scores will correlate positively with the amount of unsecured front end investment.

The correlation for the ideal coalitional score with the amount of unsecured front end investment rating for warehousing was 0.06 which was not significantly greater than zero at alpha of 0.05 significance level with n=101. The same correlation for transportation was -0.16 which was not significantly greater than zero at alpha of 0.05 significance level with n=73. The expected positive correlation was not present in either subsample.

H19 The ideal coalitional scores will correlate positively with the degree of uncertainty in the relationship.
The correlation for the ideal coalitional score with the degree of uncertainty in the relationship for warehousing was 0.15 which was not significantly greater than zero at \textit{alpha} of 0.05 significance level with \textit{n}=101. The same correlation for transportation was 0.01 which was not significantly greater than zero at \textit{alpha} of 0.05 significance level with \textit{n}=73. The expected positive correlation was not present in either subsample.

H20 The ideal coalitional scores will correlate positively with the amount of specific investment.

The correlation for the ideal coalitional score with the amount of specific investment for warehousing was 0.35 which was significantly greater than zero at \textit{alpha} of 0.05 significance level with \textit{n}=100. The same correlation for transportation was 0.43 which was significantly greater than zero at \textit{alpha} of 0.05 significance level with \textit{n}=73. The expected positive correlation was present in both subsamples.

\textbf{Attheoretical Independent Variable Hypotheses - Ideal Scores}

The attheoretical independent variables concerned with ideal coalitional scores produced the results as described below.

H21 The ideal coalitional scores will not correlate with the size of the respondent firm.

The correlation for the ideal coalitional score with the size of the respondent firm for warehousing was 0.06
which was not significantly different from zero at \textit{alpha} of 0.05 significance level with \( n=97 \). The same correlation for transportation was 0.03 which was not significantly different from zero at \textit{alpha} of 0.05 significance level with \( n=61 \). Neither a positive nor a negative correlation was present in either subsamples.

\textbf{H22} The ideal coalitional scores will not correlate with the percentage of revenue the selected customer represents.

The correlation for the ideal coalitional score with the percentage of revenue the selected customer represents for warehousing was 0.04 which was not significantly different from zero at \textit{alpha} of 0.05 significance level with \( n=101 \). The same correlation for transportation was 0.08 which was not significantly different from zero at \textit{alpha} of 0.05 significance level with \( n=72 \). Neither a positive nor a negative correlation was present in either subsamples.

\textbf{H23} The ideal coalitional scores will not correlate with the age of the firm.

The correlation for the ideal coalitional score with the age of the firm for warehousing was 0.08 which was not significantly different from zero at \textit{alpha} of 0.05 significance level with \( n=98 \). The same correlation for transportation was 0.04 which was not significantly different from zero at \textit{alpha} of 0.05 significance level with \( n=68 \). Neither a positive nor a negative correlation was present in either subsamples.
H24 There is no difference in ideal coalitional scores of firms with and without EDI projects.

An independent t-test which groups firms according to the status of EDI projects gave the following results. There was no difference between the means for the ideal scores of the warehouse firms with and without EDI projects at alpha=0.05 significance level. The respective means were 8.3 and 7.2 with respective sample sizes of n=69 and n=31. There was a difference between the means for the ideal scores of the transportation firms with and without EDI projects at alpha=0.05 significance level. The respective means were 8.9 and 7.1 with respective sample sizes of n=58 and n=15.

H25 The ideal coalitional scores will not correlate with the number of additional services a respondent firm offers.

The correlation for the ideal coalitional score with the number of additional services a respondent firm offers for warehousing was 0.08 which was not significantly different from zero at alpha of 0.05 significance level with n=100. The same correlation for transportation was -0.03 which was not significantly different from zero at alpha of 0.05 significance level with n=60. Neither a positive nor a negative correlation was present in either subsamples.

H26 The ideal coalitional scores will not correlate with the length of customer relationships.

The correlation for the ideal coalitional score with the length of customer relationships for warehousing was -
0.02 which was not significantly different from zero at alpha of 0.05 significance level with n=101. The same correlation for transportation was 0.07 which was not significantly different from zero at alpha of 0.05 significance level with n=73. Neither a positive nor a negative correlation was present in either subsamples.

**H27** The ideal coalitional scores will not correlate with the number of total shipments made quarterly.

The correlation for the ideal coalitional score with the number of total shipments made quarterly for warehousing was 0.27 which was significantly different from zero at alpha of 0.05 significance level with n=94. The same correlation for transportation was -0.05 which was not significantly different from zero at alpha of 0.05 significance level with n=61. A positive correlation was present for the warehousing subsample. Neither a positive nor a negative correlation was present in the transportation subsample.

**H28** There is no difference in ideal coalitional scores of firms with different types of customers.

An independent t-test which groups firms according to the broad line of trade of the customer gave the following results. There was no difference between the means of the warehouse firms in the food related line of trade and all others at alpha=0.05 significance level. The respective means were -8.2 and -7.6 with respective sample sizes of n=59 and n=42. There was no difference between the means of
the transportation firms in the food related line of trade and all others at \( \alpha = 0.05 \) significance level. The respective means were 9.0 and 7.6 with respective sample sizes of \( n=17 \) and \( n=56 \).

Theoretical Independent Variable Hypotheses - Change Scores

For the following hypotheses tests a set of tests identical to those performed for H5 through H8 were conducted, this time using the change scores. The results are given below.

\textbf{H29} The change scores will correlate with the amount of environmental risk perceived.

The correlation for the change score with the amount of environmental risk perceived for warehousing was 0.18 which was not significantly greater different from zero at \( \alpha \) of 0.05 significance level with \( n=101 \). The same correlation for transportation was 0.07 which was not significantly different from zero at \( \alpha \) of 0.05 significance level with \( n=70 \). Neither a positive nor a negative correlation was present in either subsample.

\textbf{H30} The change scores will correlate with the amount of unsecured front end investment.

The correlation for the change score with the amount of unsecured front end investment for warehousing was 0.05 which was not significantly different from zero at \( \alpha \) of 0.05 significance level with \( n=101 \). The same correlation for transportation was -0.19 which was not significantly
different from zero at alpha of 0.05 significance level with n=72. Neither a positive nor a negative correlation was present in either subsample.

H31 The change scores will correlate positively with the degree of uncertainty in the relationship.

The correlation for the change score with the degree of uncertainty in the relationship for warehousing was -0.42 which was significantly different from zero at alpha of 0.05 significance level with n=101. The same correlation for transportation was 0.16 which was not significantly different from zero at alpha of 0.05 significance level with n=72. Neither a positive nor a negative correlation was present in the transportation subsample. A significant negative correlation was present in the warehouse subsample.

H32 The change scores will correlate with the amount of specific investment.

The correlation for the change score with the amount of specific investment for warehousing was -0.05 which was not significantly greater than zero at alpha of 0.05 significance level with n=100. The same correlation for transportation was 0.24 which was significantly different from zero at alpha of 0.05 significance level with n=72. Neither a positive nor a negative correlation was present in the warehouse subsample. A significant positive correlation was present in the transportation subsample.
Atheoretical Independent Variable Hypotheses - Change Scores

For the following hypotheses tests a set of tests identical to those performed for H9 through H16 were conducted, this time using the change scores. The results are given below.

H33 The change scores will not correlate with the size of the respondent firm.

The correlation for the change score with the size of the respondent firm for warehousing was 0.03 which was not significantly different from zero at alpha of 0.05 significance level with n=97. The same correlation for transportation was -0.19 which was not significantly different from zero at alpha of 0.05 significance level with n=60. Neither a positive nor a negative correlation was present in either subsamples.

H34 The change scores will not correlate with the percentage of revenue the selected customer represents.

The correlation for the change score with the percentage of revenue the selected customer represents for warehousing was -0.02 which was not significantly different from zero at alpha of 0.05 significance level with n=101 The same correlation for transportation was -0.02 which was not significantly different from zero at alpha of 0.05 significance level with n=71. Neither a positive nor a negative correlation was present in either subsamples.

H35 The change scores will not correlate with the age of the firm.
The correlation for the change score with the age of the firm for warehousing was 0.08 which was not significantly different from zero at \( \alpha \) of 0.05 significance level with \( n=98 \). The same correlation for transportation was -0.23 which was not significantly different from zero at \( \alpha \) of 0.05 significance level with \( n=67 \). Neither a positive nor a negative correlation was present in either subsamples.

H36 There is no difference in change scores of firms with and without EDI projects.

An independent t-test which groups firms according to the status of EDI projects gave the following results. There was no difference between the change score means of the warehouse firms with and without EDI projects at \( \alpha =0.05 \) significance level. The respective means were 4.9 and 6.4 with respective sample sizes of \( n=69 \) and \( n=31 \). There was no difference between the means of the transportation firms with and without EDI projects at \( \alpha =0.05 \) significance level. The respective means were 4.9 and 6.4 with respective sample sizes of \( n=57 \) and \( n=15 \).

H37 The change scores will not correlate with the number of additional services a respondent firm offers.

The correlation for the change score with the number of additional services a respondent firm offers for warehousing was 0.03 which was not significantly different from zero at \( \alpha \) of 0.05 significance level with \( n=100 \). The same correlation for transportation was 0.00 which was not
significantly different from zero at alpha of 0.05 significance level with n=59. Neither a positive nor a negative correlation was present in either subsamples.

H38 The change scores will not correlate with the length of customer relationships.

The correlation for the change score with the length of customer relationships for warehousing was -0.23 which was significantly different from zero at alpha of 0.05 significance level with n=101. The same correlation for transportation was -0.03 which was not significantly different from zero at alpha of 0.05 significance level with n=61. Neither a positive nor a negative correlation was present in the transportation subsample. A significant negative correlation was present in the warehousing subsample.

H39 The change scores will not correlate with the number of total shipments made quarterly.

The correlation for the change score with the number of total shipments made quarterly for warehousing was -0.19 which was not significantly different from zero at alpha of 0.05 significance level with n=94. The same correlation for transportation was -0.07 which was not significantly different from zero at alpha of 0.05 significance level with n=60. Neither a positive nor a negative correlation was present in either subsamples.

H40 There is no difference in change scores of firms with different types of customers.
An independent t-test which groups firms according to the broad line of trade of the customer gave the following results. There was no difference between the change score means of the warehouse firms in foods related line of trade and all others at alpha=0.05 significance level. The respective means were 5.5 and 5.3 with respective sample sizes of n=69 and n=31. There was no difference between the means of the transportation firms in the foods related line of trade and all others at alpha=0.05 significance level. The respective means were 6.1 and 4.9 with respective sample sizes of n=17 and n=55.

**Summary of Hypothesis Testing**

The above discussion outlined the results from the hypothesis testing on all hypotheses. The results included many accepted and rejected proposed hypotheses. These results are summarized in the next chapter along with a discussion of conclusions and implications.

**Other Findings from Quantitative Analysis**

One goal of this research was to describe the current state of customer relationships generally found in the two groups sampled. The mean amounts of partnership present, the mean ideal amount of partnership, and a measure of the overall divergence of the actual and ideal all offer
insights into the status of coalitional relationships in warehousing and transportation. A summary of these results are given in Table 4. This table presents the means, standard deviations, extreme values, and sample sizes for each of the three formulations of the dependant variables.

There appear to be strong similarities between the two subsamples. For none of the dependent measures was there any significant difference between the means of the two samples using an alpha of 0.05. The standard deviations, minimums, and maximums all appeared to be quite close across the two groups.
Table 4

Descriptive Results for the Dependent Variables

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<tr>
<th>Measure</th>
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<th>Warehousers</th>
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<td>3.9</td>
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<td>Standard Deviation</td>
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<td>3.7</td>
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<td>Ideal Scores</td>
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<tr>
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<td>8.0</td>
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<td>13.1</td>
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<tr>
<td>Sample Size</td>
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</table>

The quantitative phase results were presented above. These results included the findings concerning the coalitional relationship construct, the influencing factors, the divergence of actual and ideal scores, and descriptive measures of partnership in the logistics services setting.

Phase II - Case Study Results

The case study findings are reported as a summary of the ten cases completed. This summary is organized to match the order of the hypotheses. First, the fit of the model and the choice of the measured variables are examined.
Second, the independent variables are considered. Third, ideal and future expectations are examined. Finally, additional findings are described.

Coalitional Relationship Components

The presence of the various components of coalitional relationships should conform to the various dimensional scores generated from the final coalitional relationship model if the model was working as intended. To assess the ability of the quantitative model to capture the various dimensions, a number of observations were made. First, the assessment of the managers of the overall contribution of the dimension to the relationship along with the individual measured variable assessments should match the quantitative model score for that same dimension in the majority of cases. In other words, the overall summary in the cases for each dimension should match the mail survey score for the corresponding dimension in the majority of cases. Next, the managers' personal interview evaluation for the various measures of each dimension should match the overall perception of that dimension in most cases. Additionally, cases of two conflicting views of a dimension offered by measured variables which were included in the final model versus measured variables omitted from the model should be infrequent. Finally, the cases which show higher overall coalitional scores from the quantitative phase should show
higher ratings for the individual dimensions on average. In other words, those at the top of each table should be more likely to show a high degree of importance to the overall dimension than those at the bottom, those with relatively low coalitional scores.

Each dimension was examined for the above attributes in turn. The examination relies largely on 1.) the summary tables from the ten case studies recast as individual dimension tables and 2.) examples and explanations from the cases. The tables offer a subjective characterization of the personal interview results concerning either the response to the primary question relating to the dimension as well as the responses to the follow up questions concerning the individual measured variables. The tables are arranged according to the ranking based on coalitional score relative to all other respondents, starting with the most coalitional relationships. The responses of both the senior manager, designated CEO, and the junior manager, designated OM for operating manager, were given for each case.

The sample included four primarily transportation firms and six primarily warehousing firms. Of the ten, four ranked high in terms of coalitional score, four ranked low in coalitional score, and two ranked near the middle in coalitional score.
Extendedness

The existence of an extended view regarding the relationship was generally captured by the scale items. The extendedness dimension had four measured variables, with the variables EX1 and EX2 included in the final quantitative model. These variables measured the expectation of a long term relationship and loyalty respectively. The measures excluded from the final model concerned a focus on future transactions and the presence of cancellation clauses in written agreements.

Of the ten cases, the overall managers’ assessments fit the quantitative score reasonably well in nine cases. In the tenth case there had been significant changes in the relationship over the period between the mail survey and the personal interview that likely reduced the expectation of an extended relationship. The production process supported by the public warehouser in the tenth case was to be moved out of the warehouser’s service region, thus changing the expectations.

The managers’ individual assessments of the overall dimension’s influence in the relationship reasonably matched their individual assessments of the related measured variables in most cases for this dimension. For the 14 managers with both an overall observation and a majority of measured variables with responses which could be
categorized, 11 were in general agreement and three had contrasting overall evaluations as compared to the sum of the assessments of the measured variables. All three with contrasting overall viewpoints were below the median coalitional score. Additionally, in no cases were the responses to the included measures clearly in gross contradiction with the excluded measures.

This dimension's subjective ratings in the personal interviews matched the overall coalitional relationship scores reasonably well for high and medium ranked firms, but the lowest ranked firms did not match expectations. The top ranked firms in terms of coalitional relationship score showed uniformly high or medium scores, as might be expected. The two middle ranked firms showed one high and one low evaluation of the degree of extendedness present. The lowest ranked firms did not generally conform to the expected lower than average amount of extendedness present. Three of four low ranked firms indicated higher overall evaluations, but two of these cases included the mixed signals between the overall and the individual indicators.

Overall, the personal interview phase of the research supported the ability of the items included in the final model in terms of the items' ability to capture the dimension. The correspondence of the overall coalitional
score to the extendedness score was not as well supported, however.

Table 5

Extendedness Results from the Case Studies

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<th>Case Letter</th>
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</table>

H=high, M=medium, L=low, Q=Qualified
Rank indicates the relative position on the spectrum of coalitional scores from the mail survey, with one indicating the highest score.
Operational Information Exchange

There was a question of whether the presence of enhanced operational information exchange in the relationships was generally captured by the scale items. The operational information exchange dimension had three measured variables, with the variables IE1 and IE2 included in the final quantitative model. These variables measured the extent of EDI links and the amount of compatible software present in the relationship. The measure excluded from the final model concerned sharing of production forecasts.

Of the ten cases, the overall managers' assessments of operational information exchange fit the mail survey quantitative score for the dimension reasonably well in nine cases. In the tenth case the managers reported strong personalized operating information exchange, but few systematized elements such as EDI or compatible software. Both managers pointed to the fax machine as evidence of strong routine information exchange. The CEO indicated that EDI was in the planning stages.

The managers' individual assessments of the overall dimension's influence in the relationship did not uniformly match their individual assessments of the related measured variables in most cases for this dimension. For the 15 managers with both an overall observation and a majority of
measured variables with responses which could be categorized, seven were in general agreement and eight had contrasting overall evaluations as compared to the sum of the assessments of the measured variables. All but one manager with a contrasting overall viewpoint were from firms below the median in terms of coalitional score. For these managers, their view of a strong operational information exchange component to the relationship must be derived from something other than EDI and software compatibility. In two cases the response to the included measures contrasted to a stated importance of production forecast sharing, which was excluded from the final model.

The operational information exchange dimension's subjective ratings in the personal interviews matched the overall coalitional relationship scores reasonably well for the included measured variables. In other words, looking only at the subjective ratings for EDI and software compatibility, the pattern was as expected, high coalitional scores with high individual scores. However, all of the firms, with one exception, rated the importance of operational information exchange as high when asked in general terms. In one middle coalitional score case, case E, the customer was captive due to a state awarded liquor warehousing contract. In this case the EDI project was seen as imposed on the warehouser, and not a factor in partnership building. As a result, the dimension score
would be high either in the interview or the mail survey, yet this would not contribute to the coalitional nature of the relationship.

Overall, the personal interview phase of the research supported the ability of the items included in the final model to match the reports of the managers for those items and to match the overall coalitional score well. However, the personal interviews showed a discrepancy between the managers' meaning for the overall concept of routine information exchange and the measured variables.
Table 6
Operational Information Exchange Results from the Case Studies

<table>
<thead>
<tr>
<th>Case Letter</th>
<th>Rank</th>
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<th>Overall</th>
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</table>

H=high, M=medium, L=low, Q=qualified
Rank indicates the relative position on the spectrum of coalitional scores from the mail survey, with one indicating the highest score.
Operating Controls

The presence of operating controls in the relationships was generally captured by the scale items. The operating controls dimension had three measured variables, with the variables OC2 and OC3 included in the final quantitative model. These variables measured the extent of shipment tracking ability and the requirement of fleet status reports for the carriers and the extent of internal audit trails and the requirement of inventory status reports for the warehouse. The measure excluded from the final model concerned the monitoring of handling and routing methods for the carrier and handling and processing methods for the warehouse.

Of the ten cases, the overall managers' assessments for operating controls fit the mail survey quantitative score for the dimension reasonably well in nine cases. In the tenth case there had been all elements present, but the customer had recently cut back manpower and ceased monitoring the fleet status reports for the carrier in case A, the highest coalitional score firm interviewed. Thus, the changes over the interval between the mail survey and the personal interviews appears to have been the cause of the discrepancy.

The managers' individual assessments of the overall dimension's influence in the relationship matched their
individual assessments of the related measured variables in most cases for this dimension. For the 14 managers with both an overall observation and a majority of measured variables with responses that could be categorized, nine were in general agreement and five had contrasting overall evaluations as compared to the sum of the assessments of the measured variables. The five managers with contrasting overall viewpoints were from firms both above and below the median in terms of coalitional score. Of the seven cases in which enough responses were categorizable, in two cases the response to the included measures contrasted to the stated importance of the measure which was excluded from the final model. Five cases generally were in agreement.

The operating controls dimension's subjective ratings in the personal interviews matched the overall coalitional relationship scores quite well for both the included measured variables and an overall assessment from all of the personal interview items. In no case was a high coalitional score matched with a generally low evaluation of the dimension, and in no case was a low coalitional score matched with a generally high overall evaluation of the dimension. There were, however, individuals who rated individual items or their overall response to the dimension as contrasting to their coalitional score, but taken as an entire case evaluation of this dimension, all corresponded reasonably well.
Overall, the personal interview phase of the research supported the ability of the items included in the final model to capture the operating controls dimension. There appeared to be no serious difficulties in any of the indicators used for the adequacy of the scale considered above.
Table 7

Operating Controls Results from the Case Studies

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<th>Case Letter</th>
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H=high, M=medium, L=low, Q=qualified
Rank indicates the relative position on the spectrum of coalitional scores from the mail survey, with one indicating the highest score.
Sharing of Benefits and Burdens

The existence of a sharing versus a sharply dividing view toward benefits and burdens within the relationship was generally captured by the scale items. The sharing of benefits and burdens dimension had four measured variables, with the variables SB1, SB3 and SB4 included in the final quantitative model. These variables measured the customer's willingness to help, the degree of risk sharing and a willingness to handle exceptions by negotiation. The measure excluded from the final model concerned the respondent's willingness to help the customer out in a difficult situation.

Of the ten cases, the overall managers' assessments fit the mail survey quantitative score for this dimension reasonably well in nine cases. In the tenth case the managers uniformly indicated high degrees of sharing occurring. The mail survey indicated a low amount of shared risk, driving the overall score to very near average for this dimension. Recently, the customer in this case has entered into a long term contract for controlled atmosphere upgrading of one of the warehouser's public warehouse facilities and for the contract operation of an additional facility. This may have changed the view of sharing in the period between the mail survey and the personal interview.
The managers' individual assessments of the overall dimension's influence in the relationship reasonably matched their individual assessments of the related measured variables in most cases for this dimension. For the 18 managers with both an overall observation and a majority of measured variables with responses which could be categorized, 15 were in general agreement and three had contrasting overall evaluations as compared to the sum of the assessments of the measured variables. The three with contrasting overall viewpoints were both above and below the median coalitional score. Additionally, in only one case was the response to the included measures clearly in gross contradiction with the excluded measure. In this case, the managers indicated that they would always be maximally willing to help out a customer in a difficult situations, even though they otherwise saw little or no sharing of benefits and burdens.

This dimension's subjective ratings in the personal interviews matched the overall coalitional relationship scores reasonably well for high and medium ranked firms, but two of the lowest ranked firms did not match expectations. The top ranked firms in terms of coalitional relationship score showed uniformly high or medium scores, as might be expected. The two middle ranked firms showed one low and one medium evaluation of the degree of sharing present. For the lowest ranked firms, two did not generally conform to
the expected lower than average amount of sharing present. One was the case referenced above in which the view of sharing may have improved in the recent past. The other was a primarily less than truck load carrier with a very large consumer package goods customer.

Overall, the personal interview phase of the research supported the items included in the final model in terms of the items' ability to capture the dimension. By each of the above criteria the model appears to offer a reasonable ability to capture sharing of benefits and burdens.
**Table 8**

Sharing Benefits and Burdens Results from the Case Studies

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H=high, M=medium, L=low, Q=qualified
Rank indicates the relative position on the spectrum of coalitional scores from the mail survey, with one indicating the highest score.
Planning

The existence of planning within the relationship was generally captured by the scale items. The planning dimension had seven measured variables, with the variables PL1, PL5 and PL6 included in the final quantitative model. These variables measured the extent of formalized planning bodies, the exchange of technical information and the extent of customer studying of the respondent for planning purposes respectively. The measures excluded from the final model concerned the frequency of face to face communications, the frequency of high corporate level communications, the number of levels involved in communications, and extent to which the respondent studies the customer for planning purposes.

Of the ten cases, the overall managers' assessments fit the mail survey quantitative score for this dimension reasonably well in eight cases. In one case where the there was not a match of dimension score on the mail survey and the managers' assessment, the assessment was lower than the slightly above average dimension score would indicate would be expected. In the other case the managers indicated strong contributions from the omitted measured variables and uniformly weak contributions from the included variables. While in the first case the amount of divergence in assessments was not by a wide margin, a more significant error appears to be present in the second case.
The managers' individual assessments of the overall dimension's influence in the relationship reasonably matched their individual assessments of the related measured variables in most cases for this dimension. For the 17 managers with both an overall observation and a majority of measured variables with responses that could be categorized, 13 were in general agreement and four had contrasting overall evaluations as compared to the sum of the assessments of the measured variables. The four with contrasting overall viewpoints were both above and below the median coalitional score. Additionally, in two cases the responses to the included measures clearly were in contradiction with the excluded measures. In one case, case H, the difference was not very strong. In the other case, case I, the difference was striking, with uniformly low ratings for the included measured variables and nearly unanimous high levels for the omitted variables. In this one case it was as if two different dimensions were being measured.

This dimension's subjective ratings in the personal interviews matched the overall coalitional relationship scores reasonably well for high and medium ranked firms, but two of the lowest ranked firms did not match expectations. The top ranked firms in terms of coalitional relationship score showed uniformly high or medium scores, as might be expected. The two middle ranked firms showed low
evaluations of the amount of planning present. For the lowest ranked firms, two did not generally conform to the expected lower than average amount of planning present. These were the two cases referenced above, cases H and I. Both scored low on the mail survey for this dimension and both had higher overall assessments than would be consistent with the mail survey. In summary, eight of the ten cases supported the expectations for the overall coalitional scores and two did not.

Overall, the personal interview phase of the research supported the items included in the final model in terms of the items' ability to capture the dimension. By each of the above criteria the model appears to offer a reasonable ability to capture sharing of benefits and burdens. A notable exception was present in two cases where the communications oriented variables contrasted with the included variables.
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H=high, M=medium, L=low, Q=qualified
Rank indicates the relative position on the spectrum of coalitional scores from the mail survey, with one indicating the highest score.
Summary of Coalitional Relationship Components

The measurement of each component dimension of the coalitional relationship construct by the final model was supported in large measure in the personal interview process. There were some exceptions for individual dimensions for the particular measures of success used above.

Coalitional Relationship Overall Results

The sum of the personal interview assessments of the individual component dimensions should also match the overall personal interview assessment of the degree of partnership present in the relationship as well as the overall coalitional score on the mail survey. These two issues were examined by looking at composite overall dimensional assessments produced by integrating the table items in the above tables for the individual dimensions into a single subjective rating of high, medium or low. These dimensional summary values were then used for comparison with the managers overall assessment of the degree of partnership present and for comparison with the relative coalitional score, as represented by the case's ranking.

In the table below, the measures for each dimension were arrived through the following process. The dimensional table above was collapsed across the various ratings for
both the individual measured variables and the overall dimensional assessment. The resulting evaluation was the composite of these values. The dimension had to have a majority of entries other than a "Q" or a "-", neither of which could be quantified. For the other entries, a zero was assigned to an "I", a one was assigned to an "M", a two was assigned to an "H". The resulting average was rounded to the nearest integer and the assignment process reversed.

The overall degree of partnership assessed at the beginning of the interview generally matched the sum of the individual parts. Of the 20 managers interviewed, 13 showed a good fit between the overall assessment and the five component parts. Of those considered good, the CEO of case G would be an example, with two high ratings, two low ratings and one medium rating combining to match the medium rating for the CEO's overall assessment of the amount of partnership present. There were five cases of a poor fit, four of which were concentrated in two firms. In both of these cases with a poor match, both managers claim high amounts of partnership. In both cases the consensus of the individual dimensional evaluations would indicate a medium amount of coalitional components present. In the remaining case with a mismatch, the senior manager assessed the degree of partnership as low in a case where higher operational information exchange and operating controls were mandated by a state liquor board contract, not built through joint
warehouser/customer efforts. Overall, substantial agreement was seen between the assessments of overall partnership present and the aggregate personal interview assessments of the component parts.

Table 10
Overall Coalitional Relationship Results from the Case Studies

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<td>M</td>
<td>L</td>
<td>M</td>
<td>L</td>
<td>M</td>
</tr>
</tbody>
</table>

H=high, M=medium, L=low, Q=qualified
Rank indicates the relative position on the spectrum of coalitional scores from the mail survey, with one indicating the highest score.
Whether the aggregate personal interview assessments of the component parts match with the ranking was also of interest. Here, the comparison was between the overall coalitional score as represented by the ranking and the average of the personal interview assessments for the five dimensions of the coalitional relationship construct. Looking at the ten possible evaluations by the two managers, an overall high, medium or low assessment was made for each dimension. The expectation was that high assessments would dominate the top four cases, medium assessments would be typical of the middle two, and low assessments would be typical for the four cases with low coalitional scores. The top four cases were evenly split between high and medium. The middle two cases were both medium as expected. The bottom cases were dominated by medium ratings, flanked with one high and one low rating.

In all, five of the ten cases did not exactly fit the expectations which the coalitional scores suggested. On the other hand, only one case was off by more than one category. In case I, the managers painted a much more partnership oriented relationship than the mail survey would indicate. This appeared to be due to high assessments of planning and sharing of benefits and burdens. In this case, a more sharing relationship appears to have been developed over the period between the mail survey and the personal interview. The planning dimension in this case was dichotomized into
high values for omitted items and low values for included items, as if two different dimensions were present. This comparison of the ten rankings and assessments offered modest support for the mail survey's ability to capture partnership. It should be noted that this assessment was made using the full set of 21 measured variables given equal influence, a small sample size and a simplistic scaling procedure.

Another possible comparison was between the ranking from the quantitative phase and the overall assessment of the presence of partnership as elicited at the beginning of the personal interview. The expectation was that the top ranked firms would describe their relationships as very strong partnerships, the middle ranked firms would describe the relationships as having some partnership present, while the lowest ranked firms would assess their relationships as being minimally partnership styled. Using a stringent requirement that the high set of firms be assessed high, the middle pair be rated medium, and the low set be described as low, the result would be eight correct and 12 incorrect managerial assessments. Using a more lenient criterion where only those with more than one category of disparity from the expectation would be seen as incorrect, then only four managers assessed their relationships in extreme contradiction of the mail survey results. Two of the assessments were registered in case H where significant
developments occurred between the dates of the two phases. In the other case, case I, both managers indicated they felt that partnership was built basically on communications. The resulting restricted view of partnership may have influenced the assessment of the relationships as captured at the outset of the personal interview. Using the less stringent view of a reasonable match of the two measures of overall coalitional relationship, the personal interview process supports the ability of the quantitative model to capture the coalitional relationship construct.
### Table 11

Overall Coalitional Relationship Results from the Case Studies: Rankings Versus Overall Ratings and the Sum of The Dimensions

<table>
<thead>
<tr>
<th>Case Letter</th>
<th>Rank</th>
<th>Interviewee</th>
<th>Overall Evaluation</th>
<th>Sum of the Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13</td>
<td>CEO H</td>
<td>H</td>
<td>H H H</td>
</tr>
<tr>
<td>B</td>
<td>39</td>
<td>CEO M</td>
<td>M</td>
<td>M M -</td>
</tr>
<tr>
<td>C</td>
<td>41</td>
<td>CEO H</td>
<td>H</td>
<td>H H H</td>
</tr>
<tr>
<td>D</td>
<td>50</td>
<td>CEO M</td>
<td>M</td>
<td>M M M</td>
</tr>
<tr>
<td>E</td>
<td>99</td>
<td>CEO L</td>
<td>L</td>
<td>M M M</td>
</tr>
<tr>
<td>F</td>
<td>104</td>
<td>CEO H</td>
<td>H</td>
<td>M M M</td>
</tr>
<tr>
<td>G</td>
<td>145</td>
<td>CEO M</td>
<td>M</td>
<td>M M M</td>
</tr>
<tr>
<td>H</td>
<td>160</td>
<td>CEO H</td>
<td>H</td>
<td>H H H</td>
</tr>
<tr>
<td>I</td>
<td>180</td>
<td>CEO H</td>
<td>M</td>
<td>M M M</td>
</tr>
<tr>
<td>J</td>
<td>195</td>
<td>CEO L</td>
<td>L</td>
<td>L L L</td>
</tr>
</tbody>
</table>

H=high, M=medium, L=low, Q=qualified

Rank indicates the relative position on the spectrum of coalitional scores from the mail survey, with one indicating the highest score.
Summary of the Coalitional Relationship Measures

In the discussion above a number of assessments of the validity of the coalitional relationship measures were assessed using the sum of the case studies derived from the personal interview phase of the research. The assessments concerned both the validity of each dimension and the validity of the overall coalitional relationship construct.

Independent Variables

Twelve influencing factors were explored in the personal interview process. These correspond to the independent variables in hypotheses five through 40 in the quantitative phase of the research. The theoretical variables were considered first, then the atheoretical variables. The table below offers a summary of the case findings.
Table 12

Independent Variable Results from the Case Studies:
Frequency of Agreement

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Agreement</th>
<th>Disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unprompted</td>
<td>Prompted</td>
</tr>
<tr>
<td>Theoretical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Risk</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Unsecured Investment</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Specific Investment</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Atheoretical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of Resp. Firm</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Percent of Revenue</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Age of Resp. Firm</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Presence of EDI</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Number of Services</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>History with Customer</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Frequency of Shipments</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Line of Trade</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

Agreement and disagreement in this table refer to agreement with the importance of the independent variable in choosing a partnership prospect.
From the table above it was clear that each potential influencing factor received strong support from the managers in the personal interview process. The theoretical variables all received very strong support, with the least supported, "uncertainty surrounding the relationship", showing a ten to two ratio of agreement versus disagreement. The atheoretical variables show more variability in the amount of support, from unanimous support for percent of revenue to a seven to four ratio of agreement to disagreement for frequency of shipments. These frequencies were for agreement with the ability of these variables to influence the choice of customers with whom to build partnership. The exact relationship offered by various respondents varied widely, some in direct contradiction with others. Below, each variable is examined in turn, with attention to the nature of the reported influence.

Theoretical Variables

The theoretical variables represent those derived from the transaction cost literature. The personal interview questions regarding these variables are found on page six of the interview guide. See Appendix B for the specific presentation. The four variables' reported influence on the choice of partnership candidates was considered below.
Environmental risk

Of the 15 managers who reported on this influencing factor, one felt it was not an influence, one mentioned it as an influence without prompting, and 13 saw it as an influence when queried about this factor specifically. The manager who disagreed with the likelihood of this factor influencing partnership decisions stated that he had enough confidence in the personnel of the firm to overcome any risk factor. The operating manager in the same firm, however, gave a counter example of a customer who only used the firm when there was a risk of merchandise freezing. This customer was refused service after a few years of using the carrier only in very cold weather.

The manager who indicated this independent variable was a factor without prompting was the President of a smaller specialty carrier. The manager reported just-in-time production support as a criterion in the unprompted portion. The reason given for the importance of this factor was the heightened risks involved in transporting in this business environment.

The other 13 managers responded to this question in a number of ways. Many wanted concrete examples of environmental risks, indicating they saw risks as falling into different categories or types. There were three managers indicating that high risk would cause the firm not
to choose an account for partnership. An example given was the warehousing of hazardous chemicals. Four managers offered a mixed view of risks, with two different qualifications. Some thought while the presence of risk generally increased the likelihood of partnership building, there was a ceiling for risks which would preclude partnership. The other qualification concerned the types of risks varying. Again the example of hazardous chemicals surfaced, as an example of an unacceptable type of risk. The other six respondents with prompted agreement as to the influence indicated a direct relationship with risk and coalition building.

The above observations indicate the importance of environmental risk in choosing partnership candidates. However, the exact relationship between the independent variable and coalitional relationship building was not at all clear.

Unsecured front end investment

Of the 12 managers who reported on unsecured front end investment as an influencing factor, two felt it was not an influence, one mentioned it as an influence without prompting, and nine saw it as an influence when queried about this factor specifically. The managers who disagreed with the likelihood of this factor influencing partnership
decisions felt that partnership would not facilitate unsecured investment, that this was an issue that the service provider would have to deal with alone.

The manager who indicated unsecured front end investment was a factor without prompting was the president of a smaller specialty carrier. The manager reported that the need for specialized equipment was an important criterion in the unprompted portion. An example given of this influencing factor was the purchase of a fleet of special dual purpose trailers in order to build a partnership with an importer of automobiles.

The other nine managers responding to this question all indicated that unsecured front end investments would move them toward partnership. Examples given included investments in cold storage facilities and controlled atmosphere storage space. Some managers felt that a contract would be required for significant front end investment. One manager felt that any increase in warehousing space greater than 50,000 square feet would require a long term commitment, as an example.

The above observations indicate the importance of unsecured front end investment requirements in choosing partnership candidates. The relationship between the independent variable and coalitional relationship building would likely be a direct relationship.
Uncertainty surrounding the relationship

Of the 11 managers who reported on uncertainty surrounding the relationship as an influencing factor, all saw it as an influence when queried about this factor specifically. Three of the managers felt that the presence of uncertainty surrounding the relationship would cause the firm to avoid partnership. The other eight felt that the reverse would be true. These respondents generally viewed partnership building as a means of reducing uncertainty surrounding the relationship. In one case, case A, a telephone recording system was purchased and implemented specifically to reduce uncertainty and maintain a partnership style relationship.

The unanimity indicating the importance of uncertainty surrounding the relationship in partnership building hides the disparity between the two views of how the variable works. The relationship between the independent variable and coalitional relationship building would likely be clouded by the split between the group which saw a direct relationship and the group which saw an inverse relationship.

Amount of specific investment

Of the 14 managers who reported on the amount of specific investment as an influencing factor, one felt it
was not an influence, one mentioned it as an influence without prompting, and 12 saw it as an influence when queried about this factor specifically. The manager who disagreed with the likelihood of this factor influencing partnership decisions felt that large specialized investments would not be facilitated through partnership building.

The manager who indicated this independent variable was a factor without prompting was the president of a smaller specialty carrier. The manager reported the need for customized equipment as a partnership building criterion in the unprompted portion. The firm was seeking only customers who needed specialized equipment, and would attempt to build a partnership with all such customers. The other 12 managers responded to this question with the unanimous opinion that partnership was a way to facilitate large investments in specialized assets.

The above observations indicate the importance of specific investments in choosing partnership candidates. Also, the overwhelming majority felt there should be a direct relationship between the independent variable and the presence of partnership.
Summary of theoretical variables

While all of the four independent variables in the theoretical variable set were overwhelmingly considered as important, not all of the relationships described were simple. The concept of environmental risk was a complex variable for some managers, and risks had differing effects on the potential for building coalitional relationships for others. Similarly, uncertainty surrounding the relationship showed agreement on its importance, but a significant minority felt the relationship was the reverse of the majority of the respondents to the personal interviews.

Uncertainty surrounding the relationship also showed some dissent as to the nature of the relationship, in spite of unanimous agreement with the variable’s importance. There were three of 11 with a minority view that uncertainty would cause their firm to avoid partnership.

The two measured variables which addressed investments both were consistent in the direction of the relationship and were supported by a large majority.

Atheoretical Variables

The atheoretical variables also yielded a mixed response from the managers, with by far the majority supporting these influencing factors as important in the
choice of partnership candidates. The individual influencing factors are treated in turn in the same order as the hypotheses in the quantitative phase.

Size of the respondent firm

The size of the warehouser or carrier was seen as an important factor by 12 of the managers and as not important by three managers. Of the three which felt that the size of the respondent firm was not important, one, on further examination, felt that if the warehouse firm were taken over by a large firm with a corporate bureaucracy the ability to build partnerships would suffer. Of the 12 that supported the size of the respondent firm as an influence, nine offered enough explanation to classify their response. Of these nine, four saw their size as limiting the number of accounts which were a suitable match for partnership building, two saw the small size of their firm as an advantage, and three saw the need for a reasonable match between the size of the customer and the logistics service firm as a requirement for partnership. Thus, while 12 respondent managers felt this factor influenced partnership building, there was no consensus on how this variable would be operationalized in a specific relationship.
Percent of revenue the selected customer represents

Of the 15 respondents who gave unequivocal responses concerning the share of business as an influencing factor, all 15 agreed that this was an important factor. The majority, nine managers, offered this influencing factor in the unprompted response to potential influencing factors. There were some instances of managers who felt that there shouldn't be any differential treatment for any customer, no matter how big, however, they did feel this occurred. These managers were generally the operations level managers. Some of the senior managers felt there was a minimum cut off level below which partnership was not worthwhile, while others felt this would be a continuous and direct relationship.

Age of the respondent firm

Of the nine respondents who gave unequivocal responses concerning the length of time the firm had been in business, eight agreed to the importance after being asked specifically about this influencing factor and one disagreed. Of the eight who agreed that this was an influence, the majority felt that a long history helped build partnership, citing track record, the evolutionary nature of partnerships and the networking involved in building new relationships. The dissenting view was from a
seventy year old firm which apparently discounted their extensive history as a partnership building asset.

Presence of electronic data interchange projects

The presence of EDI capability was seen as an important influence on partnership building by the majority of respondent managers. Of the 11 who responded unequivocally, nine felt that EDI capability enhanced the ability to build partnership, while two felt that this was not an influence. The nine managers who reported EDI would be an influencing factor uniformly felt that this would boost the ability to build partnerships. Of the two who disagreed, one, an LTL motor carrier senior manager, felt that this technology was not important in his style of operation. The other manager in disagreement, a senior manager in a public warehouse firm, felt that EDI was generally not worthwhile, citing a customer imposed EDI system as an example.

Number of additional services offered

The range of services a warehouser or carrier offers was seen by the majority of managers with classifiable responses as an influencing factor. There were eight managers with either clearly agreeing or disagreeing responses, of whom seven agreed when queried about this potential influencing factor. The remaining manager felt
that this would not affect the ability to build coalitional relationships. Some managers indicated that specific services, such as trucking, had been added to foster partnership with particular customers.

The manager who disagreed was with a contract warehouse firm with a very wide range of services offered. The manager felt this wide range of services primarily built stability for the warehousing firm. Of the seven who felt the range of services was important, all felt a wider range of services was conducive to partnership.

Length of customer relationships

There were eight managers which offered categorizable responses to the question of whether the length of customer relationships would influence the ability to pursue partnership. The question specifically asked whether partnership would be more likely with long standing accounts or new accounts. Six of the eight managers responded that this would make a difference, one unprompted. The six managers who felt that there was a difference in the ability to build partnership all saw a direct relationship with length of the relationship and partnership formation.

Two managers, the senior manager for a contract warehouzer, and the junior manager for a public warehouzer, who both felt this factor was not important felt that
partnerships could grow with old accounts or could be set up with new accounts.

Number of shipments quarterly

The frequency of shipments was seen by a majority of managers as being an influencing factor by a ratio of eight to four. This potential influencing factor was mentioned in the unprompted responses twice, indicating that for some managers this was one of their more important considerations in partnership building. There were six others who indicated this was important after prompting. The six all felt that as the number of shipments quarterly rose, the prospects for partnership would also rise. One manager felt high frequency accounts offered more chances for the two firms to interact, thus increasing partnership potential. Another, a warehouser, cited the ability to consolidate shipments as a potential area for win/win situations. This item represented the potential influencing factor with the most dissenting responses from managers.

Line of trade

Of the 13 managers responding to the question of the line of trade’s role in choosing partnership candidates, the majority indicated that this was an influence in the choice of partnership candidates. However, there were a number of
lines of trade suggested rather than any consensus on better or worse lines of trade. There were ten managers in agreement, with two offering specific lines of trade in the unprompted response to causal factors. Of the ten with agreement for this dimension the following industries were cited at least once: paper distribution, automotive manufacturing, food processors, food distribution, electrical supply business, and four unspecified industries.

One of the three managers who indicated the line of trade did not matter indicated that a study of Standard Industrial Codes did not turn up any which would be better prospects. The junior manager for this same firm indicated that there were four recently identified target industries on which the firm would concentrate. The other two managers indicating no specific lines of trade were particularly good partnership prospects felt that many lines of trade would be good prospects.

Summary of atheoretical variables

The atheoretical variables showed a consistent pattern of being important to the partnership building process, as viewed by the majority. However, the relationship of the variables to the coalitional relationship construct was not always clear. While their importance was indicated, something other than simple direct relationships were
indicated by some managers for the following variables: size of the respondent firm, percent of revenue the selected customer represents, and line of trade.

Summary of Independent Variables

The independent variables were affirmed as important to coalitional relationship formation. The exact nature of the relationships was not always completely clear.

Ideal and Future Expectations

The majority of firms felt the relationship was structured generally as desired. The position of this set of questions at the end of the interview guide led to limited responses for some respondents due to time constraints on the interview length. There were enough managers who were queried on this point to produce the following table. Of these 17 managers queried, 16 felt the relationships were generally structured as desired. This opinion was based on both an agreement that from the logistics services firm’s point of view and their perception of the shipper’s point of view the relationships were as desired.
Table 13

Ideal and Future Expectations

<table>
<thead>
<tr>
<th>Case</th>
<th>Rank</th>
<th>Interviewee as Desired</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CEO</td>
</tr>
<tr>
<td>A</td>
<td>13</td>
<td>CEO</td>
</tr>
<tr>
<td>B</td>
<td>39</td>
<td>CEO</td>
</tr>
<tr>
<td>C</td>
<td>41</td>
<td>CEO</td>
</tr>
<tr>
<td>D</td>
<td>50</td>
<td>CEO</td>
</tr>
<tr>
<td>E</td>
<td>99</td>
<td>CEO</td>
</tr>
<tr>
<td>F</td>
<td>104</td>
<td>CEO</td>
</tr>
<tr>
<td>G</td>
<td>145</td>
<td>CEO</td>
</tr>
<tr>
<td>H</td>
<td>160</td>
<td>CEO</td>
</tr>
<tr>
<td>I</td>
<td>180</td>
<td>CEO</td>
</tr>
<tr>
<td>J</td>
<td>195</td>
<td>CEO</td>
</tr>
</tbody>
</table>

In case I a specific desire was expressed for more sharing of benefits and burdens. In one other case, there was a strong desire for a long term contract, as the shipper represented over half of the warehouser's volume. Other than the desire for a contract, the warehouse managers were very pleased with the components of the relationship. This second case was deemed to have a relationship structured as
desired in the above table since the focus in this study was on the behavioral relationship not the legal relationship.

**Additional Case Study Findings**

The case study process produced a few additional findings beyond the range of the quantitative phase hypotheses. Of these, the most significant involved the size of the customer firm and a listing of other factors influencing the partnership building process.

**Size of the Customer's Firm**

The size of the customer's firm was included in the personal interview questions which explored the potential influencing factors. The results were not as clear as was desired due to a common confusion among respondent managers as to the size of the customer's firm and the size of the customer's account. When asked if the size of the customer was important, it was apparent in reviewing the wording of the answers that a number of managers referred to the size of the account, not the corporate size of the customer. This confusion resulted in only seven managers clearly responding to the intended question. Of these seven responses which did address the intended question, four felt that the size of the customer's firm would be influential and three felt that it would not. The four who felt that
size was important included one who offered this in the unprompted portion and three who responded in the prompted portion.

Unprompted Influencing Factors

The managers generally came up with influencing factors which were not included in the list of prompted factors. These unprompted influencing factors were a diverse group, and only a few were common to more than one firm. In the table below the influencing factors were listed along with the frequency of mention for each factor.
Table 14  
Frequency of Additional Influencing Factors  

<table>
<thead>
<tr>
<th>Influencing Factor</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTENTIAL CUSTOMER FIRM GROWTH</td>
<td>3</td>
</tr>
<tr>
<td>PRODUCTION SUPPORT</td>
<td>3</td>
</tr>
<tr>
<td>JUST IN TIME ENVIRONMENT</td>
<td>2</td>
</tr>
<tr>
<td>COMPATIBLE CULTURES</td>
<td>2</td>
</tr>
<tr>
<td>ENLIGHTENED COMPANIES</td>
<td>1</td>
</tr>
<tr>
<td>ABILITY TO TRUST EARLY</td>
<td>1</td>
</tr>
<tr>
<td>PERSONAL COMPATIBILITY</td>
<td>1</td>
</tr>
<tr>
<td>RECIPROCATION</td>
<td>1</td>
</tr>
<tr>
<td>WIN/WIN SITUATION POSSIBLE</td>
<td>1</td>
</tr>
<tr>
<td>STRATEGIC FIT</td>
<td>1</td>
</tr>
<tr>
<td>ENTRY INTO LINE OF TRADE</td>
<td>1</td>
</tr>
<tr>
<td>COMPLEMENTARY SEASONALITY</td>
<td>1</td>
</tr>
<tr>
<td>HIGHLY PROMOTED GOODS</td>
<td>1</td>
</tr>
<tr>
<td>HIGH CUSTOMER SERVICE REQUIREMENTS</td>
<td>1</td>
</tr>
<tr>
<td>ROUTINE AND ACTIVE ACCOUNT</td>
<td>1</td>
</tr>
<tr>
<td>EXCLUSIVE PROVIDER</td>
<td>1</td>
</tr>
<tr>
<td>CUSTOMER WITHOUT EXPERTISE</td>
<td>1</td>
</tr>
<tr>
<td>LABOR - REDUCE HEADCOUNT</td>
<td>1</td>
</tr>
<tr>
<td>LABOR - UNIONS</td>
<td>1</td>
</tr>
</tbody>
</table>

Only two factors were mentioned by three out of the 20 managers interviewed. Two additional factors were mentioned by two managers. The remaining factors were mentioned by one manager only. The production support issue was supported by the fact that all four of the high coalitional relationship firms were in production support while those firms in the middle and bottom groups were predominantly providing distribution services. The single low ranking firm providing strictly production support was in the barge business, providing service to an electric utility.

Some of the above influencing factors appeared to be reasonably related. An example would be corporate culture,
ability to trust early, personal compatibility and "enlightened companies". By enlightened companies, the senior manager who suggested this factor described them as those companies "who were looking to innovate and who were accepting creativity..." Another example would be win/win situations possible and reciprocation. The list could also be divided according to characteristics of the trade and characteristics of customer management style.

Other Findings from Case Studies

It became clear through the course of the interviews that the definition of partnership and the interpretation of each scale item varied significantly from firm to firm. This variability between firms was exemplified by the assertion that a partnership was present for the barge line providing coal transport to an electric utility as compared with the highest ranking relationship, the customized auto parts truck load carrier who totally integrated its operations with the customer's production needs. The lack of precision and meaning for the term partnership was also indicated by frequent requests for clarification or references to the manager's preferred term. On the other hand, each manager indicated the existence of various accounts within the firm with different degrees of partnership present.
Another finding from the case studies concerned the presence of balance in partnership commitment across the dyadic relationship. The concern here was with instances in which respondents indicated each dimension was or was not perceived and shared equally by both parties. For instance, in the case of one warehouser, there was an emphasis that operational controls needed to be implemented by both the warehouser on the customer's operations and the customer in respect to the warehouser's operations. This indicated possibilities for additional scale items which attempt to better measure the commitment of both sides to each dimension.

Another finding which may be of value to future researchers was the attitude of the managers contacted to the personal interview request. All of the managers contacted were extremely cooperative, as evidenced by not a single refusal for an interview. The only problems with arranging personal interviews were related to scheduling and availability of the desired individuals in the geographic area. Also, the companies did not appear to be at all reluctant to share details of the relationship given the assurance of confidentiality.
Summary of Case Study Results

The case study results presented above provide insights into the reliability and validity of the coalitional relationship scale. The results were specific enough to indicate potential difficulties such as misnaming of a dimension. In addition, the findings reported above offer insights into the influencing factors and the relationship between the ideal and actual status of partnership style relationships.

Summary of Data Analysis and Findings

The above findings covered the results from both phases of the research. The conclusions drawn from these findings are summarized and integrated in the next chapter.
Chapter V

SUMMARY AND CONCLUSIONS

Introduction

The previous four chapters presented, in turn, the research problem, a review of the literature, the methodology employed, and a detailed review of the results. In this, the final chapter, the results are summarized, conclusions are drawn and implications are explored. The greatest emphasis within this chapter is placed on the implications resulting from the research. This emphasis on implications was derived from the exploratory nature of the inquiry. The exploration of the role of partnership in logistics channels resulted in insights into a number of aspects of the uses and forms of partnership. Specifically, the exploration was intended to reveal a more detailed view of the uses and structure of partnerships within the context of suppliers of logistics services. The subjects of the research were transportation and warehousing firms.

In order to organize the discussion which follows, a normative model for partnership strategy was developed. The basic model is presented in Figure 8. The model would fit
into the corporate planning process at the point at which partnership strategies in general are being considered within the framework of the corporate planning cycle. Specifically, the model would enter at the point where alternative strategies are evaluated or executed.

This normative model was based on the basic management model which consists of specification of objectives, planning, implementation, and evaluation. The objective setting was presumed to occur in the overall corporate strategic planning process, outside the model. The model addressed planning in the partnership strategy choice and the influencing factors considerations, implementation in the partnership design step, and the evaluation in the two evaluation steps. A normative model was desirable for its ability to suggest actions for managers as well as provide a beginning point for future theoretical development.

Thus, the model consisted of considerations surrounding partnership strategy options, partnership choice parameters, partnership design elements, and evaluative components. This progression of concerns formed the framework for the discussion below.
Figure 8

A Normative Model of the Partnership Building Process
Summary

A brief summary of the results of both the quantitative phase and the qualitative phase is presented below. The research tested a five dimensional construct intended to describe the behavioral form of partnership style relationships. This construct was defined within the research as the coalitional relationship construct. Good evidence of the validity of this construct was provided through both quantitative and qualitative methods. Additionally, both theoretical and atheoretical influencing factors which might drive the formation of partnerships of the selection of specific partners were explored through both quantitative and qualitative means. These influencing factors were found to have varying amounts of relevance to the partnership building process and insights into the nature of the relationship with the partnership process were uncovered.

The summary of the research is organized as follows. First, an overview of the research is presented, including the research problem, the relevant literature base, and the research methodology. Next, a summary of the results is presented, including the overall results, the quantitative phase results, and the qualitative phase results.
Overview of Research

In order to provide an overview of the research, the research problem should first be reviewed. The research question, as presented in Chapter I, was in three parts. Restated, the three parts were 1.) can relationships be classified according to how coalitional they are using a multidimensional scale, 2.) what is the degree of partnership achieved in logistics services relationships and what trends might be present, and 3.) are there characteristics or influencing factors that are associated with the degree of coalitional relationship present? In more managerial terms, how are partnerships structured, what is the current status of partnership building in logistics channels and why and with whom should partnerships be formed?

Literature Base

The relevant literature which addressed these research questions centered around a number of sources. First, there was the relational contract literature. This literature was represented by Macniel (1978, 1981); Macaulay (1963); Palay (1984); and Noordewier, et. al. (1986). All of these studies have attempted to dimensionalize the behavioral form of the relationship of contracting parties as they range across the spectrum from discrete relationships to highly
interdependent and integrated relationships. Another source of theoretical development was from the transactions cost analysis literature. The central works of this literature are by Williamson (1975, 1978, 1981, 1985) or were derived from this work. The transaction cost analysis approach focused on three causes for vertical integration, specificity of assets, uncertainty, and frequency. These three drivers were derived from the twin assumptions of bounded rationality and opportunism. Finally, there is a literature base within the logistics area, including both academic and nonacademic sources. This literature was characterized by Lalonde, Cooper, and Noordewier (1988), Bowersox (1988) and articles on third party logistics systems and outsourcing as recent trends in logistics.

Research Methodology

The research methodology was chosen to match the exploratory nature of the study and the particular form of the research question. The exploratory nature of the study indicated the advantages of qualitative research, while the desire to produce a scale to quantify the coalitional relationship construct indicated a quantitative approach. The result was a combination of the two methods but not in the traditional order. In this study a quantitative phase was first completed then a qualitative phase to complement the quantitative analysis was completed. This arrangement
allowed for verification and elucidation of the quantitative phase results in a manner which offered more insights than either phase alone would have produced.

The quantitative phase involved a mail questionnaire of over 200 subjects divided between warehouse firms and transportation firms. The instrument included questions concerning coalitional relationship components and influencing factors. The coalitional relationship model as presented in Figure 9 was tested using 21 measured variables to capture five dimensions. The tool used in evaluating the model was confirmatory factor analysis. A specification search was employed to revise and improve the fit of the model. Using the result of the confirmatory factor analysis, the factor scores from the final model were combined into scores for each dimension. These were then combined into a coalitional relationship score. This score was then used to assess the amount of partnership present and ideally desired in the two subsamples. Finally, the coalitional scores were tested in a simple manner with each of the proposed influencing factors in order to search for relationships. These influencing factors were divided into two groups, those derived from the transaction cost literature and all others. These groups were referred to as the theoretical and atheoretical variables respectively.
Component Constructs

- Extendedness (EXT)
- Operational Information Exchange (OIE)
- Operating Controls (OCL)
- Sharing of Benefits and Burdens (SBB)
- Planning (PLN)

Central Construct

Coalitional Relationship

Figure 9

Summary of Coalitional Relationship Construct
The qualitative phase involved focused personal interviews with two managers from each of ten logistics services suppliers. Six were primarily warehouse firms and four were transportation firms. The interviews were done in person at the respondents' headquarters following the interview guide presented in Appendix B. The respondents were selected from the qualitative phase respondents according to a specific set of criteria. Four firms with high, two firms with medium and four firms with low coalitional scores were chosen for this phase. One senior executive and one operating manager were interviewed at each chosen firm. Transcripts of each interview were then prepared. From the transcripts and notes taken, a summary case study was produced. The ten case studies were then integrated to provide the quantitative phase findings.

Summary Results

The overall results of the hypothesis testing and the personal interviews indicated that the essence of the coalitional relationship construct was valid, that there is a trend toward more coalitional relationships in logistics services, and that the influencing factors were generally important. The following discussion expanded on these
results by first examining the results of the quantitative phase then the qualitative phase.

Quantitative phase

The quantitative phase addressed each of the three parts of the research question in turn. This phase began by examining the validity of the five factor construct of coalitional relationships. While the original 21 variable model did not give a very good fit, a 12 variable model derived by dropping nine measured variables did fit quite well, with a Bentler and Bonnet's rho of 0.93. The resultant model contained the same five factors hypothesized and each of the twelve measured variables loaded only on their respective hypothesized factors. Figure 5 contained the final model specification.

The factor scores were employed to produce a single quantification of the amount of partnership present. This measure, the coalitional score, was produced for both the actual ratings on the measured variables and for the ideal ratings. The results indicated that the typical respondent firm wished to increase the degree of partnership present in their relationship with their selected customer.

Finally, tests on the influencing factors were performed. These tests were limited to correlations and t-tests, and are summarized in Table 15. The results
indicated that the transaction cost based influencing factors were more likely to show a strong relationship. Also, there were some individual relationships which tested as significant. Notably, the presence of electronic data interchange for transportation firms and the frequency of shipments for warehousers were significant.

Strong and consistent correlations were obtained in relation to the specific investment independent variable across both contexts and for both ideal and actual dependent measures. Some support was obtained for the environmental risk independent variable, specifically with the warehouser's actual ratings. The strongest correlations were found with the actual ratings for uncertainty surrounding the relationship. These correlations were negative, opposite the hypothesized positive correlations.
Table 15
Summary Results for Hypotheses 5 through 40

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Actual Scores</th>
<th>Ideal Scores</th>
<th>Change Scores</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Warehousing</td>
<td>Transportation</td>
<td>Warehousing</td>
</tr>
<tr>
<td></td>
<td>H15</td>
<td>H17</td>
<td>H29</td>
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<td>H16</td>
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<td>H27</td>
<td>H38</td>
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<tr>
<td></td>
<td>H15</td>
<td>H28</td>
<td>H39</td>
</tr>
<tr>
<td></td>
<td>H16</td>
<td>H29</td>
<td>H40</td>
</tr>
</tbody>
</table>

[[ ]] Indicates the related null hypothesis was rejected. [[ ]] Strong results, but opposite the hypothesis
Qualitative Phase

The qualitative phase results confirmed the results of the quantitative phase and offered additional insights. In this phase the emphasis was on the elements of the coalitional relationship and the nature of the influencing factors. The qualitative phase results were summarized in Tables 16 and 17.
Table 16
Summary Results from Qualitative Phase:
Coalitional Relationship Construct

<table>
<thead>
<tr>
<th>Coalitional Relationship Component</th>
<th>Dimensional Assessment Matches Quantitative Phase Dimensional Assessment</th>
<th>Consistency Between Dimensional Assessment and Individual Measures of the Dimension</th>
<th>Anomalies Concerning Included and Excluded Variables</th>
<th>Dimensional Assessment Matches Coalitional Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extendedness</td>
<td>9 OF 10 CASES</td>
<td>11 OF 14 MANAGERS</td>
<td>NONE</td>
<td>7 OF 10 CASES</td>
</tr>
<tr>
<td>Operational Information Exchange</td>
<td>9 OF 10 CASES</td>
<td>7 OF 15 MANAGERS</td>
<td>NONE</td>
<td>7 OF 10 CASES</td>
</tr>
<tr>
<td>Operating Controls</td>
<td>9 OF 10 CASES</td>
<td>9 OF 14 MANAGERS</td>
<td>NONE</td>
<td>10 OF 10 CASES</td>
</tr>
<tr>
<td>Sharing of Benefits and Burdens</td>
<td>9 OF 10 CASES</td>
<td>15 OF 18 MANAGERS</td>
<td>NONE</td>
<td>8 OF 10 CASES</td>
</tr>
<tr>
<td>Planning</td>
<td>8 OF 10 CASES</td>
<td>13 OF 17 MANAGERS</td>
<td>ONE ¹</td>
<td>8 OF 10 CASES</td>
</tr>
</tbody>
</table>

Note: Figures in the table represent the number of consistent or matching observations out of the total for which comparison was possible.

¹ Communications related planning variables strongly contrasted with included variables in one case.
Table 17
Summary Results from Qualitative Phase

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Frequency of Agreement with Importance of the Influencing Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agreement</td>
</tr>
<tr>
<td>Environmental risk</td>
<td>14</td>
</tr>
<tr>
<td>Unsecured front end investment</td>
<td>10</td>
</tr>
<tr>
<td>Degree of uncertainty in the relationship</td>
<td>11</td>
</tr>
<tr>
<td>Amount of specific investment</td>
<td>13</td>
</tr>
<tr>
<td>Size of the respondent firm</td>
<td>12</td>
</tr>
<tr>
<td>Percentage of revenue the selected customer represents</td>
<td>15</td>
</tr>
<tr>
<td>Age of the respondent firm</td>
<td>8</td>
</tr>
<tr>
<td>Presence of an EDI project</td>
<td>9</td>
</tr>
<tr>
<td>Number of additional services offered</td>
<td>7</td>
</tr>
<tr>
<td>Length of customer relationship</td>
<td>6</td>
</tr>
<tr>
<td>Total shipments made quarterly</td>
<td>7</td>
</tr>
<tr>
<td>Line of trade of the selected customer</td>
<td>10</td>
</tr>
<tr>
<td>Size of the Customer Firm</td>
<td>4</td>
</tr>
</tbody>
</table>
The qualitative phase supported the results from the quantitative phase as they relate to the coalitional relationship model. The notable exception was in the finding of the lack of strong consistency between the managers' personal interview assessment of the operational information exchange as opposed to the individual elements of this dimension. This lack of consistency may indicate that the dimension is misnamed. In all of the other dimensions across the various tests, the results of the quantitative model were supported and support for the meaning of each dimension overall was provided.

The qualitative phase supported and expanded on the results from the quantitative phase as they relate to the influencing factors. The overwhelming agreement with the importance of the theoretical variables agrees with their generally stronger correlations with the coalitional relationship construct. For the atheoretical influencing factors, the agreement proportions varied more; however, all of the factors explored had more agreement than disagreement. The consistent agreement concerning the importance of these factors appeared to contradict the small correlations observed for some influencing factors. The reconciliation of these findings was through the varying explanations that various managers gave for the manner in which the influencing factor would operate. Different
managers had different relationships for many of the influencing factors that they considered important.

The qualitative phase allowed open-ended responses from respondent managers. This minimally structured format facilitated additional insights in other areas. Also, the managers were queried about the history of the relationship and the manner in which the relationship fit with regard to the firm's strategic planning. These questions also facilitated additional insights into areas not expressly covered in the hypothesis testing portion of the research.

Conclusions

The conclusions drawn from this research are presented below. The conclusions are organized according to the steps in the normative model in Figure 10. Conclusions resulting from the quantitative phase and the qualitative phase were integrated in this discussion. Except where noted, the conclusions relate to both subsamples, transportation and warehouse firms.
Figure 10

A Normative Model of the
Conclusions Concerning Strategy

The conclusions drawn concerning strategy were derived from the questions regarding the history of the relationship and the relationship's fit with the firm's overall strategy as well as additional comments made in the qualitative phase.

For all but a small number of managers, the position of partnership style relationships within the overall corporate strategy did not appear to be explicit. Only three managers in two firms explicitly indicated a partnership based overall strategy. In the strategy described by both the warehouse firm and the transportation firm with the partnership based strategy, only a limited number of total customers were sought, but ideally the firm would build strong partnerships with each customer. This strategy specifically acknowledged the managerial talent drain a strong partnership would require.

For all of the other firms there appeared to be an omission of strategic planning relating to partnership. For the managers in these firms there was typically a sentiment that partnerships evolve. Deliberate planning at the outset to build a partnership did not appear to be the norm. This is not to say that as a partnership began to grow that little thought was given to enhancing the relationship. What appeared to be lacking was an explicit rationale for
why this customer would be the right partnership choice as opposed to other candidates or an attitude that only a limited number of partnership style relationships were possible for a firm with a finite amount of managerial resources.

For one firm in the qualitative phase a true strategic alliance appeared to have evolved. This relationship seemed to have the basic attributes of a strategic alliance as proposed by Bowersox (1988). The only thing lacking was an intentional and planned evolution of the relationship.

**Conclusions Concerning Choice Influencers**

The influencing factors in the partnership building process all received some degree of support from the research. In this exploratory research both quantitative and qualitative methods were used, allowing potential conflicts between the findings across the two methods. In the case of conflict, any meaningful results were considered important, both statistical significance and the views of managers in the interviews. The two methods focused on the same issues, but the qualitative phase generally allowed broader range of thought and interpretation. For instance, while the importance of an influencing factor was the focus of the qualitative questioning, in the quantitative phase a single measure of the influencing factor was tested and only
one possible functional relationship was tested. Thus, conflicts could be expected. Where the two methods agree, a degree of confirmation was possible. The discussion below first focuses on the theoretical influencing factors, then on the atheoretical factors.

For the theoretical factors deriving from the transaction cost perspective the specific investment measure resulted in strong evidence of an association with coalitional relationship building. For environmental risk the strongest support came from the qualitative phase. Only one of the managers interviewed did not see this an an important issue, however, only one of the four quantitative tests was significant. The other two measures, unsecured front end investment and uncertainty surrounding the relationship offered unexpected results. An inverse relationship was present between coalitional relationships and uncertainty surrounding the relationship for the actual scores. The quantitative phase indicated that there was little or no correlation between unsecured investment and coalitional relationship scores. This contrasted with consistent significance for the specific investment measure. The reasonable conclusion drawn is that there is a meaningful distinction between specificity of assets as compared to simply assets at risk within these industries, as Williamson's model would indicate. The overt specific asset measure would then be a better measure of the
transaction cost driver, and the unsecured front end investment measure may include along with the specific assets some relatively redeployable assets not considered relevant in transaction cost theory.

The issue of the role of uncertainty surrounding the relationship was the reverse of the expectations for actual scores. The unexpected results may have been due to the measure picking up both internal and external uncertainty. External uncertainties have been the focus as used in transaction cost analysis theory (Williamson, 1985, pp. 58-59).

For the atheoretical influencing factors, all of the influencing factors received some support, primarily from the qualitative phase. Some factors were clearly more important than others. The importance of an electronic data interchange capability was borne out in both the phases, in the quantitative phase for the transportation subsample, and in the qualitative phase for both subsamples. From the quantitative phase, the importance of frequency of shipments was supported, at least for the warehousers. From the qualitative phase the greatest support came for percent of revenue the selected customer represented, length of time in business, number of additional services, and the size of the respondent firm. All of these influencing factors received 80% or more supporting responses from the interviewees. The
remaining influencing factors, length of customer relationship, line of trade, frequency of shipments and size of the customer firm received a majority of support from the interviewees, though most were not significant quantitatively.

The influencing factors associated with the greatest amounts of divergence between actual and ideal positioning would be of note to practitioners. For warehousers, the significant correlations between change scores and the following influencing factors were related with uncertainty surrounding the relationship and length of the relationship. Longer relationships reduced the difference between actual and ideal evaluations, while the uncertainty surrounding the relationship increased the differences. For carriers, there were two influencing factors which were related to change scores. Specific investment tended to be associated with lower differences between actual and ideal ratings and the presence of electronic data interchange projects also tended to reduce the differences.

Conclusions Concerning Partnership Design

The conclusions concerning partnership design centered around the coalitional relationship construct, but also included additional components. The coalitional relationship construct was intended to capture the
continuing behavioral components of the relationship, while there were structural components such as contractual arrangements, financial arrangements, volume and range of services, and other considerations which would also be related to partnership design. The discussion of the conclusions drawn concerning partnership design factors begins with the coalitional relationship construct, followed by a discussion of conclusions concerning the other design components.

Conclusions Relating to the Coalitional Relationship Construct

The coalitional relationship construct does appear to be a five dimensional construct as depicted in Figure 9. The evidence of both phases concur, together offering some evidence of the validity and reliability of this summary model. The only change from the hypothesized model was the modification of the name of the operational information exchange dimension to reflect the operational systems focus of the measured variables which comprised this dimension after the specification search. The need for this change was supported by the qualitative phase results. The interviewed managers saw the dimensions as meaningful and applicable in the partnership building process when placed in the context of a specific customer relationship.
Conclusions Relating to Other Design Factors

In addition to the behavioral style of the relationship, the managers interviewed in the qualitative phase expressed strong concerns in other areas of partnership design. These concerns focused on the existence or the nature of contracts, the volume of business, the types of services required, the existence of operating synergies, and the degree and style of financial integration. Conclusions relating to each of these were presented in turn.

A consistent and central issue in most of the managers' thinking about partnership style relationships concerned the contractual overlay or the lack of a contract. The public warehouse managers generally lamented the lack of a long term contract, even with what they felt were customers with highly coalitional relationships. One transportation firm which apparently had successfully used partnership in its strategic planning cited the key role of a long term contract in designing partnerships with new customers.

The volume of sales generated by the customer also appeared to figure strongly in the planning of the relationship. Managers generally saw both a floor and a ceiling effect relating to volume of business, as well as a desire to plan at the outset for the variations in volume.
The range of logistics services required was also a concern in designing a partnership. Generally, the logistics suppliers had developed what they felt were relatively unique mixes of services, and a partnership which either best utilized the existing mix, or supported expansion of the mix was most desirable. The need for careful planning of the functions to be carried out by the customer and those functions to be carried out by the logistics service firm was also reported as an important component of a well designed partnership.

A number of the managers indicated they were specifically looking for operating synergies in developing partnerships. Examples of this were matching or complementary seasonality of business, shared expertise, and matching geographic focus. Exploitation of these factors would likely require attention at the design stage of the partnership building process.

Finally, a number of managers indicated that an element of partnership was the provision of financial integration between the parties. An example of this was the provision of long term warehousing contracts tied to specialized equipment such as atmosphere controlled refrigerated space.
Conclusions Concerning Evaluation of Partnership

The next component of the normative model was the evaluation of the partnership. In the interviews there was a lack of indication that any of the respondents used any form of formal evaluation to assess the success or failure in meeting goals in terms of the nature of the relationship established. There was both a lack of reported evaluations and a lack of structure for evaluation.

Conclusions Concerning Evaluation of Partnership Strategy

As with the case of individual partnership evaluations, there was a parallel lack of evaluation of partnership strategy. No firm reported a systematic or structured evaluation of the success or failure of the overall partnership strategy adopted.

Summary of Conclusions

This exploratory research offered conclusions concerning a wide range of elements surrounding the use of partnership in the logistics services industry. Conclusions were drawn concerning each stage of the normative model presented, with special attention to the choice parameters and the design elements for partnership building.
Implications

The discussion of the implications drawn from the research were structured using a more detailed version of the normative partnership building model presented above. This model was presented in Figure 10. By focusing on a normative model, the discussion offered both implications with immediate use for practitioners and guidance for further model building by academicians.

The detailed normative model included specific components for each step in the five stage partnership building process. The overall use of the model and the meaning and implications to be drawn from the components are discussed below.

The purpose of normative model was to guide practitioners in the planning process as it related to partnership building. An overall corporate planning process would examine the larger perspective and feed into the partnership building model. This larger perspective would include the choices of overall strategy, of which following a partnership strategy would be one. Likely alternative strategies would be to vertically integrate, merge with other organizations, diversify, and so forth. In the case of vertical integration, partnership building strategies would likely be a more direct alternative. From the conclusions in this study along with the combined
transaction cost and relational contract literature a view emerged of a spectrum of partnership alternatives which offer some of the advantages of vertical integration without all of the ownership responsibilities. The view of the normative model as a component of a larger corporate planning process is important in placing the model in perspective.

Description of Normative Model

The normative model was derived from a typical planning process. In this case the process would begin after the overall goals for the partnership building strategy have been set. These goals would first drive the choice of alternative strategies with respect to partnership. One alternative would be the strategic alliance approach. This approach would severely limit the number of partnerships built and increase the importance of each. Another alternative would involve the development of partnership style relationships with a larger, but still limited number of customers or suppliers. In this strategy the strategic importance of any one relationship is diminished. Developing all relationships as "arms-length" or discrete relationships would be another option. This option would minimize the strategic implications for any given account, and provide the most flexibility to the firm.
The next step in the process would be the choice of partners. This step would necessarily involve many choice parameters. The most important parameters are included in the influencing factors list. These factors are those which this study indicated would be most influential. Included in these influencing factors are the basic transaction cost variables, specific assets, and environmental uncertainty. These were the most consistently important factors in choosing a partnership candidate both from a quantitative and a qualitative assessment. A number of other important influencing factors were also included. What was clear from the research was that there are many factors that some managers felt were important. It, therefore, was difficult to distinguish which to include and which to group under the "other" category.

The next step in the process would be the design of the partnership. Here, the coalitional relationship model would provide clear guidance on the issue of the behavioral components of the relationship. In addition to the five dimensions of the coalitional relationship model, there would be other components to be considered in the design stage. The qualitative phase indicated five of these would clearly be appropriate for consideration. Contractual overlay, volume of business, range of services, operational synergies, and financial integration would all be additional
questions relating to the manner in which the relationship would be structured.

No management process would be complete without an evaluation component. In this model there were two distinct evaluation components. First, the partnership or partnerships would need to be evaluated. This would occur at two levels, one which would focus on the overall outcome of the partnership and another which would examine the design components individually. Finally, the overall partnership strategy would need to be evaluated in terms of long term fulfillment of corporate objectives. The results of these two evaluation steps would then feed back into the appropriate levels of the planning process.

The discussion which follows will examine the implications of this model and the research with respect to logistics service providers and academicians respectively.

Implications for Logistics Service Suppliers

Implications of this model for logistics service suppliers derived from each stage of the planning process outlined in the model, as well as from the overall model. The overall model developed a structure for choosing to implement a partnership strategy. This view of partnership strategies as a portion of the corporate planning process would be an improvement over the evolutionary or chance
nature of the development of partnerships as seen from the personal interviews. The importance of the examination of the role of partnership by managers was underscored by the findings that the ideal trend perceived by managers is toward more coalitional relationships.

**Strategic Choices**

The indications of three distinct alternative strategies from the qualitative phase implied that a basic choice of how to use partnerships must be made early in the planning cycle. The strategic alliance strategy would be indicated if large reductions in environmental risk, or large investments in specific assets were required in relation to a very few accounts in order to meet growth or other corporate goals. Alternatively, if smaller improvements in these influencing factors could be achieved across a larger number of accounts, a partnership style relationship strategy could be pursued. For instance, the strategic alliance strategy would be indicated if a warehouser had a large base of customers that are served in a traditional manner and a nearby customer with a large production facility who would benefit from a customized, dedicated warehouse facility near the plant. The producer and the warehouser might be ideally suited to development of a strategic alliance.
A partnership style strategy would entail a limit on the number of customers sought along with a strong commitment by management to building a highly coalitional relationship with each customer. In this strategy the number of customers is limited by top management's ability to be involved with virtually every relationship, and the ability of operations to maintain the flexibility and responsiveness to each customer. A likely limit on the number of customers in this strategy would be from the high teens to the low twenties. As an example, this strategy would be appropriate for a small contract warehousing firm which would deploy highly idiosyncratic management teams for each customer, but who wished not to become overly dependent on a very small number of customers. Another example would be a small truckload carrier who could identify a small group of potential customers who could benefit from a specialized style of equipment.

Another partnership strategy is to choose not to attempt to build any partnerships. This is referred to in the model as the all discrete relationship alternative. This alternative would be indicated if the firm faces large numbers of customers which can be served by a single set of equipment, procedures, services, and so forth. Also, the environmental risk related to this set of customers would need to be able to be mitigated by the large number of customers. For example, an unspecialized less than truck
load carrier with a large customer base composed of many different industries might reasonably adopt or continue this strategy.

Indications of each strategy were observed in the qualitative phase of the research. There may be other strategies, or some combination of these strategies may be possible.

Choice of Partnership Candidates

A number of factors would influence the choice of a partner once a basic partnership strategy is chosen. First, the implications involving the theoretical influencing factors will be discussed. Next, the implications involving the atheoretical factors will be discussed.

The results relating to the four influencing factors which were related to transaction cost theory yield a number of implications. The two factors which appear to be the strongest influencers of a partnership choice across both the theoretical and atheoretical factors are environmental risk and specific assets. These two factors should be central in the choice process. The questions to be asked would involve 1.) whether risks are present which could be mitigated through close cooperation with the potential partner, 2.) whether large specific assets would need to be deployed, and 3.) whether enough security could be obtained
through partnership to justify the deployment of specific assets. Regarding the uncertainty surrounding the relationship, there would likely be two ways the factor would operate. First, an excess of uncertainty at the outset would likely discourage partnership building. On the other hand, there would be a likely reduction of that component of uncertainty which emanates from the actions of either party as the partnership matures. This reduction would be the result of the close and continuing cooperation needed to ensure the success of the partnership. The existence of unsecured assets alone is not sufficient motivation to pursue a partnership. The unsecured assets must have some specificity to the relationship. There must be significant costs to redeploying the assets to other accounts in order for this factor to influence the choice of partners.

The atheoretical factors which were revealed as most important were also included in the normative model. The first consideration is the potential size of the account. The account must represent an appreciable portion of the firm's overall business to be a candidate for partnership. This said, there can be no numeric guideline, that what would be a large share for a less than truckload carrier with a large customer base would be very different from a large share for a contract warehousing firm with a much smaller customer base.
There should be a service mix match between the needs of the potential partner and the current or planned offerings of the supplier. The ability of the partnership to support the expansion of the service mix of the logistics service provider would be an important consideration in choosing a partner prospect. Similarly, there would be an advantage to a partnership which would provide a base demand for an otherwise underutilized service that the supplier sees as strategic for the future.

A match in the electronic data interchange capabilities and needs across the potential partnership would also offer a more attractive partnership prospect. Again this could be current capabilities or planned and desirable capabilities.

The respective firm sizes should be compatible. The definition of compatible here would be difficult, however. For some management teams, the test of compatibility would be a reasonable match in relative sizes. For others the goal would be to align with the largest firms, as these may offer the most growth potential. A successful partnership with one division within a huge corporation could offer openings into many diverse divisions. Another firm size consideration that may be exploited is to choose partnerships with small but potentially fast growing customers.
A significant history with the customer would be an important choice parameter for those management teams that feel that partnership building should be an evolutionary process. Similarly, a lack of history with a customer could be an opening for those firms that feel that a partnership can be designed and implemented with a new customer. This willingness to build a partnership from a zero base could offer a strategic advantage over the more conservative firms that demand an evolution to partnership style relationships.

A compatible line of trade would be required for successful partnership building. Many logistics service firms become expert in the idiosyncratic needs of one or more specific lines of trade. This specialization or desired specialization should enter into the choice of partners. A partner choice might be driven by the desire to insure a customer base in a particular line of trade or by the desire to enter into a new line of trade.

The frequency of transaction would also be a consideration in choosing a partner. The efficiencies gained through partnership would potentially be exploited in each transaction. If overhead costs of designing and implementing a partnership were also spread over more transactions, then the net return from the partnership would be larger. Additionally, there is a potential that a reduction in the number of individual transactions would be
a result of the partnership efforts. For example, by integrating scheduling systems, more full load shipments might be possible than through a discrete relationship.

The existence of compatible cultures across the potential partnership firms would also be important in the partnership choice process. While all other factors might indicate a successful partnership is possible, corporate culture clashes could negate the efforts invested in partnership building. This would be a difficult factor to assess in a new account, however.

There were other considerations reported by the managers in the qualitative phase. These additional considerations were grouped under the "other" factor in the normative model. These would likely be less important than those included above and would likely be idiosyncratic to specific management teams and situations.

**Partnership Design Elements**

In the normative model the components of a partnership consisted of two types, coalitional relationship components and other components. The coalitional relationship components represented the focus of the quantitative phase of the study. The coalitional relationship aspects of the partnership should be used to define the style of interaction that would characterize the relationship. Other
components would define the context in which the partnership would operate. The contractual overlay, the volume and services expected, the explicit definition of synergies to be sought, and financial integration would all be components distinct from the coalitional relationship design factors. A discussion of the two types of components was presented in turn below.

Coalitional relationship design elements

There were five dimensions to the coalitional relationship aspect of partnership design. Each dimension may be treated as reasonably independent from the others, and each should contribute to the overall strength of a partnership. The normative model coalitional relationship design components would be most useful in insuring that the entire spectrum of potential contribution to partnership would be considered. Also, for each component, specific implications were drawn. These are considered in turn below.

The importance of an extended viewpoint by both parties would be crucial to the success of a partnership. Efforts to build loyalty, demonstrate a focus on future transactions, and instill long term perspectives are all important components of the extendedness component. Since loyalty generally is demonstrated by a long term pattern of
behavior, early efforts to demonstrate loyalty would be critical to developing a partnership with a new customer. These efforts could include such things as contractual guarantees, early displays of flexibility, and explicit enumeration of shared goals within each party’s self interest.

The implementation of systematized operational information exchange would be another important component of a successful partnership. This component enhances the ability to minimize environmental risks for both parties. By instituting systematic operational information exchange practices such as electronic data interchange, compatible software between systems, and other means of smoothing and speeding recurring information exchanges, both parties should gain in speed and accuracy of response to environmental changes. In addition, both parties may be able to reduce personnel requirements in this area.

The provision for operating controls would also be important in this design process. The provision for both parties to monitor the other’s operations to insure maximum total system performance should offer long term benefits to both parties. The resulting emphasis on building quality into the process rather than inspecting defects out should make both parties’ operations more efficient. All areas of operations relevant to the relationship should be open to
monitoring. To this end, information flows pertaining to operations might include fleet or space utilization reports, shipment flow analyses and tracking reports, and other process related reports. The exchange of this information along with exchange of personal inspections would all contribute to better operating controls across the partnership boundaries.

An attitude that sharing of benefits and burdens would be more appropriate than sharply dividing benefits and burdens would be another important component of a partnership style of relationship. This attitude should be quickly demonstrated by meaningful actions. The sharing attitude would reduce the need to define exactly how each contingency should be handled in the face of a risky environment and would help ensure neither side would try to exploit the existence of specific assets. The partnership style relationship should be characterized by a mutual willingness to carry short term burdens originating from the opposite partner, a view of environmental risks as being shared, and a strong belief in negotiation as the means of resolving conflict.

Finally, planning would be critical in building a strong partnership. This commitment to planning would extend beyond the initial design phase when its importance could not be ignored to extend across the history of the
relationship. Thus, planning would be a continuous commitment by both parties. Planning was seen to have two important considerations. One would be communications and the other would be content. Strong communication links between customer and supplier would enhance any business relationship, and a partnership is no different in this respect. The organizational depth, breadth, and frequency of communications should all be considered in building the partnership. It was in the area of content of the communications that a partnership was most clearly distinguished. Mutual studies of operations, exchange of technical information, and formal planning bodies would all indicate the longer term, more process oriented planning was built into the relationship.

Other components

Other components of the design of successful partnership would include the contractual overlay, any financial integration considerations, the volume of business, the range of services required, and any specific operating synergies. These components are treated in turn below.

The most important component outside of the coalitional relationship sphere would be the contractual environment in which the partnership exists. For partnerships that evolve
over an extended period of time this consideration would be less important. For those partnerships designed by firms that have previously done little or no business together the provision of a long term contract outlining the basics of the expected relationship would be valuable component. In designing the contractual overlay, firms should not be bound by the traditional contracts for their respective logistics services. For example, the traditional thirty day contract in public warehousing would not likely be a good guide for building a contract to complement partnership. Similarly, if a partnership’s expected results would include a growing savings in overall logistics costs, this expected change in cost structure could form the basis for a creative revenue structure in the contract. For instance a guaranteed reduction in prices over a specified period tied to an inflation indexing of various input resources could offer a contractual reinforcement of the sharing of benefits and burdens dimension of the coalitional relationship construct. Similarly, other elements of the coalitional relationship construct could be reinforced through the language of the contract.

Financial integration mechanisms would be another important component of partnership building. Such financial mechanisms as contractually guaranteed volumes of business, leaseback arrangements, shared investments, and direct tapered integration could all enhance partnerships. As the
degree of specific asset investments required by the relationship grow, these mechanisms obviously would become more important.

The volume of business and the range of services required would need to be specified early in the partnership design process. In particular, there would need to be a very candid view of the likely swings in demand and a clear disclosure and assessment of the potential errors in these estimates on the part of the customer. It would be the supplier’s responsibility to clearly indicate the capacities and flexibility available to the customer in this design stage. Similarly, both parties would need to clearly specify the range and mix of services involved and the potential for error in these expectations.

Finally, any anticipated operating synergies available through the organization should be made explicit by both parties. This should help focus planning and evaluation efforts on developing and measuring progress in achieving the synergies.

**Partnership evaluation**

Evaluation of the partnership should be accomplished on two levels. First, the outcomes of the partnership should be evaluated by both parties. The expected savings, either in costs or managerial effort, along with improvements in
customer service levels would need to be evaluated periodically. At another level, the individual components should be examined for their contributions to the overall partnership. These could be separated into an audit of the coalitional relationship components and an examination of the other components. This evaluation of partnership should occur fairly frequently. An annual audit of each partnership would likely be a reasonable time frame.

Evaluation of Partnership Strategy

The last step in the normative model was included to emphasize the need for a periodic evaluation of the overall partnership strategy and its impact on overall corporate goal achievement. This step would be important in reviewing the outcome not of individual partnerships, but of the sum of the strategic alliances and/or partnership style relationships taken together over a longer time frame. This evaluation process would likely reflect a longer planning cycle than evaluation of individual partnerships. This evaluation would occur at multiple year intervals to be most effective.

The five step normative model can be seen to have many implications for practitioners, as outlined above. The majority of these implications are drawn from the qualitative phase, and therefore represent very small sample
results. Thus, many of the implications drawn must be tempered by managerial judgment until verified in future studies. The implications relating to the transactions cost influencing factors and the coalitional relationship components were supported by both the qualitative and quantitative phases of the research. These implications should therefore carry more weight in the practitioner's evaluation of the usefulness of the related implications.

Implications for Theory

As with the implications for logistics services suppliers above, there were a number of implications resulting from the research concerning theory. The discussion of these implications can also be organized using the normative model presented above.

First, there are theoretical implications concerning choice of a partnership strategy. The research offered case based support for a number of the elements of strategic alliance as proposed by Shapiro (1985), Bowersox (1988), and Johnson and Lawrance (1988). The limited number of partnerships possible, the strategic importance of each partnership, and the involvement by top management were all specifically supported. However, the alternative strategy of building a larger number of partnership style relationships was shown to be a consideration in any attempt
to theorize in the area of overall partnership strategies. This strategy could be a case of using the concepts of national accounts and systems selling in a specific partnership based strategy. The appearance in the qualitative phase of two distinct strategic alternatives implies that defining and parameterizing strategic alliances or value added partnerships is not sufficient. Another class of partnership relationships would likely be necessary. Details of how this alternative use of partnership would perform over time, and the entire set of parameters which would drive the choice of this alternative need to be developed.

Next, with respect to the choice parameters of partnership building there were a number of implications to be drawn. These implications centered around the transactions cost analysis theory of Williamson (1975, 1979, 1981, 1985). The research offered substantial support for the importance of the transaction cost variables in the spectrum of business to business relationships lying between total vertical integration and totally discrete business transactions. Further, the research reinforced the view of uncertainty as a complex multidimensional factor in its influence on this spectrum of choices. Specifically, the usefulness of Archol and Stern's (1988) analysis of components of environmental uncertainty was supported. While Archol and Stern's work dimensionalizes uncertainty
surrounding the relationship from without, more may be needed. In particular, the uncertainty within the relationship was seen to be a complex variable with a likely threshold effect and an inverse relationship with the degree of partnership developed.

For quantitative modelers of the choice parameters driving partnership building, the task was demonstrated to be very difficult. If a number of variables need to have multiple coefficients to reflect the various groups of managers with conflicting viewpoints on the relationships among the variables, then the first task to be accomplished would be to identify the relevant segments. Unfortunately, this study offers no insights as to how to classify managers or firms with varying response functions. The lack of correlations for a number of variables which a majority of managers felt were important reinforces the belief that simple relationships are not likely to be useful in modeling the relationship of atheoretical influencing factors to measures of partnership achieved.

The coalitional relationship construct was supported through both quantitative and qualitative means, lending important empirical evidence to the validity of the relational contract school of thought. However, the fact that this operationalization of the basic concept used a hybrid of dimensions from a number of sources yet came up
with a well supported model indicated either 1.) that relational contract theory is very robust, 2.) this operationalization was fortuitous, or 3.) the dimensions are relatively context specific. Taking an optimistic perspective, the most likely implication of the above was considered to be the first.

The confirmatory factor analysis suggested a five dimensional model which could be captured with a twelve item scale. In terms of reliability and validity, an area of concern was the lack of isomorphism between the conceptualization and operationalization of two of the dimensions of coalitional relationships: operating controls and operational information exchange. In the case of operating controls, the conceptual definition referred to the monitoring actions undertaken by both parties. That is, the construct was defined in terms of controls which flow bilaterally. However, the a priori specified measures, "customer monitors all handling/routing methods," "customer requires accurate shipment tracking ability," and "customer requires frequent fleet status reports" all reflected controls undertaken by the customer. Thus, the operationalization failed to capture the two way flow inherent in coalitional relationships. In the case of operational information exchange, two of the three proposed measures concerned hardware or software which would be used to facilitate information exchange, not the exchange of
information itself. In the final model, the item measuring actual exchange of information was dropped. Thus, the retained measures did not measure information exchange.

Specifically, a strong case was made for a five dimensional model which could be captured with a 12 item scale. There were two pairs of measures which attempted to capture the commitment to the partnership in both directions. These measures concerned mutual willingness to help and to study the operations of the partner. In both cases only one direction was retained in the final model. This does not, however, imply that the true relationship is one way. It is most likely that this reflects a reluctance on the part of the interviewees to admit to not helping and studying all customers. A likely outcome of a survey of customers would reveal the opposite affect, with shippers indicating themselves to be very willing to help carriers. These self perceptions would have the effect of rendering opposite measures effective in distinguishing partnership style relationships depending on the perspective sampled. The total picture of partnerships should emerge when dyadic studies which match responses for both sides of the partnership are completed.

Aside from examining the balanced commitment to each dimension by both the parties through dyadic studies, more could be done to choose measures for either party which
capture the commitments of both parties. Each of the dimensions as defined in Appendix A reflected a mutual commitment. Additional measures such as "carrier monitors shipper's operations to maximize total efficiency" should be considered to capture the two way nature of the operating controls dimension, as an example. Additional measures for both extendedness and systemized operational information exchange should also be possible.

Suggestions for Future Research

The primary need in the areas of strategic alliance, transactions cost analysis, and relational contracting streams of research is for empirical studies to verify the theories and constructs currently proposed. In the process, incremental refinements should be possible in the form of clarifying the latent variables. Additionally, the extent of the domain for these concepts and theories, the usefulness in an applied sense and additional indications of reliability and validity are needed. In addressing these areas the following possibilities for study present themselves.

Dyadic studies

There is a need to study the perceptions of these phenomena on both sides of the buyer/seller dyad. In this
respect, a study which solicited matched pairs of responses from both buyer and seller of logistics services would be extremely useful. This could include both the coalitional relationship construct and the transaction cost components. Examining the atheoretical influencing factors on both sides would also help sort out the lack of consistency between quantitative and qualitative phase results in the current study.

**Broader spectrum of customers**

In order to verify the scale for other than core customers, the spectrum of customers should be expanded. This should be more feasible since the indicated number of measured variables to evaluate one relationship has been reduced to 12. Thus, a core customer and a marginal customer could both be assessed with approximately the same effort as a single customer with the original 21 variable scale. Additionally, other classes of logistics service firms could be tested using a modification of the current scale to extend the domain of the coalitional relationship construct.

**Longitudinal case studies**

An area of difficult but potentially valuable research would involve tracking the development, maturity and demise
of partnerships over time. It might be possible to use the data set developed in this study to track the relationships which were reported here over a period of years. The generation of a history of partnership evolution would give insights into the dynamics of growth and demise of this style of relationship.

Transaction Cost Studies

The implications for future research in transaction cost studies lies mainly in the need to create a complex operationalization of uncertainty and risk to evaluate the validity of the transaction costs approach to the understanding of vertical integration. Additionally, the variables need to be tested simultaneously using more sophisticated techniques than the simple correlations used in this study. As a starting point, an exploratory effort using the same data as were used in the current study could be the pilot for a multivariate analysis. This analysis would use the actual coalitional scores as the dependent variables and the three relevant theoretical independent variable measures as the independent variables. This would necessarily be very exploratory, as the results from analysis of the same data set would be used to structure the model.
Another potential for transaction costs research would be to verify the assumptions behind the logic which supports the three key variables. The assumptions entail the presence of bounded rationality and opportunism. The existence of these drivers of transaction cost phenomena could be directly measured.

Coalitional Relationship Studies

In the area of extending and validating the coalitional relationship construct as proposed in this research, a number of areas would be fruitful for further research. Testing alternative formulations for the dimensions for this construct would help define the rigidity of the construct. The significant restructuring of the dimensions from Noordewier, et. al. (1986) begins to suggest the existence of flexibility. Another important area for extension of the current work would entail separately measuring the overall amount of partnership present via a multiple item scale. This independent measure of partnership would allow estimation of the path coefficients for the connections between the individual dimensions and the coalitional relationship latent construct. This extension would allow for direct quantitative comparisons of the contributions of the individual dimensions to the overall partnership. In addition to weightings for the measured variables for their
contribution to the dimensions, there would be weightings for the individual contributions of the dimensions.

**Summary**

In summary, the original goals of the research were largely met. The study attempted to modify the relational contract measurement paradigm to fit the needs of the study of partnerships in the logistics service industry. This portion of the study succeeded in developing a 12 item scale for measuring what were termed coalitional relationships. The study attempted to compare the current state of partnership in this domain with the ideal state. This objective was also met. Finally, the study attempted to identify and explore both some theoretical influencing factors and some atheoretical influencing factors. This, too, was accomplished, yielding a number of pertinent observations as well as many areas for future inquiry. Finally, the sum of the results were integrated into a normative model of the partnership building process. A notable aspect of this research was the integration of the quantitative and the qualitative methodologies. A sophisticated multivariate modeling technique was combined with simple correlations on the one hand and with case study analysis on the other. The complementary nature of the two approaches was exploited to enhance the normative model which resulted.
Appendix A - Definitions
Appendix A - Definitions

Coalitional Relationships - relationships which attempt to both manage risk *ex ante* and share risk *ex post* through an extended, planned interdependence of dyadic transaction partners.

Discrete Relationships - relationships which have sharp beginnings and ends and sharp divisions of duties and rewards. Individual market transactions.

Extendedness - the extent to which a dyadic relationship is characterized by long term, open-ended, continuous exchanges.

Operating Information Exchange - the exchange of information for operational purposes as opposed to planning purposes.

Planning - the development of strategies and methods for facilitating the exchange process and dealing with the dynamics of the environment.

Operating Controls - methods of implementing and verifying planned exchange processes.

Sharing of Benefits and Burdens - the willingness to take short term losses (or gain) with future expectation of compensation, as opposed to dividing *ex ante* all benefits and burdens in a discrete and formalized sense.
Appendix B - Protocol Phase Interview Guides
CONTACT AND SOLICITATION

Hello, _____. I'm John Gardner. I am a researcher with the Ohio State University team doing the customer service research project for the Council of Logistics Management. You should have received a letter from Dr. La Londe outlining the research we are conducting. I would like to do some personal in-depth interviews to follow up on last summer's survey. We found some interesting results so far in analyzing the returns. In return for helping in this final phase of the research, you will be sent an executive summary of the final results and after the interview we can discuss how your responses fit with the preliminary results for the industry, if you wish.

I'm hoping you can assist me in this research. This additional interview will take approximately one hour of your time, and will be conducted in person. In addition, I would like to speak with [the CEO, an operations manager], also for an hour.

This information will be kept confidential, and is needed to validate the results of the large sample survey. Only a select few respondents were chosen for this portion of the study. To be useful and valid, it is important that those few contacted actually participate in this follow up.

Can you help in this research? Y N

What is the name and position of your [CEO, operations manager] ____________________________ _________________________________

Should I contact [him, her] or would you like to broach the request yourself? I'll call [him, her] __________________ (day and time).

I would like to schedule both interviews for some time [in the next *** weeks]. Why don't we make a tentative date now, and I'll confirm it after talking with the _____________.

CEO

Name ____________________________ ____________________________

Time ____________________________ ____________________________

Place ____________________________ ____________________________

Directions ____________________________ ____________________________

Operations mgr.

Name ____________________________ ____________________________

Time ____________________________ ____________________________

Place ____________________________ ____________________________

Directions ____________________________ ____________________________
Interview Guide - Carriers
FOR BOTH SENIOR EXECUTIVE AND OPERATIONAL MANAGER INTERVIEW

Introduction

I have a number of questions to ask concerning the type of relationships which carriers have with their customers. In particular, I am interested in strong relationships or partnerships which may develop between logistical service suppliers and their customers. I would like to record the interview for later review. The answers will be kept confidential. To assure confidentiality, all references to the firm and all documents will use a code letter only. For example, your firm is firm "A". Any company identifying remarks will be omitted from the any quotations from the interview.

I would like for you to answer the questions in relation to your dealings with the particular customer you used in responding to last summer's survey. I do not want to know the name of that customer, but I would like for you to keep them in mind when answering these questions. If you have trouble remembering (or if you haven't been told who they were) you may use this copy of your responses at that time to help identify them.

Background Information

Company ______________________ Division ______________________
Questionnaire number ___________
Selected customer information:

a. Size _______________________
b. Length of relationship _______ c. Approximate distance between headquarters _____________
d. Line of trade ___________________
Overall Relationship

Primary Interview Questions

Please describe the history of your relationship with the selected customer. Include the nature of the relationship and the type and volume of business over this time.

Follow-up Interview Questions

How was the relationship built?
Who participates?
What is the level of activity of this account? I.e. is it a national account?
How would you characterize the frequency, level and content of your contacts?
Is this style of customer relationship typical for your firm?
Would you characterize this relationship as a partnership? What would make it a p-ship?
Who instigated any movement toward closer relationship?

How does your relationship with this customer fit in your overall strategic planning?
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<tr>
<th>Primary Interview Questions</th>
<th>Follow-up Interview Questions</th>
<th>Opportunity Based Questions</th>
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<tbody>
<tr>
<td>Do you view your relationship with the customer as built on sharing benefits and burdens (both economic and non-economic) or more on sharply dividing benefits and burdens at the outset?</td>
<td>Would you expect this customer to be more willing than usual to help you out in a difficult situation?</td>
<td>Why or why not?</td>
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<td>Do you expend more than the usual amount of time in planning in your relationship with this customer? Do you use planning with this customer to promote a partnership style of relationship?</td>
<td>Would you be more willing than usual to help a customer out in a difficult situation?</td>
<td>Can you give an example of that?</td>
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<td>Do you feel you share the risks with this customer to a greater degree than is typical?</td>
<td>Is this typical of most of your customers? (for use when the terms usual or average are used)</td>
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<td>How are exceptions handled for this customer? Is this customer treated differently in this respect?</td>
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<td>Do you have more than the average number of joint committee or task force meetings with this customer?</td>
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<td>Do you have more than the average number of face to face meetings with this customer?</td>
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<td>Do you have more than the average number of high management level meetings with this customer?</td>
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<td>Do you have broader communications links with this customer than with a typical customer?</td>
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<td>Do you offer more technical information to this customer than to typical customers?</td>
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<td></td>
<td>Does this customer study your operations for planning purposes more than a typical customer?</td>
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<td></td>
<td>Do you study the operations of this customer more than a typical customer?</td>
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### Interview Guide - Carriers

**Coalitional Relationship Components - Hypotheses 1-3**

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<tr>
<th>Primary Interview Questions</th>
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<th>Opportunity Based Questions</th>
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<tr>
<td><strong>How extended do you see your relationship with this customer?</strong></td>
<td>Do your expectations for the length of the relationship strongly affect the way you deal with them?</td>
<td>Why or why not?</td>
</tr>
<tr>
<td>What indicates the need for an extended relationship with a customer from your perspective, or is it all up to the customer?</td>
<td>Does your perception of this customer's loyalty strongly affect the way you deal with them?</td>
<td>Can you give an example of that?</td>
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<td></td>
<td>Is the focus of the communications with this customer on the current transaction or future transaction?</td>
<td>Is this typical of most of your customers? (for use when the terms usual or average are used)</td>
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<tr>
<td>Do you see the method and volume of routine information exchange with this customer as a key ingredient in promoting a partnership style of relationship?</td>
<td>Do you rely on contractual detail or the good faith of the customer more for governing the relationship?</td>
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<td>Would implementing EDI links with this customer promote a partnership relationship?</td>
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<td></td>
<td>Would the use of software compatible across your and your customer's systems promote partnership?</td>
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<td></td>
<td>Would sharing shipping forecasts from the customer be a sign of a partnership style of relationship?</td>
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<tr>
<td></td>
<td>Why or why not?</td>
<td></td>
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<tr>
<td><strong>Do you let this customer more closely monitor your operations than a typical customer?</strong></td>
<td>Do you give this customer greater than normal access to routing and scheduling information?</td>
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<tr>
<td>Do you see increased monitoring of your operations as a way to build partnership?</td>
<td>Do you offer greater than normal shipment tracking ability to this customer?</td>
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<tr>
<td></td>
<td>Do you offer greater than normal fleet status reports to this customer?</td>
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*Included in final model*  *Excluded from final model*
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<td>Looking at your customer relationships in general, What situations would prompt you to initiate or attempt to initiate a partnership relationship with a customer?</td>
<td>Would the size of this customer strongly effect your decision to pursue a partnership?</td>
<td>Can you think of an example of this you have experienced?</td>
</tr>
<tr>
<td>Would the size of your firm strongly effect your decision to pursue a partnership?</td>
<td>Would a customer with a large share be a more likely subject for a partnership style of relationship?</td>
<td>What percent of your customers would this pertain to?</td>
</tr>
<tr>
<td>Would a customer with a large share be a more likely subject for a partnership style of relationship?</td>
<td>Can you identify any special advantage your firm would have in building partnerships due to the length of time you have been in business?</td>
<td>Is this the case with your chosen customer relationship?</td>
</tr>
<tr>
<td>Can you identify any special advantage your firm would have in building partnerships due to the length of time you have been in business?</td>
<td>Is the number of shipments made per period be a key element in choosing a partnership candidate?</td>
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### Interview Guide - Carriers

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<tbody>
<tr>
<td>Looking at your customer relationships in general, What situations would prompt you to initiate or attempt to initiate a partnership relationship with a customer?</td>
<td>Would the line of trade of the customer be a key element in choosing a partnership candidate?</td>
<td>Can you think of an example of this you have experienced?</td>
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<tr>
<td>Would a high risk environment cause you to seek a partnership with a customer?</td>
<td>Would a large degree of uncertainty surrounding a relationship cause you to seek a partnership with a customer?</td>
<td>What percent of your customers would this pertain to?</td>
</tr>
<tr>
<td>Would a customer needing a large unsecured front end investment cause you to seek a partnership?</td>
<td>Would a customer who required a large investment in equipment, facilities, training, managerial talent or such cause you to seek a partnership?</td>
<td>Is this the case with your chosen customer relationship?</td>
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## Interview Guide - Carriers
### Causes (cont.)

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<tr>
<th>Primary Interview Questions</th>
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<th>Opportunity Based Questions</th>
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<tbody>
<tr>
<td>What situations would prompt you to initiate or attempt to initiate a partnership relationship with a customer?</td>
<td>Would an EDI capability enhance your ability to develop partnerships?</td>
<td>Can you think of an example of this you have experienced?</td>
</tr>
<tr>
<td>Would a wider or narrower range of services you might provide change your ability to develop partnerships?</td>
<td>Would you be more likely to develop partnerships with longstanding accounts, or new accounts?</td>
<td>What percent of your customers would this pertain to?</td>
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<td>Is this the case with your chosen customer relationship?</td>
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## Ideal and Future Expectations

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<tr>
<td>Is this relationship structured as you would ideally like? How would you like to see this relationship evolve? How do you feel the customer wants it to evolve?</td>
<td>Can you give examples of changes in the way you would relate to this customer? Are there changes the customer has proposed which you are not willing to accept?</td>
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Interview Guide - Warehousemen
FOR BOTH SENIOR EXECUTIVE AND OPERATIONAL MANAGER INTERVIEW

Introduction

I have a number of questions to ask concerning the type of relationships which warehouse firms have with their customers. In particular, I am interested in strong relationships or partnerships which may develop between logistical service suppliers and their customers. I would like to record the interview for later review. The answers will be kept confidential. To assure confidentiality, all references to the firm and all documents will use a code letter only. For example, your firm is firm "A". Any company identifying remarks will be omitted from any quotations from the interview.

I would like for you to answer the questions in relation to your dealings with the particular customer you used in responding to last summer's survey. I do not want to know the name of that customer, but I would like for you to keep them in mind when answering these questions. If you have trouble remembering (or if you haven't been told who they were) you may use this copy of your responses at that time to help identify them.

Background Information

Company ______________________ Division ____________
Questionnaire number ____________
Selected customer information:
  a. Size ______________________
  b. Length of relationship _________
  c. Approximate distance between headquarters _________
  d. Line of trade ______________________
## Overall Relationship

### Primary Interview Questions

- Please describe the history of your relationship with the selected customer. Include the nature of the relationship and the type and volume of business over this time.

- How does your relationship with this customer fit in your overall strategic planning?

### Follow-up Interview Questions

- How was the relationship built?
- Who participates?
- What is the level of activity of this account? i.e. is it a national account?
- How would you characterize the frequency, level and content of your contacts?
- Is this style of customer relationship typical for your firm?
- Would you characterize this relationship as a partnership? What would make it a p-ship?
- Who instigated any movement toward closer relationship?
<table>
<thead>
<tr>
<th>Primary Interview Questions</th>
<th>Follow-up Interview Questions</th>
<th>Opportunity Based Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you view your relationship with the customer as built on sharing benefits and burdens (both economic and non-economic) or more on sharply dividing benefits and burdens at the outset?</td>
<td>Would you expect this customer to be more willing than usual to help you out in a difficult situation?</td>
<td>Why or why not?</td>
</tr>
<tr>
<td>Do you expend more than the usual amount of time in planning in your relationship with this customer? Do you use planning with this customer to promote a partnership style of relationship?</td>
<td>Would you be more willing than usual to help this customer out in a difficult situation?</td>
<td>Can you give an example of that?</td>
</tr>
<tr>
<td></td>
<td>Do you feel you share the risks with this customer to a greater degree than is typical?</td>
<td>Is this typical of most of your customers? (for use when the terms usual or average are used)</td>
</tr>
<tr>
<td></td>
<td>How are exceptions handled for this customer?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is this customer treated differently in this respect?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do you have more than the average number of joint committee or task force meetings with this customer?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do you have more than the average number of face to face meetings with this customer?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do you have more than the average number of high management level meetings with this customer?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do you have broader communication links with this customer than with a typical customer?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do you offer more technical information to this customer than to typical customers?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Does this customer study your operations for planning purposes more than a typical customer?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do you study the operations of this customer more than a typical customer?</td>
<td></td>
</tr>
<tr>
<td>Primary Interview Questions</td>
<td>Follow-up Interview Questions</td>
<td>Opportunity Based Questions</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>How extended do you see your relationship with this customer? What indicates the need for and extended relationship with a customer from your perspective, or is it all up to the customer?</td>
<td>Do your expectations for the length of the relationship strongly affect the way you deal with them?</td>
<td>Why or why not? Can you give an example of that?</td>
</tr>
<tr>
<td>Do you see the method and volume of routine information exchange with this customer as a key ingredient in promoting a partnership style of relationship?</td>
<td>Does your perception of this customer's loyalty strongly affect the way you deal with them?</td>
<td>Is this typical of most of your customers? (for use when the terms usual or average are used)</td>
</tr>
<tr>
<td>Do you let this customer more closely monitor your operations than a typical customer? Do you see increased monitoring of your operations as a way to build partnership?</td>
<td>Is the focus of the communications with this customer on the current transaction or future transactions?</td>
<td>Would implementing EDI links with this customer promote a partnership relationship? (or has it already)</td>
</tr>
<tr>
<td></td>
<td>Do you rely on contractual detail or the good faith of the customer for governing the relationship?</td>
<td>Would the use of software compatible across your and your customer's systems promote partnership?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Would sharing production forecasts from the customer be a sign of a partnership style of relationship?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Included in final model</td>
</tr>
</tbody>
</table>

*Interview Guide - Warehousemen*

Coalitional Relationship Components - Hypotheses 1-3
Interview Guide - Warehousemen

<table>
<thead>
<tr>
<th>Causes</th>
<th>Follow-up Interview Questions</th>
<th>Opportunity Based Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking at your customer relationships in general, What situations would prompt you to initiate or attempt to initiate a partnership relationship with a customer?</td>
<td>Would the size of a customer strongly effect your decision to pursue a partnership?</td>
<td>Can you think of an example of this you have experienced?</td>
</tr>
<tr>
<td></td>
<td>Would the size of your firm strongly effect your decision to pursue a partnership?</td>
<td>What percent of your customers would this pertain to?</td>
</tr>
<tr>
<td></td>
<td>Would a customer with a large share be a more likely subject for a partnership style of relationship?</td>
<td>Is this the case with your chosen customer relationship?</td>
</tr>
<tr>
<td></td>
<td>Can you identify any special advantage your firm would have in building partnerships due to the length of time you have been in business?</td>
<td>Is the number of shipments a firm makes per period a key element in choosing it for a partnership candidate?</td>
</tr>
</tbody>
</table>
## Interview Guide - Warehousemen

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Looking at your customer relationships in general, What situations would prompt you to initiate or attempt to initiate a partnership relationship with a customer?</td>
<td>Would the line of trade of the customer be a key element in choosing a partnership candidate?</td>
<td>Can you think of an example of this you have experienced?</td>
</tr>
<tr>
<td>Would a high risk environment cause you to seek a partnership with a customer?</td>
<td>Would a large degree of uncertainty surrounding a relationship cause you to seek a partnership with a customer?</td>
<td>What percent of your customers would this pertain to?</td>
</tr>
<tr>
<td>Would a customer needing a large unsecured front end investment cause you to seek a partnership?</td>
<td>Would a customer who required a large investment in equipment, facilities, training, managerial talent or such cause you to seek a partnership?</td>
<td>Is this the case with your chosen customer relationship?</td>
</tr>
</tbody>
</table>
### Interview Guide - Warehousemen

#### Causes (cont.)

<table>
<thead>
<tr>
<th>Primary Interview Questions</th>
<th>Follow-up Interview Questions</th>
<th>Opportunity Based Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What situations would prompt you to initiate or attempt to initiate a partnership relationship with a customer?</td>
<td>Would an EDI capability enhance your ability to develop partnerships?</td>
<td>Can you think of an example of this you have experienced?</td>
</tr>
<tr>
<td></td>
<td>Would a wider or narrower range of services you might provide change your ability to develop partnerships?</td>
<td>What percent of your customers would this pertain to?</td>
</tr>
<tr>
<td></td>
<td>Would you be more likely to develop partnerships with longstanding accounts, or new accounts?</td>
<td>Is this the case with your chosen customer relationship?</td>
</tr>
</tbody>
</table>

---

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### Ideal and Future Expectations

<table>
<thead>
<tr>
<th>Primary Interview Questions</th>
<th>Follow-up Interview Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is this relationship structured as you would ideally like? How would you like to see this relationship evolve? How do you feel the customer wants it to evolve?</td>
<td>Can you give examples of changes in the way you would relate to this customer? Are there changes the customer has proposed which you are not willing to accept?</td>
</tr>
</tbody>
</table>
Appendix C - Quantitative Phase Questionnaire
Dear

The Council of Logistics Management recently contracted with The Ohio State University for an updated version of its 1976 research report titled Customer Service: Meaning & Measurement. The principal investigator for the 1976 study, Dr. Bernard La Londe, will also supervise the research team conducting the 1987 study.

The 1987 research team will investigate how companies currently view and practice customer service, as well as how they perceive its practice in the future. The researchers will explore current customer service practices from the viewpoints of shippers, carriers, and public warehousemen. The intent of the research is to determine how companies now manage customer service and the extent to which they use customer service in the overall strategic plan of the corporation. The researchers will be paying special attention to interorganization relationships: shipper/carrier, shipper/public warehouse, etc. They will also examine the relationships for trends which they can project into the future.

I'm writing to you because the research team has identified you as a person in your firm who has a working knowledge of customer service policies and activities. Within the next few days, Dr. La Londe will mail a customer service survey form to your personal attention. Please complete the survey either by yourself or with others in the company who are in a position to provide the information requested and return it to the Ohio State research team.

Dr. La Londe will outline the results of this customer service research in a general session at the Council's 1987 annual conference in Atlanta on September 27 through 30. In addition, there will be four other sessions offered at the conference, each of which will focus on specific findings in the overall survey.

The success of this project depends on your cooperation and the amount of data we receive. We're counting on you to see that our survey instrument receives the attention it deserves.

Thank you.

Sincerely,

Frederick S. Schorr
President (1987)
President Warehouse Group
Dry Storage Corporation
May, 1987

Dear

A few days ago you should have received a letter from Rick Schorr, President of the Council of Logistics Management, asking for your help on the attached questionnaire. We realize that we are asking for a significant commitment from you in responding to this questionnaire. It is our objective to update the 1976 NCPDM Customer Service Study and some important changes have occurred in the customer service area over the past 10 years. The net result is a questionnaire that attempts to capture this change in a realistic way.

We can promise you that all of the results will be made available to the distribution/logistics community. A summary of the study will be presented at the CLM Annual meeting in Atlanta, and then a formal report of the findings will be published. As a special token of our appreciation for your efforts, we will send you a summary of your industry response prior to the release of the findings. Your individual responses will be confidential and no respondent or company will be identified in the study.

We are sending this questionnaire to a limited number of distribution/logistics decision makers. Each response is important to us in this limited sample and we hope you will help us on this important study.

Sincerely,

[Signature]

Bernard J. La Londe

College of Business
CUSTOMER SERVICE QUESTIONNAIRE

General Instructions and Information

1. All responses to this questionnaire will be strictly confidential.

2. If you are not sure of the answer to a question, please provide your best estimate. There are no right or wrong answers.

3. For questions which require an answer expressed in dollars or percentages, please answer in whole dollars or percentages (e.g. $7,000 or 2%).

4. We will be pleased to provide you with a copy of your industry's results and the information requested on the last page of the questionnaire.

5. Please note that the questions in Part I ask for your perceptions of how you feel your customers judge customer service.

6. Please return this questionnaire in the self-addressed, stamped envelope. Thank you for your participation.

If you have any questions, please don't hesitate to call me:

Bernard J. La Londe
Raymond E. Mason Professor of Transportation and Logistics
The Ohio State University
1775 College Road
Columbus, OH 43210
614-292-0331
CUSTOMER SERVICE MEASURES

Companies often establish different customer service standards for different customers. In order to better understand how customer service standards are determined, Part I of the questionnaire asks you for information about service standards for a single customer. Therefore, for Part I select one of your organization's core customers and respond in terms of that customer.

A. CORE CUSTOMER

1. Please describe the core customer you have selected (NOT the name of the firm), for example, a large national food manufacturer.

2. How long has this customer been doing business with your firm? _______ years

3. What percent of your total revenue comes from this firm? _______ %

4. How many visits did managers from this customer make to your facilities in the past quarter? _______

5. How many shipments did your firm handle for this customer in the past quarter?
   Inbound _______ Outbound _______

6. How would you rate your overall investment in your relationship with this customer? Investments in this particular relationship might include specific equipment or facilities, special training, data systems, etc. Place an X in the space between the two extremes which you feel represents your investment.

   Very large specific investments for this customer: ___________ investments for this customer

   Very small specific

7. Please indicate the degree of uncertainty you feel exists surrounding your relationship with this customer. This uncertainty could concern volume of business, terms of business, financial uncertainty or other factors.

   Very uncertain: ___________ Not at all uncertain: ___________

8. Please indicate your perception of the importance of each of the following variables to your selected customer in selecting a public warehouse by distributing 100 points among the variables. More points indicate greater importance.

   a. Location of warehouse within service area
   b. Pricing (rates or costs)
   c. Management experience and quality
   d. Sanitation, security and quality
   e. Additional services (e.g., packaging, order picking, freight consolidation, etc.)
   f. Multi-market operator
   g. Order cycle time
   h. Other (specify)

   TOTAL 100 100

---

Part I

TOTAL 100 100
9. Evaluate the importance of the following elements of customer service you feel THIS core customer may use in SELECTING a public/contract warehouse. Check the appropriate box.

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Very Important</th>
<th>Very Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilities and Equipment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Warehouse address/locator system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Materials handling equipment flexibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Data processing/inventory management</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Consistency (Reliability)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Of customer service measurement system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Of product recall system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Of productivity measurement system</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Administration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Warehouseman's legal liability insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Response to warehouse claims</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Space and labor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Listed below are additional factors which THIS customer may use to EVALUATE your ability to meet their distribution system needs. Indicate the relative importance of each factor to your customer by checking the appropriate box.

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Very Important</th>
<th>Very Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flexibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. In handling special shipments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. In rescheduling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. In special pick up or delivery situations</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Responsiveness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Speed of response to inquiry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Accuracy of response to inquiry</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Special Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Order consolidation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Local delivery service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Repackaging and recooperation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. Please indicate how you think your relationship with your selected customer would fit between the polar alternatives by placing an X in the appropriate box on the scale.

1. Focus on the Current Transaction [ ] Focus on Future Transactions

2. High Risk Environment [ ] Low Risk Environment

3. Customer Requires Accurate Internal Audit Trail [ ] Customer Does Not Require Internal Audit Trail

4. Not at All Loyal to This Customer [ ] Very Loyal to This Customer

5. Customer Shares Risk [ ] Customer Does Not Share Risk

6. Infrequent Face to Face Planning Communications [ ] Frequent Face to Face Planning Communications

7. Frequent High Corporate Level of Communications [ ] No High Corporate Level of Communications

8. Many Corporate Levels of Communications [ ] Single Corporate Level of Communications

9. Customer Shares Production Forecasts [ ] Customer Does Not Share Production Forecasts

10. No Direct Computer to Computer Links (i.e. EDI, WINS) [ ] Many Direct Computer to Computer Links

11. High Expectation of a Long Term Relationship [ ] Low Expectation of a Long Term Relationship

12. High Exchange of Technical Information, e.g. new packaging [ ] Low Exchange of Technical Information


14. High Willingness to Handle Exceptions by Negotiation [ ] High Willingness to Handle Exceptions by Litigation

15. Customer Requires Large Unsecured Front End Investment [ ] Customer Requires No Unsecured Front End Investment

16. Customer Monitors All Handling/Processing Methods [ ] Customer Monitors Only End Results

17. Our Written Agreements Rely on Termination Dates [ ] Our Written Agreements Rely on Cancellation Clauses

18. We Use Software Incompatible With Our Customer's Systems [ ] We Use Software Compatible With Our Customer's Systems


20. High Customer Willingness to Help Us in Difficult Situation [ ] Low Customer Willingness to Help in Difficult Situation

21. High Willingness for Us to Help Customer in Difficult Situation [ ] Low Willingness to Help Customer in Difficult Situation

22. We Never Study Customer's Operations for Planning [ ] We Regularly Study Customer's Operations for Planning

23. Customer Requires Frequent Inventory Status Reports [ ] Customer Does Not Require Inventory Status Reports

NOW RETURN to the top of the list and place a circle around the box which represents how you would ideally want your relationship to be. Please do this for each item above.

Finally, indicate in these blanks the three most important elements of your relationship with this customer. Use the numbers to indicate the characteristic from the above list.

1st. 2nd 3rd
A. ELECTRONIC DATA INTERCHANGE (EDI)
During the past several years, electronic data interchange (EDI) has assumed an increasingly important role in distribution. EDI is the transmission of data, in electronic form, between computer systems. EDI can be used to transmit price information, invoices, shipment instructions, claims, purchase orders, and so on.

1. Does your organization currently participate in an electronic data interchange (EDI) project?
   □ Yes □ No
   If yes, is the project: □ In planning stage □ Experimental □ Fully operational
   If yes, what percentage (%) of the following are transmitted via EDI?
   Orders _____%  Bills of lading and freight bills _____%  Invoices _____%  WINS _____%  Other (specify) ____________________ %

2. Does your organization belong to an industry-wide action group that has as its objective the setting of standards for electronic data interchange?
   □ Yes □ No

B. CLASSIFICATION INFORMATION
1. Indicate with a check mark those services which you offer (check as many as apply in each row):

   Local Delivery: □ Owned □ Managed □ Coordinated
   Intra-State Delivery: □ Owned □ Managed □ Coordinated
   Inter-State Delivery: □ Owned □ Managed □ Coordinated
   Packaging/Assembly □  Recooperage □
   Other (specify) ____________________

2. Number of different metropolitan locations in which your firm has public or contract warehouses.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Cities</th>
<th>Number of Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Owned &amp; Operated</td>
<td>Contract Warehouses</td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<tr>
<th>Year</th>
<th>Owned &amp; Operated</th>
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</tr>
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<td>1987</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Total number of square feet operated by your company: ____________________ Sq. Ft.
4. Approximate number of customers served in 1987: ____________________
5. Number of years in public warehousing business: ____________________ Your firm  ____________________ Yourself
6. Title of individual responding to this questionnaire: ____________________
C. Your comments on the future of public/contract Warehousing :


Thank you for your participation in this important study.

Results of the study will be presented at the Tuesday General Session at the Council of Logistics Management Annual Conference in Atlanta on September 29, 1987.

If you would like to receive a summary of the results for your industry, please provide your address and phone number so that we can mail you the findings directly. (The code number on this page is for identification purposes only.)

Name ______________________________________________________________

Company ___________________________________________________________

Address ____________________________________________________________

                                           ____________________________

Phone ( )_] _________________________________________________________
CUSTOMER SERVICE QUESTIONNAIRE

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The Ohio State University
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614-292-0331
Part I

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A. CORE CUSTOMER

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2. How long has this customer been doing business with your firm? __________ years

3. What percent of your total revenue comes from this firm? ________%

4. How many visits did managers from this customer make to your facilities in the past quarter? ________

5. How many shipments did your firm handle for this customer in the past quarter?
   Inbound __________   Outbound __________

6. How would you rate your overall investment in your relationship with this customer? Investments in this particular relationship might include specific equipment or facilities, special training, data systems, etc. Place an X in the space between the two extremes which you feel represents your investment.
   Very large investments in this customer...............................Very small investments in this customer

7. Please indicate the degree of uncertainty you feel exists surrounding your relationship with this customer. This uncertainty could concern volume of business, terms of business, financial uncertainty or other factors.
   Very uncertain Not at all uncertain

8. Please indicate the percentage of overall revenue for your firm derived from each of the modes below. Also, indicate the percentage of revenue you receive from your selected customer for each shipping mode.

<table>
<thead>
<tr>
<th>Percentage of Revenue</th>
<th>Firm Overall</th>
<th>This Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Today</td>
<td>1990</td>
</tr>
<tr>
<td>Contract Motor Carrier - LTL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract Motor Carrier - TL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Motor Carrier - LTL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Motor Carrier - TL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rail - CL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rail - Piggyback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Finally, place a check in the box next to the mode which is MOST important to you for this core customer. Answer the remaining questions about your relationship with this customer in relation to THIS mode which you have checked.
9. Evaluate the importance of the following elements of customer service you feel THIS core customer may use in SELECTING a carrier. Check the appropriate box.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Very Important</th>
<th>Very Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Equipment availability</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>b. Availability of specialized equipment</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>c. Condition of equipment</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>d. Opportunity for inter-modal shipments</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Consistency (Reliability)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Of pick up</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>b. Of delivery</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>c. Of total transit time</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Speed of transit time</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Shipment tracing</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>b. Response to claims</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>c. Paper work accuracy</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

10. Listed below are additional factors which THIS customer may use to EVALUATE your ability to meet their distribution system needs. Indicate the relative importance of each factor to your customer by checking the appropriate box.

<table>
<thead>
<tr>
<th>Flexibility</th>
<th>Very Important</th>
<th>Very Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. In handling emergency shipments</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>b. In handling special shipments</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>c. In rerouting/rescheduling</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>d. In special pick up or delivery situations</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Responsiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Speed of response to inquiry</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>b. Accuracy of response to inquiry</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>c. Adequate detail of response to inquiry</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Other Factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Shipment security</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>b. Housekeeping (sanitation)</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>c. Quality of management</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>d. Quality of workforce</td>
<td>☐ 1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
11. Please indicate how you think your relationship with your selected customer would fit between the polar alternatives by placing an X in the appropriate box on the scale.

1. Focus on the Current Transaction □ □ □ □ □ □ □ Focus on Future Transactions

2. High Risk Environment □ □ □ □ □ □ □ Low Risk Environment

3. Customer Requires Accurate Shipment Tracking Ability □ □ □ □ □ □ □ Customer Does Not Require Tracking Ability

4. Not at All Loyal to This Customer □ □ □ □ □ □ □ Very Loyal to This Customer

5. Customer Shares Risk □ □ □ □ □ □ □ Customer Does Not Share Risk

6. Infrequent Face to Face Planning Communications □ □ □ □ □ □ □ Frequent Face to Face Planning Communications

7. Frequent High Corporate Level of Communications □ □ □ □ □ □ □ No High Corporate Level of Communications

8. Many Corporal Levels of Communications □ □ □ □ □ □ □ Single Corporate Level of Communications

9. Customer Shares Shipping Forecasts □ □ □ □ □ □ □ Customer Does Not Share Shipping Forecasts

10. No Direct Computer to Computer Links □ □ □ □ □ □ □ Many Direct Computer to Computer Links (i.e. EDI, WINS)

11. High Expectation of a Long Term Relationship □ □ □ □ □ □ □ Low Expectation of a Long Term Relationship

12. High Exchange of Technical Information, e.g. new equipment □ □ □ □ □ □ □ Low Exchange of Technical Information

13. No Joint Planning Committees/Task Forces □ □ □ □ □ □ □ Many Joint Planning Committees/Task Forces

14. High Willingness to Handle Exceptions by Negotiation □ □ □ □ □ □ □ High Willingness to Handle Exceptions by Litigation

15. Customer Requires Large Unsecured Front End Investment □ □ □ □ □ □ □ Customer Requires No Unsecured Front End Investment

16. Customer Monitors All Handling/ routing Methods □ □ □ □ □ □ □ Customer Monitors Only Bad Results

17. Our Written Agreements Rely on Termination Dates □ □ □ □ □ □ □ Our Written Agreements Rely on Cancellation Clauses

18. We Use Software Incompatible With Our Customer's Systems □ □ □ □ □ □ □ We Use Software Compatible With Our Customer's Systems


20. High Customer Willingness to Help Us in Difficult Situation □ □ □ □ □ □ □ Low Customer Willingness to Help in Difficult Situation


22. We Never Study Customer's Operations for Planning □ □ □ □ □ □ □ We Regularly Study Customer's Operations for Planning

23. Customer Requires Frequent Fleet Status Reports □ □ □ □ □ □ □ Customer Does Not Require Fleet Status Reports

NOW RETURN to the top of the list and place a circle around the box which represents how you would ideally want your relationship to be. Please do this for each item above.

Finally, indicate in these blanks the three most important elements of your relationship with this customer. Use the numbers to indicate the characteristic from the above list.

____ 1st.  ____ 2nd  ____ 3rd
Part II

SELECTION AND UTILIZATION OF THIRD PARTY LOGISTICS SUPPORT AGENCIES

A. Selection Criteria
1. Please indicate your perception of the importance of the following to your customer in the carrier SELECTION process by distributing 100 points among the variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Today</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Special Qualifications (e.g. equipment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Prices (rates, discounts)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Service Response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Locations of Terminals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Number of Terminals (territory served)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Other (specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

B. ELECTRONIC DATA INTERCHANGE (EDI)
During the past several years, electronic data interchange (EDI) has assumed an increasingly important role in distribution. EDI is the transmission of data, in electronic form, between computer systems. EDI can be used to transmit price information, invoices, shipment instructions, claims, purchase orders, and so on.

1. Does your organization currently participate in an electronic data interchange (EDI) project?
   □ Yes  □ No
   
   If yes, is the project □ In planning stage □ Experimental □ Fully operational

   If yes, what percentage (%) of the following are transmitted via EDI?
   
<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders</td>
<td></td>
</tr>
<tr>
<td>Bills of lading and freight bills</td>
<td></td>
</tr>
<tr>
<td>Invoices</td>
<td></td>
</tr>
<tr>
<td>WINS</td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
</tr>
</tbody>
</table>

2. Does your organization belong to an industry-wide action group that has as its objective the setting of standards for electronic data interchange?
   □ Yes  □ No
   
   If yes, name the organizations here:

   ____________________________________________
C. CLASSIFICATION INFORMATION

1. Indicate with a check mark those services which you offer:

- [ ] Bonded space  - [ ] Equipment leasing
- [ ] Temperature controlled space  - [ ] International shipping services
- [ ] Inter-modal Shipping  - [ ] Other (specify) ___________________

2. Number of different terminals your firm had, has and expects to have.
   - 1984 ______
   - 1987 ______
   - 1990 ______

3. Approximate number of customers served in 1987: ________________

4. Number of years in transportation business: ________ Your firm ________ Yourself

5. Title of individual responding to this questionnaire: ________________________________

Thank you for your participation in this important study.

Results of the study will be presented at the Tuesday General Session at the Council of Logistics Management Annual Conference in Atlanta on September 29, 1987.

If you would like to receive a summary of the results for your industry, please provide your address and phone number so that we can mail you the findings directly. (The code number on this page is for identification purposes only.)

Name ____________________________________________

Company _________________________________________

Address _________________________________________

_________________________________________________

_________________________________________________

Phone ( ) ____________________________
BIBLIOGRAPHY


Muller, E. J., "The Coming of the Corporate Alliance," *Distribution*, pp. 82-84, August, 1988b.


