Measuring transaction cost is a key research problem in making transaction cost theory testable and falsifiable. Over time this issue have been described and conceptualized in the literature but have not been empirically tested before. Hence professor Arne Nygaard has developed empirical dimensions of transaction costs. Furthermore, he also presents how these post contract cost dimensions are related to governance and to inter- organizational performance. In this research he also presents multisource- and dyadic data – methods to analyze antecedents and outcome of contract- related transaction costs. Bargaining cost, control cost, maladaption cost and the cost of free riding are all dimensions affected by the governance structure and affect performance. A plural formed franchise system in the oil industry provides a ceteris paribus empirical setting for this investigation.

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Measuring Transaction Costs

Arne Nygaard

Measuring Transaction Costs in Plural Formed Marketing Channels

An empirical investigation of franchise units in the oil industry

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LIST OF FIGURES

LIST OF TABLES

ABSTRACT

Previous empirical research has supported the predictions derived from transaction cost economics that asset specificity, uncertainty, frequency and complexity entail vertical integration (David and Han 2004). The underlying assumption is that integration creates the most efficient organizational formation. Given this assumption from transaction cost theory integration caused by market failures due to asset specificity lead to efficiency. This test focus on the ability of the principal company to control opportunism and to reduce transaction costs through vertical control. Therefore, the empirical question raised here is whether dimensions of costs can be contract related. Contract related transaction costs unlike production costs are associated to the incentives defined by the contract. This problem has barely been studied in previous empirical analysis. However, the theoretical question makes it crucial to explore a homogeneous setting like a plural formed franchise system where third variables also including asset specificity can be kept relatively constant. My intention, therefore, is not to test traditional hypotheses derived from transaction cost theory, but to explore dimensions of transaction costs and to test the prediction from the theory that costs associated to the bilateral exchange are related to the incentive system given by the contract. The test reveals how transaction costs are related to aspects of the bilateral contract. The bilateral contract is dimensionalized into structural variables like centralization and formalization and a variable describing the interactive process. The empirical setting is an oil company (Shell) and its plural formed franchise system in the Norwegian gasoline market, representing standardized technology and products, and trademark specific assets equally distributed among dealers. Both dyadic and unilateral data are used to test the hypotheses. The results point out the importance of formal rules and procedures and the scope and magnitude of interactions as efficient instruments of bilateral contracting. Centralization, though, is related to both control costs and free-riding costs.

PREFACE

Empirical research is interplay between groups of people, single persons and organizations. The dissertation committee, Professor Torger Reve (Chairman), Professor Erin Anderson, and Professor Kjell Grønhaug have supported and encouraged me all the way from scratching the surface of the problem in the research proposal to the final version of the dissertation. It has been a privilege for me to have had this opportunity to profit from their expertise within the field of distribution research. I therefore sincerely thank them all. This manuscript though is an updated version based on research conducted by the author during the period of 1992 to 2009. Also I am extremely happy to publish this manuscript the same year as Oliver E. Williamson received the Nobel Prize in Economics. This is a general gratitude not only to him but to all research within this area the last 40 years. Sadly my advisor Professor Erin Anderson at INSEAD passed away. She was one of the most significant explorers of institutional economics. I deeply appreciate that she supported and encouraged the work that I present here.

I have also had the pleasure of interacting with other persons during the project: Professor William Evan, Professor Gordon Walker, Professor Jean-Franscois Hennart, Professor Robert Dahlstrom, and Professor Robert Eccles. All have added valuable input and advice useful to my work. I therefore acknowledge all of them. Some of the core ideas of the dissertation presented here was developed while I was a visiting scholar at the William H. Wurster Center for International Management Studies at the Wharton School. My stay there gave me the opportunity to interact with people definitely in the research front in organizational economics, management and marketing. I therefore thank Professor Peter Lorange who supported me with this fantastic opportunity.

The cooperation with Shell has been fruitful in many ways. My discussions with professionals from the company, in particular, were useful in the first phase of the investigation and during the phase of interpretation of the received results. People from the company, both from the Shell dealers and from the dealer organization, have encouraged me as well as confronted me with new ideas and guidance. Many persons have supported the work conducted here: Terje Løken, Tom Hotvedt, Bj¢rn Wråman, Kjell Bergesen, Bjørn Christensen, Jarle Borg, Tore Flaatrud and many others. I am most grateful for their help.

Conducting research also depends strongly on the people you work with. Colleagues from the Norwegian Institute for Research in Marketing and the people from the Norwegian School of Management have produced substantial input to the work presented here: Øystein Noreng, Gabriel Benito, Fred Selnes, Charles Cooper, Carl Brønn, Ole Fugleberg, Øyvind Nordli, Ingvild Dingstad Berg and others. I am also thankful to my fellow students and my professors outside the committee at the doctoral program at the Norwegian School of Economics and Business Administration (NHH).

The Norwegian Council for Applied Social Research (NORAS) and the Research Council of Norway (NFR), the SUPTEK-program has financially supported the research presented here. NORAS` intentions are to produce theoretically based research with practical value. This combination is not easy to match, without NORAS, not even possible. I therefore want to express my gratitude. In this later version of the manuscript I have tried to update the model development related to received theory and empirical research over the last years.

In addition, the text has also been developed and updated when it comes to two fields of research on transaction cost economics. First, I have discussed the phenomenon of plural forms. The phenomenon of both make- and buy units within the same organizational architecture has seldom been subject to empirical analyses. The other focus here is the dimensionalization of contract related transaction costs. This ex post exploration of organizational related "make or buy" costs are a new direction of investigations based on transaction cost economics. In this 2009 updated version of the manuscript I have brought in a comprehensive frame of research that is byproducts from this research.

1. INTRODUCTION

1.1 The Integration Problem

The intention here is to analyze how the nature of the bilateral contract influences problems and costs related to the cooperation between a company and a dealer within a plural formed franchise system (Dahlstrom and Nygaard 1999). Contracts may create divergences between the interests of the company and the dealer. The study explores the cost dimensions related to the principal-agency contract. I also analyze how the cost dimensions affect inter organizational performance. The research problem, though, is how a trademark company can operate a distribution system more efficiently.

The empirical study analyzes transaction cost theory as a positive economic theory (Friedman 1953). The test intends to describe the impact of vertical control on the nature of transaction costs in a real world context. Williamson (1985) explains institutional formation by the actors economizing on transaction costs. The transaction costs are affected by interaction between the market forces and the technological structure (Chandler 1962, 1977). Technological complexity and specificity entail market failure, a small number bargaining situation and increased vertical integration (Dahlstrom and Nygaard 1993).

The distribution channel is analyzed as a principal - agent problem. That is, the company delegates activities to the agent as well as the rights to use the trademark. The agent is restricted and governed by the vertical control defined in the contractual relations (Reve 1980). The company has to coordinate and manage the activities within the channel in order to organize the most efficient and competitive distribution chain. The problem is that the information that the company decisions are dependent upon is asymmetrically distributed between the parties. The dealer probably knows more about the market context than the principal company (Nygaard and Myrtveit 2000). Thus the empirical question

is what kind of contract produces lower costs due to less opportunism resulting from information impactedness (Williamson 1975). The company invests in trademark capital that has little or no value outside the franchise system (Williamson 1991). Thus, the principal company has to safeguard its investments in specific assets by vertical control of dealer activities.

1.2 The Bilateral Contract

The ex post perspective emphasized here (Williamson 1988) is a consequence of the fact that real world contracts are incomplete. That is, both parties in the contract have imperfect information about the future and each other. Incomplete contracts, therefore, make ex post realignment efforts necessary. Contractual disharmony is reinforced by vertical control. The contractual relationship legitimates the level of vertical control. The organizations, therefore, can be seen as a nexus of contracts where the defined incentives are instrumental to align the conflicting interests of the principal-company and the agent-dealers (Fama and Jensen 1983). The contractual form is supposed to align efficiency purposes and to promote efficient exchange.

Not only has the formal contractual arrangement safeguarded the interests of the two parties. Also, implicit conditions not formulated in the formal contract affect the level of vertical control. Thus, the vertical control inherent in the bilateral contract is dimensionalized as the level of centralization, formalization, and interaction (Dahlstrom and Nygaard 1999). This is the conventional way of describing the vertical control entailed by the contractual or administrative relationship (Van de Ven 1976).

The main objective of this study is to analyze different dimensions of transaction costs influenced by the interorganizational form. The intention is to investigate the existence of the categories of contract-related costs. Therefore, the study explores transaction cost dimensions as outlined in the transaction cost literature (Williamson 1985) and the costs of free-riding described in other

channel literature (Hennart 1986, Rubin 1978, Anderson 1988). These costs are often mentioned as important contractual costs but have hardly been investigated empirically. Because of the key role of transaction cost as a conceptual variable in the theoretical framework, empirical test of the variable is crucial in order to survive falsification of the theory. Although falsification is the general demarcation line between theory and no theory, research has paid little attention to this problem.

I am also interested in how these cost-dimensions affect performance. The conceptual model includes both economic and political factors. The dealers are controlled and motivated also by the implicit contractual system and not only by the formal agreement between the parties. Information about how contracts may influence different cost-dimensions, provide valuable input for future contractual design. The study may, therefore, provide managerial implications; what kind of contracts are the most efficient instruments in distribution-strategy?

1.3 Contribution

The intended contribution of this inquiry is the identification of dimensions of the ex post costs of transactions. I analyze the structure of the transaction costs as a product of the bilateral contractual relationship. The goal is to explore and specify the dimensions of the ex post transaction costs both theoretically and empirically. Problems related to the internalization of agents have been analyzed as early as Ridgeway (1957) and later explored by Eccles (1983). However, transaction cost dimensions have almost never to our knowledge, been analyzed in a formal empirical study before. Although Noordewier, John and Nevin (1990), and Walker and Poppo (1991) have provided input to operationalizations of transaction costs, they have not analyzed the multiple elements and dimensions inherent in the concept that have been formulated in the literature.

The empirical results support the categorization of transaction costs discussed in transaction cost literature (Williamson 1988). The empirical analysis also indicated that these costs dimensions are related to the nature of vertical control in the bilateral contract and the level of opportunism. Formalization and the magnitude of interaction have positive effects on the dyadic climate (opportunism) and reduce costs as well as increase dyadic performance. This observation contradicts John`s (1984) empirical results from the same industry. On the other hand, the impact of centralization is mixed. Hierarchical decision making has positive or no effects on cost dimensions. The results presented here are consistent with Reve (1980), and indicate that formalization and centralization can be viewed as alternative governance structures.

Methodological contribution in the study is twofold. First, the development of multi-item constructs of transaction costs dimensions may provide valuable input to future empirical research. Secondly, the three-step methodological approach, unilateral analysis, dyadic analysis and final structural model tests, may be fruitful when dyadic data is needed as is the situation when the focal dyad is the level of analysis. Dyadic data analysis is used to specify the measurement model before final testing of structural relationships. Thus, the methodological approach presented here, provides better data than a one sided test. Also the three step approach produces a retest of the measurement model on another sample. The presented approach can first develop measures and then test structural relationships. This is consistent with falsification as a research strategy to build empirical support and finally support transaction cost economics as a theoretical framework (Dahlstrom and Nygaard 2005).

1.4 Outline of the Study

The first part of the study contrasts previous research based on the transaction cost paradigm to the specific context of the principal-agent problem. Chapter 2 directs the transaction cost tradition in the channel literature to the integration problem of effective contracting. The conceptual model presented in chapter 3, describes the basic theory and the causal relations based on the transaction cost literature. The model also comprises contractual cost dimensions. Based on the conceptual model, hypotheses from the transaction cost literature were derived, operationalizations and measures were developed and instruments were presented in chapter 6. The empirical analysis presented in Chapter 7 is a three step analysis approach instrumental to design the measurement model. The first step is the preliminary unilateral analysis, followed by dyadic data analysis where the measurement model is designed. The final stage is the test of the structural model presented in chapter 8. Chapter 9 presents limitations and implications from the presented empirical research followed by conclusions in chapter 10.

2. THEORETICAL PERSPECTIVE

Transaction costs have almost never been measured directly (Day and Klein 1987; Dahlstrom and Nygaard 2005). The difficulty in quantifying transaction costs is due to the fact that these costs ex ante reflect consequences of alternative institutional structures (Klein, Frazier and Roth 1990). If this is the case, what I expect to find here is that ex ante transaction costs are equally distributed among the dealers. On the other hand, it can be argued that only efficient markets, where information about all possible alternatives is available to the principal, are able to produce clear cut alternatives to hierarchical structures and to produce efficient governance structures (Alchian 1950). Transaction cost literature emphasizes however, that market failures due to asset specificity motivates integration because of the costs of organization of bilateral exchange. The theory focuses on equilibrium ex ante phases of organizational development. The post contractual adaptive process studied here; do not test the relationship between transaction characteristics and organization. Instead I underline the ex post process of bilateral exchange and the on-going process of vertical control following the bilateral contract (Dahlstrom and Nygaard 1999). Although, our theoretical perspective draws the lines from the transaction costs framework, I intend to analyze the ex post process of vertical control intended to reduce costs. The ex post position, according to Williamson (1988), also focuses transaction costs. The process of realignment of incomplete ex ante contracts makes dimensions of transaction costs observable and possible to investigate empirically.

As noted in chapter 1, the transaction is the basic unit of analysis in transaction cost theory (Williamson 1985). Therefore, the contracted relationship between the two parties in the transaction becomes essential. The design of the bilateral contract reflects the intention to safeguard the interests of both parties. However, the contract in a principal-agent relationship is offered by the principal company in a market for agents (Fama and Jensen 1983).

2.1 The Transaction Cost Approach

The contractual relationship may affect the company-dealer dyad in numerous ways. The concept of the bilateral contract includes all aspects of the relationship, not only the attributes of the formal explicit contract. The agent agrees to obey the directions defined in the contract within specified limits (Coase 1937). Contracts regulate these bilateral governance structures and restrict the organization of transactions between the principal and the agent. The contractual relationship, however, can be described by the time perspective. Transaction cost theory distinguishes the ex ante from the post contract ex post perspective (Williamson 1985). The ex ante contract is given by the existing formal arrangements between the principal company and the dealer; while the ex post perspective is related to the on-going process of vertical control. Here, consistent with the focus in transaction cost theory (Williamson 1988) I address the ex post issues of contracting.

Ex post vertical control is a manifestation of the rational managerial belief in reduced opportunism, increased ability to coordinate, easier access to neutral information and reduced costs of bilateral organization of transactions. According to the theory, vertical control quells the costs of transactions (Williamson 1981, 1985) ceteris paribus. Theory assumes that both the company and the dealer have clear, unambiguous and convergent goals and a uniform strategy defined in the dyadic contract.

The organization responds to the level of transaction costs. Even at a high level of economies of scale there are no incentives to integrate if no specific assets exist (Riordan and Williamson 1988). Even scale economies, according to Riordan and Williamson (1988) can be bought cheaper in the market and is per se not a motive for integration. High transaction costs due to asset specificity can only be reduced through vertical control and hierarchical structures, given asset specificity. Increased vertical control makes it possible to design the most efficient organizational relationship with the dealer.

Alternative organizational forms are evaluated in terms of relative level of transaction costs.

Interorganizational relations take several alternative forms. The principal may choose to internalize the agent or use contracts that respond to the need for external control. Ownership is, however, only a formal governance structure. Between the two archetypes of transaction-governance structures, the hierarchy and the perfect market exchange, it is a continuum of contractual relations between principals and agents. These contractual relations are also characterized by dimensions other than the ownership structure, i.e., the degree of centralization, formalization and interaction. Vertical control According to transaction cost theory, the potential level of transaction costs defines the motives to build efficient institutional structures. Therefore, the institutional form is described as an "efficient boundary" (Williamson 1985). As we can see from figure 2.1, the organization of transactions is a question about the costs of coordinating market (M (k)) exchange versus the relative costs of hybrid (X (k)) or hierarchical exchange (H (k)). The heuristic model presented in figure 2.1 shows that when asset specificity $k<k_1$, the market is the most efficient governance structure, for $k_1<k<k_2$, hybrid forms are more efficient, and when $k>k_2$ the internal hierarchy is more efficient. Transaction costs economics focuses on the comparative costs of governance. The object of the analysis is the contractual structure relative to alternative organizational forms (Williamson 1991).

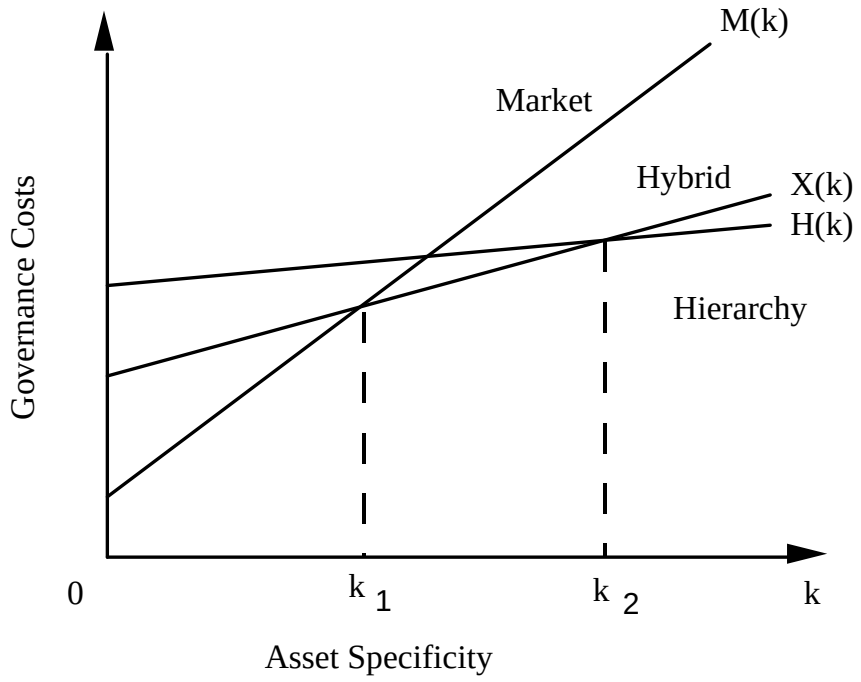

Fig. 2.1 Costs of alternative governance structures as a function of asset specificity (Williamson 1991).

The transaction cost approach focuses on economically motivated behavior. This behavior is connected to the self interest seeking activities within the bilateral dyad. Both parties have two basic interests. First, there is a conflict between the two sides regarding the distribution of welfare. Second, the two parties are interested in cooperation through maintenance of the bilateral cooperation in the distribution channel as long as it is profitable. Hence, it is the contradiction between private and common interests that produces contractual costs. The best option is the alternative where private and common interests converge. The first best solution is produced by the transaction costs economizing process ex post.

2.2 The Structure of Transaction Costs

The company always loses welfare by using independent dealers (agents) because they are rather independent decision units that maximize their share of the welfare based on their own private interests instead of the interests of both parties in the transaction (Jensen and Meckling 1976). In addition, the informational superiority of the agent encourages agency problems and

transaction costs. On the other hand, the principal company uses agents because it receives offsetting benefits by contracting sales activities to the independent dealer. Anticipated better sales performance and cost-effectiveness are arguments for delegating rights to use the trademark. The key problem is the distribution of roles in the ex post contract between the principal and the agent. Sometimes, bounded rationality in the ex post relationships lead to role conflicts and uncertainty (Nygaard and Dahlstrom 2002). Consequently, the relationship needs a constant alignment in the real world because of a dynamic and changing business environment (Manolis et al 1997). The total costs of transactions have to be carried by the entire distribution system and covered by the end-user price. Costs associated with the cooperative efforts between the company and the dealer is referred to as transaction costs. That is costs determined by the organization of distribution. Transaction costs are friction costs in the economic system (Arrow 1969). This contract related costs are due to two factors. The first is the monitoring, enforcing and writing of the contractual restrictions accepted by the agent. The second relates to costs produced by suboptimal behavior and ineffective coordination of interorganizational activities. This empirical study is a preliminary test of ex post transaction cost dimensions related to the nature of vertical control.

2.3 The Dimensions of Contract Related Costs

According to the channel literature, these costs are produced by the incentives inherent in the contractual structure (Stern and Reve 1980, Williamson 1985). Ex post contract related costs can be grouped into two basic categories: 1) transaction costs (Williamson 1985) 2) costs of free-riding (Rubin 1978). The ex post contract related costs are produced after the relationship between the parties have been established by the more or less explicit contractual arrangements. The ex post transaction costs, therefore, are related to the ex post contract determined by the vertical control.

Ex post transaction costs affect cash flow directly. These costs are carried by the distribution system because of negotiations with the dealers, inadequate coordination of the distribution system, monitoring and maladaption costs due to inadequate and incomplete "ex ante" bilateral contracts. Transaction costs are costs related to administration activities: monitoring systems, accounting and control systems, as well as costs entailed by conflicts, cooperation and coordination misalignment (Williamson 1985). They are categorized into three groups: 1) bargaining costs 2) control and monitoring costs and 3) maladaption costs (Williamson 1985:22, 1988).

Also, transaction cost analyses in the channel literature have focused on the process of negotiating, information gathering, and monitoring performance (Dwyer and Oh 1985). These three dimensions of coordinating activities that entail costs are frequently mentioned in the transaction cost literature.

Bargaining is related to the polity in the channel environment. The administration of interorganizational activities includes modifications of the contractual relationship. When the dynamic environment or new information about the two parties in the transaction changes the basis for the ex ante contractual relation, bargaining is necessary in order to safeguard the interests of both parties in the transaction (Nygaard and Dahlstrom 2002). Thus, bargaining activities are focused on the process of realignment of interests.

1) Bargaining costs are induced by conflicts and ex post renegotiation of the bilateral contract. These costs are related to the efficiency of the bargaining process intended to align the bilateral interests (Dahlstrom and Nygaard 1999).

Monitoring problems play an important role in theories of agency (Fama and Jensen 1983). When the principal company and the agent agree to cooperate ex ante, it is also necessary to monitor that the intentions defined in the contract are respected by both parties` ex post. Ex post control activities are related to the determination of the value of the transaction.

2) Control and monitoring costs reflect the resources spent to monitor whether transactions are consistent with the principal-agent contract (Myrtveit and Nygaard 2000).

Imperfect information or information impactedness is one of the most important features of the principal-agency relationship (Jensen and Meckling 1976, Reve 1986, Williamson 1975). Inconsistent with traditional economics, the parties are faced with information systems that are unable to provide necessary and valid input to the decision process. Maladaption costs refer to the production of imperfect and invalid information. In a principal-agency context, imperfect information may be even more important because the principal have licensed activities to the agent. As a result, the agent is in a superior position to evaluate the activities delegated to him. Maladaption costs therefore are of key importance to the principal.

3) Maladaption costs represent communication and coordination failures between the two parties in the contract. These costs reflect resources used to produce information that is not absorbed by the other part of the transaction.

2.4 Costs of Free-Riding

Free-riding costs, according to Williamson (1985) have transaction cost origin. That is, costs of free-riding are associated to the incentive system defined in the bilateral contract. The problem of free-riding also can be related to the principal's investments in trademark-specific capital (Williamson 1985). When the principal-company delegates decisions under the trademark, it might be exploited by agents that maximize their own private interests (Kidwell et al 2007).

Costs of free-riding do not directly affect the single agent's cash flow in the short term. But the costs of free-riding influence the business of all other trademark agents. Like ex post transaction costs, these costs are also caused by, or vary with, the way the company chooses to organize the contractual relationship with the dealer. Costs of free-riding are produced by conflicts of interests between the trademark company and each single dealer. One of the most important contract related costs in trademark chains is the cost of free-riding (Rubin 1978, Klein 1980, Hennart 1986). Because each dealer utilizes the marketing profile and the trademark image of the company, there is a potential externality problem of free-riding. The marketing profile, product style and design of the trademark chain signals and guarantees standardized service and product quality. Trademark chains may therefore be described as an institutional response to quality uncertainty (Akerlof 1970). The trademark company carries the quality risk due to sales of inferior goods and reduced service quality from the dealers. Therefore, the trademark company demands that the dealer must purchase company products in order to operate his business associated with the trademark. The trademark profile is related to the product itself. Thus, the company has to enforce the standard quality of the product offered by the dealer and related to the trademark.

The trademark company invests heavily in marketing and promotion in order to achieve quality reputation. This is investments in specific trademark assets with no alternative value in the market (Williamson 1991). At the same

time, the dealer may be interested in reducing quality profile efforts and costs and instead concentrate only on sales activities. The outcome is service equipment in poor condition, dirty restrooms and shops, incompetent and impolite staff, no non-sales trademark profile activities, etc. The free-riding costs are caused by the fact that single dealers may degrade the value of the trademark image in the market, but simultaneously increase their own welfare (Davidson 1982). The negative consequences of this suboptimalization must be carried by all the other trademark dealers and the principal company.

Conclusively, it is possible to draw lines from the literature that discusses problems and costs related to the bilateral contract. Figure 2.2 summarizes contractual costs such as the cost dimensions derived from transaction cost theory and the free-riding costs discussed in related literature.

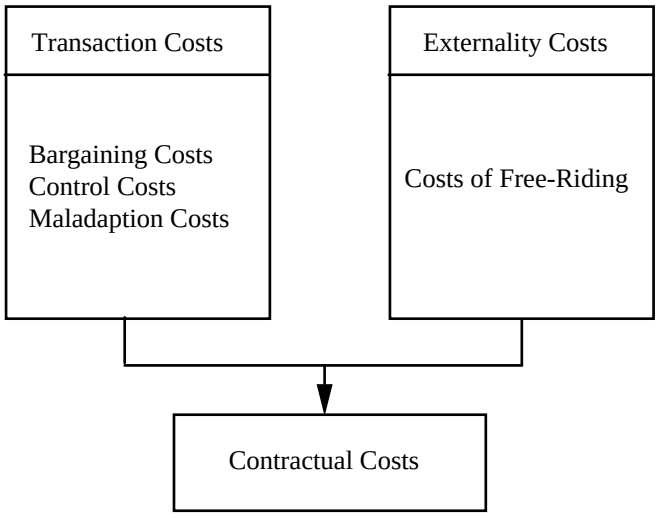

Fig. 2.2 Ex post contract related costs.

2.5 Transaction Cost Approach; Empirical Evidence

In general, empirical studies of the integration problem based on the transaction cost perspective have largely supported its predictions. Table 2.1 below presents a selection of the most cited empirical studies. None of these studies have focused on the cost structure directly. Instead, they have analyzed the relationships between the characteristics of transaction and institutional form Asset specificity, uncertainty and small numbers bargaining have been used as conventional proxies for the level of transaction costs (Dahlstrom and Nygaard 1993).

For instance, Acheson (1985) studied the contractual forms in the Maine lobster market. His study showed how private long term arrangements between suppliers and buyers safeguarded the parties against the horizon of opportunism and uncertainty. The results were consistent with the transaction cost framework.

Anderson (1985) investigated make or buy decisions in electric component companies. Only two of her seven proxies for asset specificity produced results in the predicted direction. One measure, loyalty between the sales person and the customer, was negatively and significantly related to integration (Haugland et al. 2007). Anderson (1988), though, still using data from the electronics manufacturers, strongly supported hypotheses from the transaction cost theory that opportunism increases when asset specificity increases. In addition, her investigation indicated that monitoring problems become difficult when agents are less integrated. Anderson and Coughlan (1987) explored the choice of distribution channels in foreign markets by U.S. semiconductor companies. They found that integration was related to the degree of transaction specificity. This was consistent with the study conducted by Anderson and Schmittlein (1984). The results supported the prediction derived from the transaction costs framework that specificity affected the level of integration. Other studies have applied other proxies for asset specificity.

Armour and Teece (1980) tested whether R&D expenditures affected vertical integration. In their data from the petroleum industry during the years 1954-75, they found a positive association between R&D expenditures and vertical integration. This evidence supported the transaction cost approach argument that hierarchy safeguards against potential opportunistic hold-up when investments in specific assets is the case.

Also Caves and Bradburd (1988) in a cross sectional study using data from 83 industries supported transaction cost explanations that asset specificity determined the level of vertical integration. Davidson and McFetridge (1984) tested how asset specificity affected integration in 32 U.S. based multinational companies during the period of 1945-1975. They found that newer and more advanced technology was more likely to be transferred internally. The results, therefore, support the transaction cost framework.

Gatignon and Anderson (1988) applied transaction cost analysis in a multinational corporation context. They used data from 1267 foreign entries by American multinational corporations. Their results strongly indicate that vertical control is associated with the level of proprietary content of products and processes. However, their conclusion was that transaction cost theory is useful, but not the only perspective that had explanatory power.

In their analysis of the vertical structure in 30 forests product firms Globerman and Schwindt (1986) found that asset specificity affected the level of vertical integration. The nature of the technology in logging, pulping and paper making strongly determined the governance structure in the downstream chain.

Also the investigation by Goldberg and Erickson (1987) of 90 petroleum coke contracts supported predictions from transaction cost theory. The long term contractual arrangements reflected the need to reduce potential ex post opportunistic behavior.

Hennart (1988) explored the structural differences between the tin and aluminum market. High level of specificity in the aluminum industry increased the level of integration. Tin industry, though, is not so integrated due to more standardized technology. His conclusions, therefore, were consistent with predictions derived from transaction cost theory.

John and Weitz (1988) tested transaction cost hypotheses in forward integration into distribution. The level of asset specificity needed to support distribution activities was associated to the level of integration. Their data from 87 industrial firms indicated that both behavioral and environmental uncertainty affected integration in the predicted direction.

Joskow (1988) analyzed 277 coal contracts. He found that the contracts safeguarded the parties against ex post opportunistic behavior. His other study (Joskow 1987) also analyzed data from contracts between the coal industry and electric utilities. Here, he investigated 300 coal contracts. The results strongly supported the hypotheses that asset specificity is related to long term contracts. When the parties invest in specific assets, they will tend to tie down the terms of exchange in long term contracts.

Klein, Frazier and Roth (1990) studied integration in an international market context. A test based on data from 510 Canadian export firms supported the hypothesis that asset specificity is related positively to the level of channel integration. On the other hand, contrary to expectations derived from the transaction cost perspective, the impact of uncertainty is mixed and production cost theory is strongly supported.

In a cross sectional study using data from 69 firms, Levy (1985) found an association between the concentration of firms in the industry and the level of vertical integration. His study also supported other transaction cost hypotheses, that uncertainty and research intensity affected integration. MacDonald (1985) studied shipments from 79 manufacturing industries. Consistent with Levy

(1985), MacDonald (1985) provided supportive indications that specificity and small numbers bargaining affected vertical integration.

Also MacMillan, Hambrick and Pennings (1986) inspected cross sectional data. The setting was consumer, capital and component manufacturing firms. They tested the hypotheses that volume uncertainty and asset specificity caused backward integration. Both hypotheses were supported.

Masten (1984) explored the relationship between specific design and site specific capital and integration. In his study from 1887 component specifications in the aerospace industry he found that asset specificity and complexity increased the likelihood of integration. His test produced strong backing to the transaction cost framework.

Monteverde and Teece (1982a) tested the phenomenon of backward integration in Ford and GM. Their test included data from 133 automotive components. The test indicated significantly that human asset specificity affected integration. The degree of application engineering was used as a proxy for human asset specificity. Also in the other test Monteverde and Teece (1982b) analyzed component procurement in the auto industry. The investigation showed that quasi-rents affected the governance structure in the direction predicted by the transaction cost theory. In their test, however, quasi-rents explained only 12 % of variation in assembler ownership of tooling.

Mulherin (1986) investigated the organization of distribution between gas producers and pipeline owners during the period 1940-1954. The empirical evidence indicated that asset specificity plays a significant role in explaining integration. He also tested other hypotheses, but found that the transaction cost framework had the strongest explanatory power.

Palay (1984) analyzed 51 contracts between rail-freight carriers and shippers. He studied how asset specificity influenced the agreements between

the parties. The test supported the transaction cost hypothesis that the contractual structure reflected the need to safeguard investments in specific assets. Palay (1985) again supported transaction cost explanations in his analysis based on the same data. The studies conducted by Palay (1984, 1985) are particularly important contributions in the understanding of contractual relations in regulated industries.

Walker and Weber (1984) studied 60 make or buy decisions in an American automobile company. Their study produced mixed support for transaction cost theory. Production costs had a stronger impact on the governance structure. On the other hand, both volume uncertainty and supplier market competition had small but significant impact on the make or buy decision.

Although a number of studies support the relationship between asset specificity and integration, some empirical analyses of the agency problem have produced doubt about the predictive power of transaction cost theory (Williamson 1985:116). Studies conducted by Walker and Weber (1984) and Anderson (1985) in typical principal-agent settings have provided empirical evidence critical to predictions derived from transaction cost theory. The empirical focus chosen in this research builds on the doubt presented there. In addition, agency theorists have previously emphasized the need for more empirical work on the principal-agency problem (Arrow 1985, Holmstrom and Tirole 1989).

Overall, the majority of empirical studies support the prediction that asset specificity, uncertainty, and small numbers bargaining break down coordination between actors in the market and stimulate internalization of exchanges (Dahlstrom and Nygaard 2005). The tests presented here (see table 2.1), indicate that in-house transactions are based on more specialized assets than transactions between independent parties. However, none of these studies inspected the direct effect of institutional differences on transaction cost

efficiency. The studies are based on a strategic rationality assumption that integration in market failure situations was intended to reduce the costs of transactions (Elster 1982). The implicit belief is that integration creates ex post bilateral efficiency and effectiveness. The situation, therefore, reflects a need for research intended to investigate transaction costs more directly. That is to explore the facets of the ex post transaction costs by developing multi-item proxies instead of using specificity and uncertainty as transaction cost proxies. In addition, the previous empirical research is based on one-sided data that may exclude important information necessary to describe bilateral contractual relations. Also previous research may reflect a lack of a robust ceteris paribus research design, where all other factors than the level of vertical control can be kept relatively constant. Prior research has applied data from rather heterogeneous organizations or heterogeneous products. In addition, empirical studies based on the transaction cost perspective have used the same data to specify the measures and to test the structural model (Churchill 1979). In general, though transaction cost economics have received empirical support over time in numerous international settings (David and Han 2004, Geyskens et al. 2006). Still the problematic point from a falsification point of view is the measure and dimensionalization of the key concept transaction costs (Dahlstrom and Nygaard 2005, Nygaard 1994). This research also responds to the limited diversification of research methods in this area (Dahlstrom 2008). Triangulation or application of different sources of data augments validity of research findings.

	SETTING	JOURNAL	THEORETICAL PREDICTION	EMPIRIC SUPPORT
Acheson, J	Lobster Market Contracts	Journal of Law Ec. and Org. 1985	Quasi-integration Uncertainty	+
Anderson, E.	13 el. component man.	Marketing Science 1985	Specificity Integration	-/+
Anderson, E.	169 elect. manufact.	Journal of Ec. Behavior and Org. 1988	Integration Opportunism	+
Anderson, E. & Coughlan, A.	36 US Semicond Companies	Journal of Marketing 1987	Specificity Integration	+
Anderson, E. & Schmittlein, D.	El. comp. industry	Rand Journal of Economics 1984	Specificity Integration	+
Armour, H. & Teece, D.	Petroleum industry	Rev. of Ec. and St. 1980	Integration R&D-performance	+
Caves, R. & Bradburd, R.	Cross-sectional	Journal of Ec. Behavior and Org. 1988	Specificity Integration	+
Davidson, W. & McFetridge, D.	32 US Multinationals	Journal of Industrial Economics 1984	Integration Specificity	+
Gatignon, H. & Anderson, E.	180 largest US Multinationals	Journal of Law Ec. and Org. 1988	Specificity Integration	+/-
Globerman, S. & Schwindt, R.	30 large Forest product comp.	Journal of Ec. Behavior and Org. 1986	Specificity Integration	+
Goldberg, V. & Erickson, J.	90 Petr. coke contracts	Journal of Law and Economics 1987	Specificity Quasi-integration	+
Hennart, J.	Aluminum and Tin Market	Journal of Ec. Behavior and Org. 1988	Specificity Integration	+

Table 2.1 Selected previous empirical research based on a transaction cost perspective.

	SETTING	JOURNAL	THEORETICAL PREDICTION	EMPIRIC SUPPORT
John, G. & Weitz, B.	87 Ind. firms	Journal of Law Ec. and Org. 1988	Specificity Integration	+
Joskow, P.	300 coal contracts	Journal of Law and Economics 1988	Specificity Quasi-integration	+
Joskow, P.	277 coal contracts	American Econ. Review 1987	Specificity Quasi-integration	+
Klein, S. Frazier, G. & Roth, V.	375 Can. exp. firms cross sect.	Journal of Marketing Research 1990	Uncertainty Specificity Integration	+/-
Levy, D.	69 firms 37 industries	Review of Economics and Stat. 1985	Small numbers integration	+
MacDonald, J.	79 manuf. industries	Review of Economics and Stat. 1985	Small numbers integration	+
MacMillan, I Hambrick, D. & Pennings, J	Cross-sect.	Organisational Studies 1982	Specificity Integration	+
Masten, S.	Aerospace Industry	Journal of Law and Economics 1984	Integration Specificity	+
Monteverde, K. & Teece, D.	GM and Ford	Journal of Law and Economics 1984	Specificity Quasi-integration	weak, but sign.
Monteverde, K. & Teece, D.	Automobile Industry	Bell Journal of Economics 1982	Specificity Quasi-integration	+
Mulherin, J.	Gas Industry contracts	Journal of Law Ec. and Org. 1986	Specificity Integration	+
Palay, T.	Rail Freight market	Journal of Legal Studies 1984	Specificity Quasi-integration	+
Palay, T.	Rail Freight market	Journal of Law Ec. and Org. 1985	Specificity Quasi-integration	+
Walker, G. & Weber, D.	US Automobile company	ASQ 1984	Uncertainty Integration	weak, but sign.

Table 2.1 (Continued) Selected empirical work based on the transaction cost perspective.

3. THE CONCEPTUAL MODEL

The elements and relations of the conceptual model will be specified and discussed in this chapter. The conceptual model organizes the theoretical elements for empirical testing. The elements (see figure 3.1 below) that describe the theoretical framework of transaction cost approach are; vertical control, opportunism, transaction costs and performance.

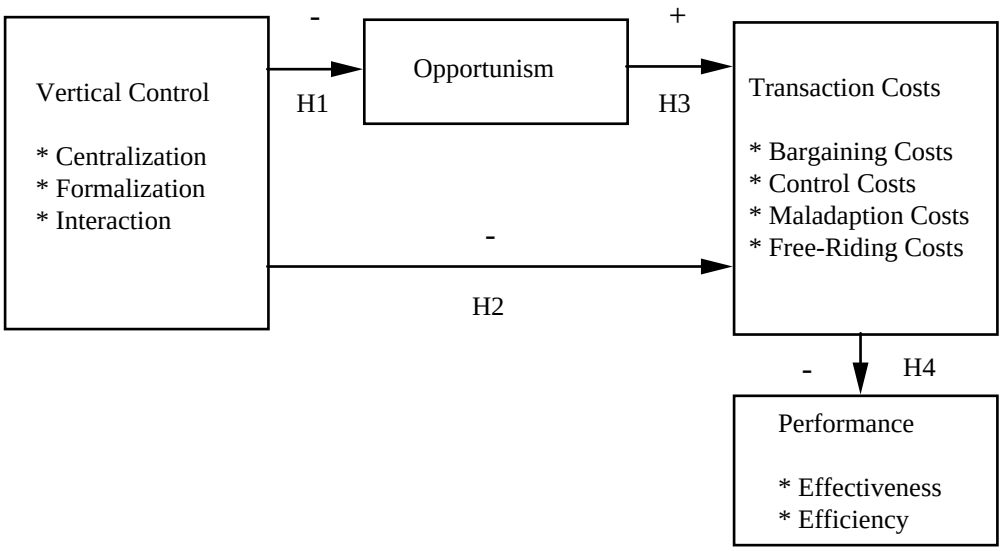

Fig.3.1 The model presents the structure of the concepts and the hypothesized effects.

Our assumption is that the company intends to reduce costs and opportunism by implementing vertical control. In perfect markets where all information is available and free contracting is possible, vertical control is not necessary in order to reduce opportunism and costs. It is first after the free market mechanism is replaced by an ex ante (incomplete) more or less explicit contract that the company has to exercise control to safeguard the interests of the distribution system. I therefore present vertical control as the independent

variable affecting opportunism and transaction costs. Also, I anticipate that vertical control and perceived opportunism come before transaction costs. Transaction costs are affected directly by the level of bilateral trust and openness. The reason is that the level of openness (opportunism) probably will affect the amount of resources that is used to align the relationship through bargaining and control as well as the suboptimal behavior of free-riding and maladaption. Vertical control in the model affects the transaction costs directly. Finally, I expect costs to affect the level of bilateral performance.

Vertical control is dimensionalized as centralization, formalization and interaction. Contract-related costs are categorized into bargaining costs, control costs, maladaption costs and free-riding costs. Performance is divided into interorganizational performance (effectiveness) and profitability (efficiency). The hypotheses are derived from the conceptual model presented in figure 3.1. The hypotheses are discussed in chapter 4.

The power relationship between the principal company and each retail dealer is highly asymmetrical (Heide and John 1988). Agents may be hired and fired, and they may be exposed to new contractual incentives. The company (principal) chooses the interorganizational form in response to ex ante anticipated transaction costs. The principal-agent problem after the formal contract is established ex ante is to design efficient vertical control. Vertical control makes the agents behave in the interest of the company at the lowest level of ex post transaction costs. The empirical analysis presented in this study focuses on the process of dyadic vertical exchange between the principal - company and the agent/dealer. In order to analyze the problem, two important relations are described: the potential opportunism initiated by the ex post contract (vertical control), and how the contract affects the dimensions of transaction costs. The ex post contract is described by various aspects of vertical control. Transaction climate is characterized by the potential opportunism related to the dyadic exchange. The concept of contractual costs includes multiple dimensions of the costs of bilateral organization. Therefore,

the model comprises both the political (opportunism) as well as the economic aspects (contractual costs and performance) of the dyad.

The political-economy framework that I apply provides a "real world" perspective on the interaction between economic and socio-political aspects inherent in the transaction. The political-economy framework (Stern and Reve 1980) has been explored in several empirical studies (John 1984, Dwyer and Welsh 1985, Anderson and Weitz 1986, Reve and Stern 1986, Reve 1986, Heide and John 1988). The model offers the advantage of analyzing how both vertical control and opportunism affect transaction costs. At the same time, it is possible to analyze how the contract directly affects the level of opportunism and transaction costs. The political - economy framework is applied because I want to explore the dimensions of transaction costs from both social and contractual (vertical control) angles.

3.1 Dimensions of Vertical Control

The conceptual model describes vertical control by three dimensions: interaction, formalization and centralization (Reve 1980). Vertical control is determined both by process and by structural aspects of the bilateral contract (Van de Ven 1976, Lehman 1975). Structural dimensions can be characterized by the level of centralization and formalization. The process dimension of the contract is described by the level of interaction. Vertical interactions characterize the frequency of exchange and the magnitude of interaction between the agent and the principal. These interactions are vertical flows of resources and information within the distribution channel dyad (Van de Ven 1976).

Formalization of transactions can be described by the rules, fixed policies, restrictions and the procedures that govern the interorganizational flows (Stern and Reve 1980). Centralization refers to the extent to which one of the two parties in the relationship has concentrated the power to make and

implement decisions on his own (Marrett 1971, Aldrich 1976, Van de Ven and Ferry 1979).

A number of studies has dimensionalized vertical control into centralization, formalization and interaction (Dahlstrom 1990, Dwyer and Welsh 1985, Dwyer and Oh 1987,1988, John 1984, John and Martin 1984, John and Reve 1982, Phillips 1982, Reve 1980, Spekman and Stern 1979). Some of these studies have applied a more narrow concept of interaction called participation (i.e., Dahlstrom 1990, Dwyer and Oh 1987, 1988) defined as the degree of input to interorganizational decisions. Because of our more exploratory profile, I have chosen to follow the broader conceptual basis offered by Reve (1980). Still, the concept of participation is included in the concept of interaction. We, therefore, assume that the three-dimensional space of centralization, formalization, and interaction picture the extent to which a market relationship has been replaced by an administrative relationship (John and Reve 1982).

3.2 The Concept of Opportunism

Williamson (1975) stressed that the level of transaction costs not only could be predicted from transaction specific investments but also from climate factors surrounding the transaction. Later, Stern and Reve (1980) emphasized that the interaction between economic and socio-political factors, e.g., opportunism, produces costs and affects performance. Opportunism reflects the lack of mutual trust (Dahlstrom and Nygaard 1995). In the transaction cost literature, the concept of opportunism has been defined as self-interest seeking behavior with guile (Williamson 1985:47). Opportunism arises when the principal has imperfect information about agent behavior (Anderson 1988) and there is information impactedness between the parties. The essence of opportunism is the potential deceit of promises defined in the bilateral contract (John 1984).

The opposite situation is produced when the two parties feel that the other shares neutral information relevant to the dyadic exchange (Reve and Stern 1986). This kind of openness and trust may alleviate the fear of emerging opportunism (Bradach and Eccles 1989).

In the perfect markets where all information is available and switching costs are minor, opportunism is not a problem that affects the costs of realizing the exchange. Both parties are able to choose among a large number of alternative buyers and suppliers. The phenomenon of opportunism is not absent in perfect markets, but have no cost-driving consequences. Whenever opportunism is detected, a new partner can be found costless among the large number alternatives. Specific investments in trademark assets, equipment, sites etc. cause the need to safeguard the interests of the principal company against opportunism. We, therefore, argue that vertical control is associated to the level of opportunism. Vertical control is the safeguarding tool operated by the principal company. In frictionless markets, the appearance of opportunism does not affect transaction costs. However, in relations where asset specificity is present, opportunism is costly. We, therefore, assume in our model that opportunism is related to the cost structure and endogenous to the relative performance of the business units (Haugland, et al. 2007) .

3.3 Contractual Costs

In this study, the concept of contract related costs refer to what is called "ex post" costs that is the contractual focus in the transaction cost literature (Williamson 1988). Costs carried by both the principal and the agent in order to organize exchange can be included in the concept of transaction costs. In other words, transaction costs are caused by governance of interorganizational activities. The amount of such friction costs depends on how difficult it is for the parties in the exchange relationship to make an agreement (Ulrich and Barney 1984) and how difficult it is to measure performance.

Williamson (1985) divides transaction costs into the categories of "ex ante" and "ex post" types. "Ex ante" transaction costs consist of drafting, negotiating and safeguarding an agreement (Milgrom and Roberts 1992). The "ex post" costs take several forms: maladaption costs, costs incurred if bilateral efforts are made to correct ex post misalignments, the set-up and running costs associated with the governance structures to which disputes are referred and the bonding costs of effecting secure commitments (Williamson 1985:21, 1988).

The contractual form is designed after having analyzed the opportunity costs of alternative governance structures (Klein, Frazier and Roth 1990). Transaction costs analysis, therefore, emphasizes comparisons of transaction costs among alternative contractual arrangements (Williamson 1991). Thus, I want to explore the ex post transaction costs entailed by vertical control. Since the contract is designed to promote efficient exchange, transaction costs are associated to vertical control in the model. In order to enrich the transaction cost analysis, I have dimensionalized contract-related costs as presented previously in chapter 2.3.

3.4 Dimensions of Performance

There is a lack of consensus in the literature about interorganizational performance assessment (Haugland, et al. 2007). Some transaction cost analysts, however, have argued that performance may be indicated through the dimensions of transaction cost-effectiveness (Noordewier, John and Nevin 1990).

The model focuses the attributes of interorganizational performance. Performance often is dimensionalized into both effectiveness and efficiency (Stern and El-Ansary 1988). Interorganizational effectiveness is referred to as the successfulness of interorganizational activities that produces output that can meet demand in the market. Thus, I have established a performance concept that reflect the performance of such cooperative efforts in the distribution system like marketing activities, training and courses, and management and control. The problem is that it is no quantitative measures of effectiveness. In order to produce insights about the association between transaction costs and effectiveness, I have developed multiple perceptual measures describing the concept. In the empirical model, I assume that successfulness of cooperative activities is affected by the costs to administer such activities and the failure costs of free-riding and maladaption. Transaction costs, like production costs, represent a welfare effect in the distribution system. That is, the costs either ceteris paribus reduce the level of performance or indirectly reduce other costs that affect performance.

Channel system efficiency is an input to output measure. Therefore, efficiency is described as the added value produced by the interorganizational activities. Transaction costs, I assume, have a direct or indirect impact on the financial result.

In the next chapter I will derive hypothesis based on the structural relationship between the concepts presented in this chapter. The operative measures of the presented concepts are presented in chapter 6.

4. HYPOTHESES

This chapter discusses the structural relationships in the conceptual model presented in figure 3.1. The hypotheses are summarized at the end of the chapter and in table 4.1. The main focus in the transaction cost approach is on the costs of organizing and operating interrelationships between economic actors. The implicit belief is that the level of costs caused by opportunism and suboptimal behavior within a distribution system can be reduced by increased vertical control and integration. That is, I assume that the actors in a complex world intend to be rational. However, the empirical context might be in a process where efficient organizational boundaries have not yet been formed. The empirical focus of this investigation is the elements of contractual costs and how these costs relate to the structure of vertical control.

The transaction cost perspective predicts effectiveness from the organizational form (Williamson 1999). The organizational form reflects the anticipation of the level of future transaction costs. High "ex ante" anticipated transaction costs relative to alternative institutional forms initiate a higher degree of "ex post" vertical control. Transaction costs stem from potential opportunism and the structure of vertical control defined in the bilateral contract.

The assumption here is not that existing contractual arrangements minimize the sum of transaction costs. The intention is to examine how dimensions of transaction costs can be related to social (opportunism) and contractual aspects (vertical control) of the bilateral relationship. In order to study a real world context with both social and economic conditions, I have applied a political-economy framework that also includes opportunism as a social dimension related to the dyadic exchange. In the model, opportunism is not a given underlying assumption, but a variable that can be studied empirically.

4.1 Centralization, Opportunism and Contract-Related Costs

High asset specificity, e.g., trademark assets, creates incentives for the principal company to safeguard its interests by increased vertical control (Williamson 1985). Vertical control reduces the potential for opportunistic behavior from the agent. According to transaction cost theory, opportunism and conflicts can be controlled by employing more centralized contracts. Looser connections, given uncertainty and specific investments, can increase the incentives for suboptimalization, free riding and the loss of welfare within the distribution system (Kidwell et al.2007).

Consequently, increased vertical control is a response to high anticipated costs of coordination, management and control activities, maladapted contracts and free-riding. The rational principal company responds to high anticipated costs and uncertainty in order to gain more profits and better performance. The rational belief is that centralization leads to better coordination, control and lower transaction costs (Ruekert, Walker and Roering 1985). Following the argument from transaction cost theory, centralization may increase both the ability to coordinate efficiently and the potential to safeguard interests in the market. Thus, hierarchical decision-making leads to consistency between the strategic and operational decision levels and convergent goals between the company and the dealer-agent. Conclusively, I expect that centralization is negatively related to both opportunism and cost dimensions (Williamson 1985).

4.2 Formalization, Opportunism and Contract-Related Costs

Formal rules and regulations restrict the ex post behavior. Although, all ex ante formal arrangements are incomplete and will drift out of alignment ex post, they also create stability. Formalism determines the goal congruency in the dyad. The parties know what they can expect from each other in the future. Formalization, therefore, mitigate the potential for suboptimal conflicts.

Explicit formal contracts are more resistant to turbulent environmental conditions. Therefore, formalization may work as a stable framework that makes it easier for both parties to make plans and to reduce uncertainty. This aspect may be especially important to the agent that is often considered to be risk averse in the principal-agency literature (Eisenhart 1989). The agent is risk averse because it is difficult or impossible for him to diversify. Heide and John (1988) provided evidence that agents were able to reduce risk by offsetting investments. I assume though, that the parties prefer decreased uncertainty that may be provided by increased formalization of the dyadic relationship (Thompson 1967). Therefore, reduced uncertainty due to increased formalization tends to reduce agent opportunism and contract related costs (Manolis et al. 1997). In a fluctuating and turbulent interorganizational context without routines, programs, rules, etc., the principal company and the agent probably will be less committed to the relationship and will behave increasingly opportunistic. Also dynamic environments increase the informational superiority of the agent (Nygaard and Myrtveit 2000).

Formalization also reduces the space for political activities (Milgrom and Roberts 1988). The formalized practice is more difficult to change by using power than in a more anarchic situation where each problem has an ad hoc solution. That is, the anarchic situation with no formalism involved encourages the parties to exercise their political influence in order to maximize their share of the resources. On the other hand, by increased formalization activities in the dyad are constrained to only productive and cost-efficient behavior. Consequently, bargaining costs will decrease when negotiation between the two parties are less necessary.

Increased standardization, routinization, and formal rules, reduce costs per transaction. The parties do not design new contractual arrangements for every transaction. Additionally, increased formalization should make it easier for the parties to control each other at less expense (Ouchi 1980). Control

becomes more efficient because activities governed by the contract no longer are case specific.

Based on the previous discussion, I anticipate that formalization both will reduce opportunism and transaction costs.

4.3 Interaction, Opportunism and Contract- Related Costs

The magnitude of the exchange between the two parties is the third ex post contractual dimension that characterizes the relation between the parties. A high level of interaction may bring the agent closer to the planning and coordination process in the company. More bilateral cooperation entails convergent goals, less opportunism and lower transaction costs. Closer cooperation between the two parties means that information might be more accessible for both the principal and the agent. The magnitude and scope of interactions will therefore make the principal company better positioned to write more efficient contracts. Interaction, therefore, is instrumental to align the interests of both parties in the dyad. The scope and the magnitude of cooperation offered by the company, redirects the agents` motivation in favor of the interests of the principal.

Interaction is based on autonomous and voluntary decisions from both parties in the dyad. Acceptance of the sovereign rights to take decisions regarding the exchange improve transaction climate and reduces the level of opportunism. Consistently, interaction on a decentralized level between the parties also is cost efficient. That is, the two parties can combine resources in a way that creates synergy-effects and reduced need for bargaining and control. Conclusively, I expect that interaction both creates openness as well as reduced transaction costs.

4.4 The Problem of Free-Riding

Since the problem of free-riding is rarely discussed in transaction cost literature, the hypothesis including this dimension has to be justified more thoroughly. Recent theory development (Williamson 1991) discusses the problem of safeguarding trademark assets (Dahlstrom and Nygaard 1994). The

free-riding problem probably is the most serious threat against trademark assets (Kidwell, et al. 2007). Consistent with transaction cost theory, the literature on free-riding suggests that the problem can be reduced by implementation of increased vertical control. Williamson (1975:5, 1985:112) has also pointed out that the externality problem of free-riding has transaction cost origin. Free-riding, I assume, can be related to the vertical control.

Unlike monitoring costs (Jensen and Meckling 1976), the costs of free-riding cannot be externalized by making the agent outcome-dependent (Kidwell, et al. 2007). It is in fact outcome-dependent compensation that fuels incentives to free-ride on the trademark assets. Simultaneously, company investments in trademark assets make it necessary to safeguard trademark capital by establishing contractual incentives in the ex post contract (vertical control).

A market characterized by high consumer mobility and standardized products; the dealers are interdependent because the quality of the supply of products affects all dealers that represent the trademark (Dahlstrom and Nygaard 1994). With highly standardized products, customer preferences reflect the service quality that each customer associates with the trademark. Therefore, the dealer may have incentives to reduce the costs of service and product quality of added products because the welfare loss is carried by all the other dealers and the trademark company in the distribution system. Low quality is substituted for promised high quality in order to reduce costs (Minkler 1990, Dahlstrom, et al.2009).

Independent dealers may take the price as given and maximize their profits without taking quality standards given by the trademark company into consideration. The trademark signals and guarantees a given quality standard to the consumers in the market (Akerlof 1970). While the trademark company invests in quality reputation, the single dealer has incentives to free-ride on the reputation of the trademark if the negative effects of inferior service and

product quality are not borne alone. Therefore, the more independent the dealer is (Rubin 1978, Hennart 1986) and the more valuable the brand name is (Anderson and Gatignon 1986) I will expect that the more likely it is that the costs of free-riding increase.

This free-riding problem might be solved by increased vertical control. The company can then specify rules and restrictions about quality standards. In addition, the company may formalize the operations of the business activities in order to safeguard the quality image of the brand name. The principal company also may take more of the operating decisions at the dealer-unit level. Hierarchical decision-making may limit the potential for cheating.

Free-riding also can be reduced by establishing cooperative relations between the principal and the agent. The magnitude and scope of cooperation between the parties initiate a "team spirit" or a "corporate culture," better transaction climate and promote more efficient exchange. Interaction states that the principal company supports the agent. The agent will be more motivated to follow company policy and quality profile in the market. Decentralized and autonomous dyadic decisions make both parties more satisfied.

I therefore expect that vertical control will produce fewer free-riding costs and that opportunism will increase free-riding costs.

4.5 Opportunism and Contract-Related Costs

In the model (see figure 3.1) the concept of opportunism is an intermediate variable. Although, it is treated as an independent variable affecting the cost structure, it is also itself related to and affected by the dimensions of vertical control. In a free market context where information is costless and switching costs close to zero, the appearance of opportunism does not entail transaction

costs. When vertical control and contractual relations replace perfect markets as a governance structure, opportunism, probably leads to transaction costs.

Opportunism is a climate factor that describes the parties` "self interest seeking behavior with guile" (Williamson 1985). The concept of opportunism includes the potential utilization of asymmetrical information and bilateral lack of trust. Specifically, opportunism refers to calculated and covered efforts to mislead, manipulate or distort the other part of the dyad. According to the theory, I anticipate that the more ex post opportunism involved in the transaction, the more difficult it is to coordinate, to solve conflicts, and to control the intentions inherent in the bilateral contract. Therefore, consistent with the previous theoretical discussion, more opportunism increases contract-related costs.

4.6 Contract-Related Costs and Performance

Ceteris paribus I believe that contract-related costs affect performance. Although I assume that costs are associated to performance, it is not obvious that it is a consistent negative relationship. For instance, agency theory argues that there may be a positive association between control costs and performance (Jensen and Meckling 1976) and therefore the choice of interorganizational contract (Dahlstrom et al. 2009). The principal company can safeguard its interests by incurring control costs designed to constraint agent activities not intended in the bilateral contract.

Bargaining costs may have the same function. Negotiation between the parties is instrumental in order to realign contractual incentives and make the agent-dealer more motivated to work in the interests of the principal company. In a complex world, it is a problem for the company to measure the trade off between control costs, bargaining costs and performance. The company may use resources on these activities without getting increased performance back. This is the case when latent and more destructive bilateral conflicts appear.

Maladaption costs are produced by inferior information and communication systems between the principal company and the dealer. The consequences are that both parties use resources to produce information not available or needed by the other part of the transaction. In addition, maladaption costs may produce wrong decisions because the parties lack valid information. This suboptimal effect makes it possible to predict a clear negative association between maladaption costs and performance. Williamson (1988) emphasizes maladaption costs as the most important transaction cost dimension.

Free-riding costs have both a short term and long term effect. In the short run, the single dealer might increase his performance by reducing quality signaled by the trademark and reduce his own costs (Dahlstrom and Nygaard

1994). Still, the long term effect will be negative because customers even in quite mobile markets will avoid the low quality dealer. Thus, free-riding costs in the long run will affect the dealer performance as well as interorganizational performance negatively. Conclusively, I expect consistent with predictions from transaction cost theory, that transaction costs control interorganizational performance.

4.7 Summary: Hypotheses

Consistent with the conceptual model presented in figure 3.1, it is possible to derive the following set of four hypotheses and sub-hypotheses:

H1: The higher the level of vertical control, the lower is the level of opportunism.

Hypothesis 1 can be broken down to three sub-hypotheses:

H1 a: The higher the level of centralization, the lower is the level of opportunism.
H1 b: The higher the level of formalization, the lower is the level of opportunism.
H1 c: The higher the level of interaction, the lower is the level of opportunism.

H2: The higher the level of vertical control, the lower is the level of contract related costs.

Hypothesis 2 can be broken down to 12 sub-hypotheses:

H2 a: The higher the level of centralization, the lower is the level of bargaining costs.

H2 b: The higher the level of centralization, the lower is the level of control costs.

H2 c: The higher the level of centralization, the lower is the level of maladaption costs.

H2 d: The higher the level of centralization, the lower is the level of free-riding costs.

H2 e: The higher the level of formalization, the lower is the level of bargaining costs.

H2 f: The higher the level of formalization, the lower is the level of control costs.

H2 g: The higher the level of formalization, the lower is the level of maladaption costs.

H2 h: The higher the level of formalization, the lower is the level of free-riding costs.

H2 i: The higher the level of interaction, the lower is the level of bargaining costs.

H2 j: The higher the level of interaction, the lower is the level of control costs.

H2 k: The higher the level of interaction, the lower is the level of maladaption costs.

H2 l: The higher the level of interaction, the lower is the the level of free-riding costs.

H3: The higher the level of opportunism, the higher is the level of contract related costs.

Hypothesis 3 can be broken down to 4 sub-hypotheses:

H3 a: The higher the level of opportunism, the higher is the level of bargaining costs.

H3 b: The higher the level of opportunism, the higher is the level of control costs.

H3 c: The higher the level of opportunism, the higher is the level of maladaption costs.

H3 d: The higher the level of opportunism, the higher is the level of free-riding costs.

H4: The higher the level of contract related costs; the lower is the level of interorganizational performance.

Hypothesis 4 can be broken down to 8 sub-hypotheses:

H4 a: The higher the level of bargaining costs, the lower is the level of effectiveness.
H4 b: The higher the level of bargaining costs, the lower is the level of efficiency.
H4 c: The higher the level of control costs, the lower is the level of effectiveness.
H4 d: The higher the level of control costs, the lower is the level of efficiency.
H4 e: The higher the level of maladaption costs, the lower is the level of effectiveness.
H4 f: The higher the level of maladaption costs, the lower is the level of efficiency.
H4 g: The higher the level of free-riding costs, the lower is the level of effectiveness.
H4 h: The higher the level of free-riding costs, the lower is the level of efficiency.

The consistent set of hypotheses derived from the theoretical model above will be operationalized and tested in the following chapters. Expected directions of the structural relationships in the model are presented in table 4.1.

INDEPENDENT VARIABLE	INTERMEDIATE VARIABLE	DEPENDENT VARIABLES	EXPECTED SIGNS
VERTICAL CONTROL	OPPORTUNISM		-
VERTICAL CONTROL	TRANSACTION COSTS		-
	OPPORTUNISM	TRANSACTION COSTS	+
	TRANSACTION COSTS	PERFORMANCE	-

Table 4.1 Predicted association in the model and their expected signs.

5. RESEARCH DESIGN AND METHODOLOGY

This chapter specifies research design and methodology used to analyze hypotheses derived from the conceptual model presented in figure 3.1. The data collection process was a two step survey approach. First phase was a survey of the most standard Shell-stations called Shell "Team-stations". The reason for this was that I wanted the sample to be as homogeneous as possible in order to control third variables. The second phase was stratified sampling among the three categories of ex ante contracts: employee manager-contracts, dealers with a leasing contract and independent dealer-contracts.

The hypotheses presented in the previous chapter are correlational. The reason for deriving correlational hypotheses is that I wanted to study the real life phenomenon of transaction costs. It may be difficult and expensive to apply an experimental investigation. As follows, an analogous static group comparison design applied here, seeks to describe the relationship between the variables in the presented model. I wanted a setting where the ex post vertical control variable varied as much as possible. But vertical control is not easy to detect because it is not visible to the researcher. Therefore, I chose a setting with three categories of ex ante formal contracts. I assumed that the variation of formal ex ante contracts (see figure 5.2 below) guaranteed enough variation in ex post vertical control. This is a typical survey design where I assume that the different groups of contracts provide sufficient variation in vertical control enough to investigate opportunism and the dimensions of transaction costs.

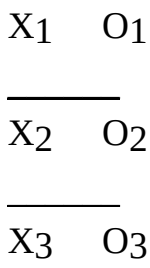

Fig. 5.1 The static group comparison design, X= contract group, O= observations.

In order to isolate alternative explanations to the variations in the dependent variables, a homogeneous setting is preferable. The oil company that is used as an empirical setting here, operates three different formal models for organizing dealers: 1) independent dealers, i.e., dealers who own and manage the gasoline station; 2) contract dealers, i.e., dealers who lease and operate the gasoline station; 3) employee managers, i.e., company owned and company-managed gas stations (see figure 5.2 below).

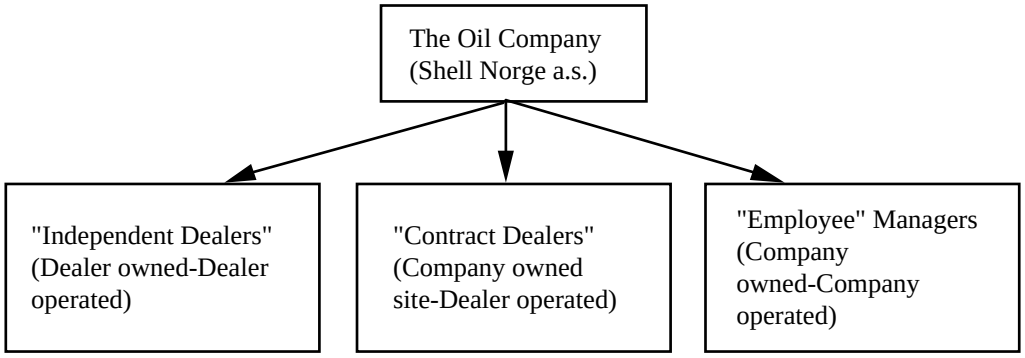

Fig. 5.2 The model exhibits the organizational structure of the distribution system in A.S Norske Shell.

The empirical setting analyzed here may therefore reflect a continuum of vertical control including intermediate types. This corresponds to theoretical presentation of transaction cost theory, where ex post vertical control represents a continuum and not polar categories as was the case in early stage of theory development (Williamson 1975)(see also fig.2.1).

Prior to the survey information material from Shell, secondary data and previous surveys conducted by the company were collected and analyzed. Extensive pretest interviews with both Shell managers and representatives from the three categories of dealers gave necessary inputs to the first phase of the research. In addition, preparations for the survey also included a minor pilot-test. The survey provided two types of data:

I Data from the dealers

II Data from the area sales managers in the company

Our focus here is on abstract theoretical concepts in the model. The study concentrates on developing new constructs in transaction cost analysis. The importance of construct validity therefore has been given superior priority. It is a problem whether it is possible to generalize from a set of operations to a referent construct (Cook and Campbell 1979). Thus, an empirical setting was chosen because factors irrelevant to model-testing could be kept relatively constant. External validity therefore was sacrificed in order to produce a better control of third variables.

On the other hand, it was also important to find a setting where the independent variable (vertical control) varies as much as possible. The oil company that is focused on here distributes gasoline by using employee managers, dealers who lease their station from the company and "independent" dealers who own and manage the stations. The employee managers have fixed salary schemes. Their flexibility is constrained by the informal or formal rules defined by the sales area managers. Dealers operating leased stations are more output dependent. They have to pay a fixed rent to the company. But their compensation is determined by the residual income. However, they are subjected to more control from the company who owns the station. On the other hand, independent dealers are output-dependent. They have the possibility to switch to another principal company after the contracted period. Their position in the system is closest to the market on the market-hierarchy continuum in transaction cost theory. The various formal contractual arrangements were therefore assumed to secure variance in the independent variable (vertical control). These categories of dealers were connected to the company by three types of standardized contracts. Furthermore, this empirical context can be characterized as a plural formed distribution system (Dahlstrom and Nygaard 1999). Most franchise systems are plural formed systems.

5.1 The Bilateral Contract

Also the empirical setting should be a principal-multi-agency setting in order to produce insights in principal - agency relationships in a distribution context. The empirical setting can be characterized by the principals´ active role in attempting to influence agent behavior by establishing contractual incentives (Allvine and Patterson 1972, Prisdirektoratet 1984). This was initially assumed to secure variation in the independent factor (vertical control) that is necessary in order to inspect the influence on indicators of transaction costs. Oil companies and their dealers are not an unknown setting for interorganizational research (Ridgeway 1957, Teece 1976, John 1984).

In particular, the study conducted here can be related to John (1984). He applied a major oil distribution company as an empirical setting. He also applied a political - economy framework to analyze the contracts. The company analyzed here and the company analyzed in John (1984) used heterogeneous contracts to influence homogeneous dealer operations. Both companies, therefore, represent plural systems (Bradach and Eccles 1989).

The initial assumption was that the variation in explicit contracts that define the ownership structure of the agent dealer secured enough variation in vertical control. In the dyadic model I have paired data from both sides of the transaction. The empirical model utilized information from 72 dyadic cases. The dyadic information was used as a validation sample. Table 5.1 below shows the distribution of these cases on the three categories of formal contracts. The final model test (the hypotheses test) used information from 179 dealer cases. Table 5.1 also exhibits how the dealer side cases in the final model test were related to formal ex ante contracts in the company.

MODEL-TEST	EMPLOYEE DEALERS	CONTRACTED DEALERS	INDEPENDENT DEALERS	TOTAL
DYADIC MODEL	13	30	29	72
HYPOTHESES TEST	18	103	58	179

Table 5.1 The distribution of the two samples of cases on the three formal categories of ex ante contracts.

5.2 Sampling and Sample Description

Shell has 520 stations in the Norwegian market. The survey includes only 320 "Team-stations" because I wanted to study a homogeneous setting in order to control for third variables. A "Team-station" is a gas station where Shell and the dealer cooperate more intensively in marketing and promotion activities. The dealer has a standard cooperation agreement with the company. The agreement implies that Shell is supposed to supply all promotion material to the dealer. Team-stations also are the biggest stations in the distribution system, where the technological relationship (storage tanks, interface-systems, credit-card-systems etc.) and the market profile are relatively standardized.

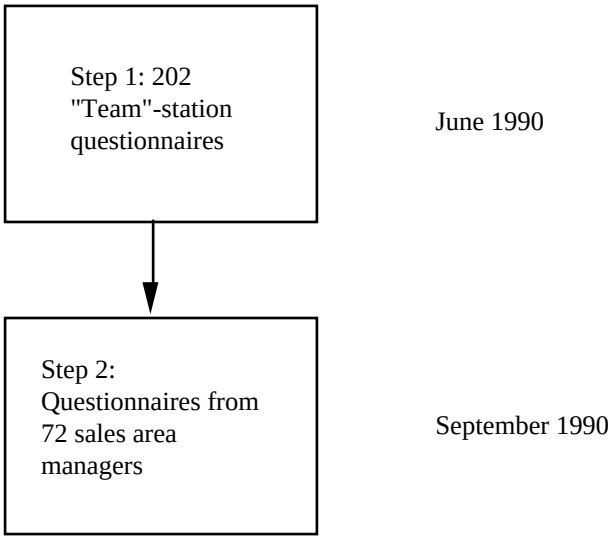

Fig.5.3 The model presents the two step sampling procedure.

Because I found it efficient, more flexible, and cheapest, I chose to collect information by using mailed questionnaires and telephone reminders. Our research problem was structured in a way that could be understood by the informant. The company provided us with updated addresses and phone numbers. The dealers were given two telephone-reminders in order to maximize the number of respondents. Enclosed to the questionnaire, there were recommendations both from the company and from the union of dealers. A subset of items from the questionnaire was sent to the area managers in the company. This questionnaire was directly related to the dyad in question. (The questionnaire to the dealer and to the sales area manager and the recommendation letters are not reported here). A test was conducted to control if the dealers who answered later did perform better or worse relative to the others. The T-test (not reported here) did not produce any indications that late response reflected performance differences. As I can see from figure 5.3 I received 202 dealer questionnaires back during the first step of the sampling procedure. During the second step of sampling I received 72 usable questionnaires back from the sales area managers.

Shell had 22 company-owned and employee managed stations. From the residual 300 stations, about 50% of the dealers were company owned and managed by independent representatives. The other half was dealer owned and dealer managed. This indicated sufficient variation in the ex ante formal contracts.

In order to maximize the number of cases, the first wave of questionnaires was sent to all Shell Team - stations in Norway, minus the pilot-test-group (5 dealers) and the two dealers in the expert-group who evaluated the face validity of the constructs. Five dealers had more than one gasoline station. They received only one questionnaire related to one of the contractual relationships. The final population came to 299 gasoline stations. From the population, I received 202 questionnaires back (68 %). There were 179 (60%) usable cases. The missing item problem was not related to any particular construct, but was distributed all over the questionnaire. The dealer side - survey was sent out in mid-June 1990 and I received the last questionnaires in November 1990. The sequential steps in the data gathering process are illustrated in figure 5.4 below.

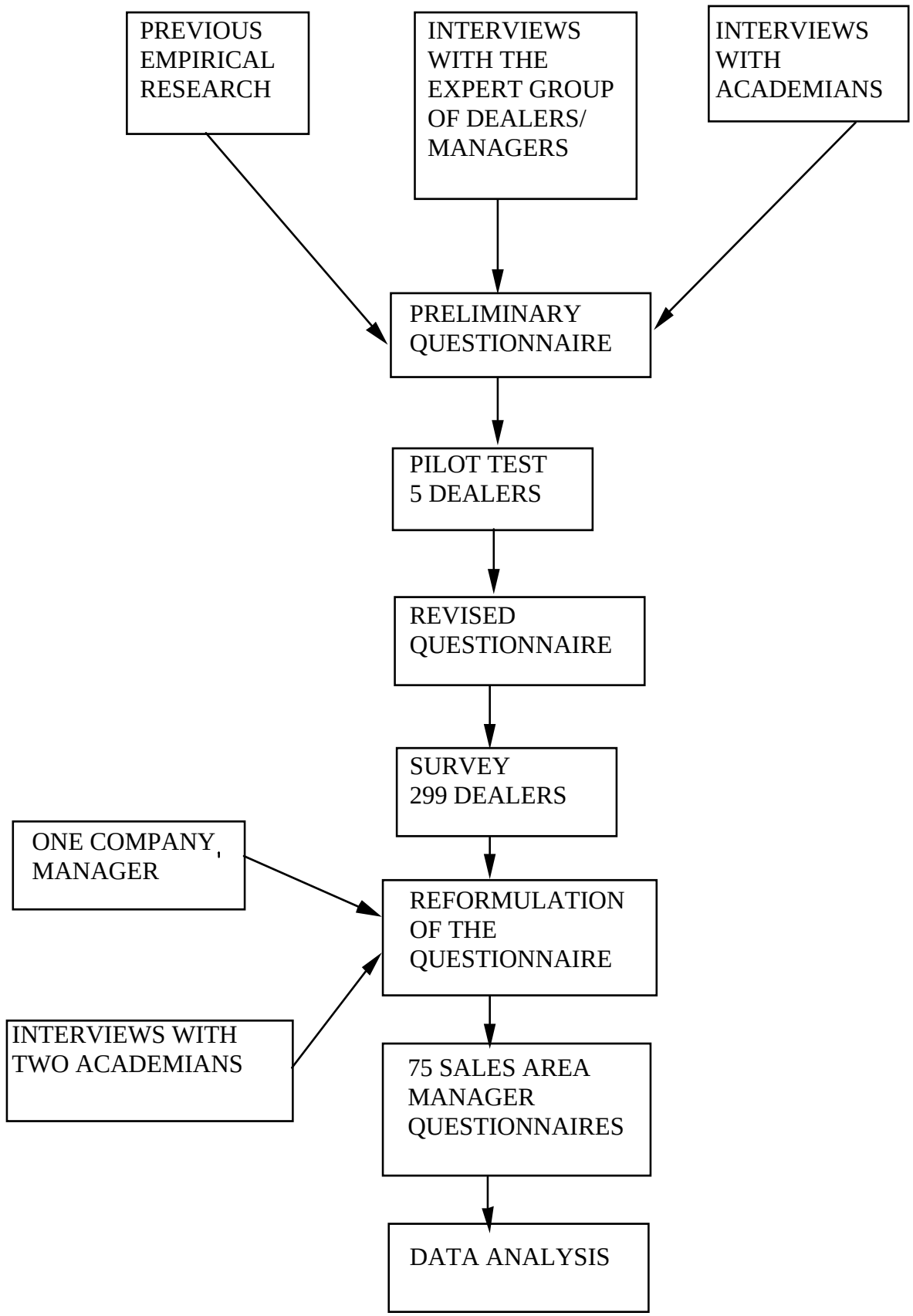

Fig. 5.4 The model presents the process of face validation and the data collection process.

In order to secure contractual variance in the dyadic information, a stratified sampling method was used to collect questionnaires from the sales-area managers. There were 23 sales area-managers in the company. Because of the limited number of informants from the company, 75 dyads were randomly picked out from the 164 perfect questionnaires I had received in mid September 1990 (see table 5.6). Figure 5.3 shows the two step sampling process. Each manager filled out from 1 to 9 questionnaires. Table 5.2 below shows the distribution of the number of questionnaires from the managers.

As we can see from the table, four managers did not fill out any questionnaires, five managers filled out 2 questionnaires, and so on, while one manager filled out 9 questionnaires. A stratified sampling design was chosen because I wanted to increase the efficiency of sampling. I have previously referred to the three categories of ex ante formal contracts that are internally homogeneous with respect to characteristics being studied. Our initial expectation was that the categories of ex ante contracts were related to the degree of vertical control ex post. I also increased the proportion of employee dealers relative to the two other groups of contracts in order to secure that internal agents were satisfactory represented in the sample (see figure 5.5). From figure 5.5, I can see that 15 of 18 employee dealers were represented in the sample of dyads, while 30 contract dealers were chosen from 95 contracted dealers and 30 from 53 independent dealers.

	Number of managers	Number of questionnaires each	Total number of dyads
	4	0	0
	5	2	10
	6	3	18
	3	4	12
	2	5	10
	2	7	14
	1	9	9
Total	23	-	73

Table 5.2 The table presents the distribution of questionnaires among the 23 area sales managers.

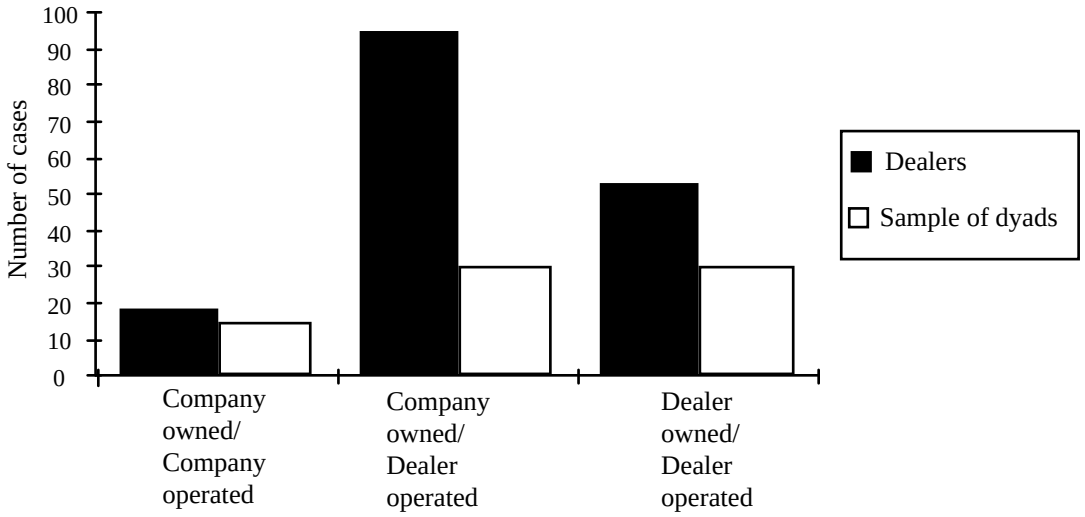

Fig. 5.5 Stratified data sampling of dyadic information from the dealer-side sample.

From the sample of dyads I received 73 back. One dealer went bankruptcy and was deleted from the sample. The final number of dyads then became 72. I received the last questionnaires from the area sales managers in mid February 1991.

5.3 The Three Step Analysis Design

There are two important reasons for choosing a three step analysis design. First, that the single side problem is a serious threat to validity in research focusing on interorganizational properties. The criticism raised against single side information in dyadic level research questions the validity of tests of dyadic relationships (Reve 1980, John and Reve 1982). The single side problem leads to a specification of the measurement model that is related to the side of the dyad where the data is collected.

Another problem that I have addressed here is that I am developing new constructs. Therefore, it is important that I retest the measurement model on another sample to state that the development of contractual cost constructs was not accidental or related to the specific character of the sample. In order to secure that dyadic perceptions converge before structural testing, the research is designed like an hour-glass-shaped three step analysis approach.

The first step is a unilateral analysis of the data. The intention is to formulate a preliminary measurement model based on the item to total correlation method as well as a face validation of the constructs. The unilateral analysis is instrumental to improve clarity in the model-specification. This stage of research provides a more manageable set of data as well as constructs with satisfactory face validity.

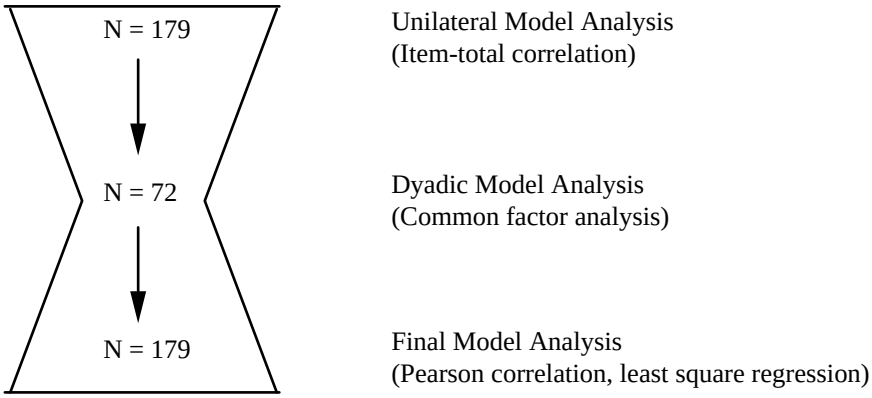

Fig. 5.6 The figure presents the three step hour-glass shaped analysis design.

The dyadic model identifies the measurement model valid for both sides of the relationship. Items that are not related to the construct on both sides of the dyad are deleted. For example, I anticipate that both parties should report a consistent set of items that belongs to the construct of centralization. Like Anderson and Weitz (1991), I adopted parallelism between the scales. That is, when one item was deleted from the construct on one side of the dyad, it was also removed from the other side. The dyadic model test is an "acid test" of construct validity in interorganizational research. The dyadic model is based on data from key informants from both sides (John and Reve 1982). The single dealer and the single key informant in the company belonged to the exact same dyad. The output measurement model from the dyadic model screening test, therefore, provided a more robust empirical model before final testing of the structural model. The final model test was based on the measurement model formulated in the dyadic model test. The structural model was tested on data from 179 dealer cases.

5.4 Asset Specificity

Asset specificity related to the exchange is, according to the company managers, equally distributed among the dealers. Asset specificity refers to the technology specific to the company e.g., trademark assets. In principal-multi-agent settings, however, technology is specific to the trademark company but not specific to each company-dealer relationship. This is an asymmetric distribution of specific assets, typically bringing the principal company in a superior power-dependency situation relative to the agent (Heide and John 1988). If an independent dealer chooses to switch to another company, - the company takes back company-specific assets. Pretest interviews with Shell managers indicated that investments in specific trademark assets are equally distributed among the "team" dealers (Williamson 1991).

In the presented study I do not adopt specificity as a proxy for transaction costs. A high level of specificity according to the theory means lower transaction costs in house relative to market exchange. Our review (see table 2.1) revealed that the relationship between specificity and governance structures has been studied several times before. Here, I want to move one step further into the transaction cost analysis in order to explore how the dimensions of the governance structure affect dimensions of transaction costs. Therefore, I are not anticipating any equilibrium or optimal relationship in our analysis. Our research purpose is to focus how dimensions of vertical control are related to transaction costs. Our focus is ex post on the process of transaction cost economizing.

5.5 Unit of Analysis

The unit of analysis here is the focal dyad. The reason is that I focused on the organization of transactions between the company and the dealer. Our focus is consistent with transaction costs economics that argues that a transaction is the basic unit of analysis (Williamson 1985:18). Therefore, it is assumed to be necessary to gather information from both sides in order to indicate the level of opportunism, vertical control, transaction costs and performance. Studies where data are collected only from one side of the dyad may lack information crucial to empirical testing of the theories that explain the integration processes. The same items, therefore, are measured both by the survey among the dealers and the sales area managers in the company.

5.6 Aspects of Homogeneity

A principal-multi-agent trademark setting offers important advantages for interorganizational research. First, there are specific assets associated to the trademark capital not related to each single contract, but to the company or the distribution system as a whole. The Shell" Team"-agreement secures homogeneous exchange relations between the company and the dealer. However, the technology might be specific to the dealer, but the dealer has minor possibilities to influence the ex post choice of formal governance structure.

Another important feature of the empirical setting is the nature of the product market. All dealers supply about the same kind of products in the market i.e., gasoline, mineral-oil products, fast-food, tobacco, chocolate, magazines, car wash, car sales etc. All the dealers are small business units.

They do not differ much in size compared with other real-world settings. In addition, the dealers are trademark dealers. That means they have one dominant principal company. Other non trademark small business firms often have multiple and heterogeneous principals.

The design chosen here makes it possible to keep several important factors constant that may threaten construct validity, and statistical conclusion validity: company marketing policy and strategy and corporate culture and environmental factors that differ between companies. Another important factor that can be kept relatively constant is the technological inter-relationship (payment system, data systems, logistic systems etc.) between the company and the dealers.

5.7 External Conditions

Norway can be described as an egalitarian society without any large economic differences socially or geographically. In addition, Norway can be characterized by a long post-war period of economic and political stability. The distribution system that is chosen as an empirical setting, therefore, operates in a relatively homogeneous and stable environment that minimizes the effects of external variation (Achrol, Reve and Stern 1982).

5.8 The Adverse Selection Problem

The adverse selection problem is a serious validity problem in principal-agency research. That is, for instance, if less qualified agents prefer one type of contract with the company. It is then difficult for the principal and for the researcher to sort out how contractual incentives alone affect the cost structure or performance. Neither pretest interviews nor a T-test of the relation between contract- category and educational level, indicate problems of adverse selection.

5.9 Key Informants

The use of key informants in distribution research has been criticized as unreliable (Phillips 1981). Other channel researchers have, however, pointed out that the use of key informants can give valuable information if used with caution (John and Reve 1982).

The most feasible key informant on the agent side will be the owner of the gasoline station, the manager (if the station is leased) or the employee-manager (if the oil company owns and operates the station). The key informant on the company side of the dyad is the sales-area manager. The sales-area manager is in charge of the company contacts with each single dealer. These

key informants occupy positions that make them qualified to respond to questions about the dyadic relationship.

5.10 Instrumentation

In order to test the face validity of the operationalizations, I conducted preliminary and post-test interviews with the representatives from the marketing division in the oil company and with representatives from the different categories of dealers. The first step was to design a questionnaire where all other concepts than transaction cost dimensions were based on previous studies. However, some of the questions were slightly changed to adapt to the empirical setting. The development of the questionnaire was based on interviews with both representatives from the company and academicians. The first draft, however, was outlined by utilizing experience from previous distribution research. The draft was presented to one employee manager and one independent dealer, one sales area manager in the company and the company director of the distribution system in Norway (later called "the expert group"). The feedback from the interviews guided adapting of operationalizations to the empirical setting. In addition, the questionnaire was carefully evaluated by two colleagues at the Norwegian Institute for Research in Marketing.

The next step was a minor pilot test. The test group included one employee manager, managers of two leased stations and managers of two independent stations. In cases where there was no response variation, the expert group in the company advised me either to keep the item, to change the formulation in the text or to delete it. Two of the items in the centralization construct, one item in the formalization construct and one item in the construct of bargaining costs were deleted from the draft. Six questions were added to the construct of centralization, one item was added to the construct of vertical

interactions, two items were added to the construct of bargaining costs, and six items were added to the construct of free-riding costs. Finally, two colleagues read the final questionnaire and suggested some minor changes in some of the formulations.

The next step was to design a questionnaire for the sales-area managers. The questionnaire was basically the same as for the dealers, but focused on the sales area manager as a key informant. Some very few questions, however, had to be excluded because the sales-area manager probably did not have enough information to report facts or perceived data about the dyadic relation. The Shell manager, one sale - area manager and one colleague commented on the questionnaire. One item was added to the construct of formalization, and one item was added to the construct of opportunism. Two items on the construct of control and monitoring costs were changed. In addition, only one question remained from the group of control questions: the number of years the sales manager had been representing the company interests in the dyad in question.

In order to secure variety in the statements, about half of the questions in the constructs formalization, opportunism and all the cost categories were reversed in both questionnaires and had later to be recoded.

After having conducted the data analysis, the results were commented and analyzed by the members of the expert group. The company received their own reports based on the same material. Both company managers and the dealers took part in the debriefing process.

6. OPERATIONALIZATION OF VARIABLES

This chapter presents the operational definitions and measurement items. Both perceptual and unobtrusive or "objective" measures were used to describe vertical control, opportunism, contractual cost elements and performance. In order to generate items that are suitable representatives of the variables described in the theory, interviews and secondary information material have been helpful sources. However, the most important source has been previous channel research. Regarding transaction cost-dimensions, however, it was not possible to utilize previous research, although two recently published studies shed light on some interesting aspects of the operationalization problem (Noordewier, John and Nevin 1990, Walker and Poppo 1991).

6.1 Vertical Control

The dimensionalization of vertical control is based on combined perspectives provided by previous research in the field of interorganizational and intraorganizational relations (Aldrich 1979, Dalton, Todor, Spendolini, Fielding and Porter 1980, Hage 1965, Pugh, Hickson, Hinings and Turner 1968, Reve 1986, Van de Ven 1976, Warren 1972). The dimensions are vertical interaction between the parties, formalization of interfirm transactions and centralization of interfirm decision making. The items were adapted to the empirical setting.

6.1.1 Centralization

Centralization of interfirm decisions can be defined as the perceived level of asymmetrical decisions and implementation associated with the relation between the company and the single dealer (Marrett 1971, Aldrich 1976, Reve 1980, Van de Ven and Ferry 1979). Centralization can be understood as the hierarchical contractual structure that governs the relationship. The construct of centralization has been operationalized in a number of previous studies (Dahlstrom 1990, Dwyer and Welsh 1985, Haugland and Reve 1988, John 1984, John, Sullivan and Peterson 1982, John and Reve 1982, Phillips 1982, Reve 1980, Reve 1986, Reve and Stern 1986, Spekman and Stern 1979). The operationalization benefits from these studies as well as pretest interviews with dealers and company-managers. Because I have a principal-agent setting where the power relationship is highly asymmetrical, the items focus on how the principal company influences important dealer activities and not the opposite. The construct of centralization reflects the need to get permission from the principal company and the freedom for the dealer to make independent decisions regarding dealer activities.

DEALERS` VERSION:

THROUGH YOUR COOPERATION WITH SHELL, THERE ARE A NUMBER OF MATTERS WHERE THE COMPANY HAS MORE OR LESS INFLUENCE. PLEASE INDICATE THE EXTENT TO WHICH YOU CONSIDER THE COMPANY INFLUENCES YOUR DECISIONS REGARDING YOUR OWN BUSINESS.

SALES MANAGER VERSION:

THROUGH YOUR COOPERATION WITH THE DEALER, THERE ARE A NUMBER OF MATTERS WHERE THE COMPANY HAS MORE OR LESS INFLUENCE. PLEASE INDICATE THE EXTENT TO WHICH YOU CONSIDER THIS INFLUENCES THE DEALERS` DECISIONS REGARDING HIS/HER OWN BUSINESS.

Please put a cross in the square 1 (no influence) to 7 (complete control):

Dealers Version	**Sales Area Manager Version**
Centr. 1 Deliveries of other goods than gasoline and mineral-oil products	Centr.1 Deliveries of other goods than gasoline and mineral-oil products
Centr. 2 The design of the advertising, sales concepts and marketing	Centr. 2 The design of the advertising, sales concepts and marketing
Centr. 3 Purchase- and ordering procedures	Centr. 3 Purchase- and ordering procedures
Centr. 4 The composition of product selection at your station	Centr. 4 The composition of product selection at this station
Centr. 5 How comprehensive the cooperation will be; the number of Shell products and services sold from your station	Centr. 5 How comprehensive the cooperation will be; the number of Shell products and services sold from this station
Centr. 6 Opening hours at the station	Centr. 6 Opening hours at the station
Centr. 7 Whether products should be taken out of the selection	Centr. 7 Whether products should be taken out of the selection
Centr. 8 Sales prices on other products than gasoline	Centr. 8 Sales prices on other products than gasoline
Centr. 9 Determination of salaries to the employees at the station	Centr. 9 Determination of salaries to the employees at the station

Table 6.1 The table presents the operationalization of the centralization concept.

6.1.2 Formalization

Formalization is defined as the perceived level where fixed policies, rules, operating procedures and programmability influence the interorganizational exchange. The operationalization followed the guide-lines provided by previous research (Dwyer and Welsh 1985, Haugland and Reve 1988, Hyvonen 1983, John 1984, John, Sullivan and Peterson 1982, John and Reve 1982, Phillips 1982, Reve 1986, Reve and Stern 1986, Spekman and Stern 1979) as well as pretest interviews. Form 1 relates to programmability and the level of standardized procedures of deliveries. Form 2 and 3 reflect the formalized expected distribution of rules in the relationship. Form 4 describes the level of routinization of interorganizational communication. All items were reversed and had to be recoded.

DEALER VERSION:

IN YOUR COOPERATION WITH SHELL, THERE ARE ESTABLISHED MORE OR LESS DEFINED ROUTINES, PROCEDURES, RULES AND PLANS ABOUT HOW VARIOUS PROBLEMS SHOULD BE SOLVED. TO WHAT EXTENT DOES THE FOLLOWING SENTENCES REPRESENT AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

SALES AREA MANAGER VERSION:

IN THE COOPERATION BETWEEN SHELL AND THIS DEALER, THERE ARE ESTABLISHED MORE OR LESS DEFINED ROUTINES, PROCEDURES, RULES AND PLANS ABOUT HOW VARIOUS PROBLEMS SHOULD BE SOLVED. TO WHAT EXTENT DOES THE FOLLOWING SENTENCES REPRESENT AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

Please put a cross in the square 1 (erroneous description) to 7 (completely correct description):

Dealers Version	Sales Area Manager Version
Form. 1 (Reversed) The deliveries from Shell are made at various days and times	Form. 1 (Reversed) The deliveries from Shell are made at various days and times
Form. 2 (Reversed) There are no clear distribution of tasks between us and Shell	Form. 2 (Reversed) There are no clear distribution of tasks between Shell and the dealer
Form. 3 (Reversed) There are no clear routines for safety training for employed persons at our station	Form. 3 (Reversed) There are no clear routines for safety training for employed persons at this station
Form. 4 (Reversed) In general, the information routines to Shell are very unclear	Form. 4 (Reversed) In general, the information routines from the dealer are very unclear

Table 6.2 The table presents the operationalization of the formalization concept.

6.1.3 Vertical Interaction

The concept of interaction can be defined as vertical flows of activities, resources and information from the principal company to the dealer (Van de Ven 1976, Van de Ven and Ferry 1979). Again, because I have a principal-agent relationship, the operationalization indicates the magnitude and scope of assistance, service and programs offered by the principal company. These activities contain both constructive contacts between the parties (INT.5) and cooperation between the parties in order to increase the competitiveness of the dealer.

Vertical interactions can be measured by perceptions of joint activities and programs, and assistance systems worked out to help realize the exchange between the parties in the distribution system. Operationalization is related to previous research (Dwyer and Welsh 1985, John and Martin 1984, John and Reve 1982, Phillips 1982, Reve and Stern 1986, Reve 1980, 1986, Spekman and Stern 1979).

DEALER VERSION

THE COMPANY OFFERS YOU COOPERATION IN A NUMBER OF BUSINESS ACTIVITIES. HOW OFTEN DO YOU COOPERATE WITH THE COMPANY?

SALES AREA MANAGER VERSION

THE COMPANY OFFERS THIS DEALER COOPERATION IN A NUMBER OF BUSINESS ACTIVITIES. HOW OFTEN DO YOU COOPERATE WITH THE DEALER?

Please put a cross in the square 1 (never) to 7 (always):

Dealers Version	**Sales Area Manager Version**
Int. 1 You cooperate with Shell when you plan the future of the station	Int. 1 You cooperate with the dealer when you plan the future of the station
Int. 2 You cooperate with Shell in local sales campaigns	Int. 2 You cooperate with the dealer in local sales campaigns
Int. 3 You cooperate with Shell in order to design market plans	Int. 3 You cooperate with the dealer in order to design market plans
Int. 4 The company helps us to improve our competitiveness	Int. 4 The company helps the dealer to improve the competitiveness
Int. 5 You have continuous interactive contact with Shell	Int. 5 We have continuous interactive contact with the dealer
Int. 6 You cooperate with Shell when you design advertisements	Int. 6 We cooperate with the dealer when s/he designs advertisements
Int. 7 You cooperate with Shell to compose the right selection of products	Int. 7 We cooperate with the dealer to compose the right selection of products
Int. 8 Shell helps us to plan or modernize the store, or if we want to enlarge the shop	Int. 8 We help the dealer to plan or modernize the store, or if s/he wants to enlarge the shop
Int. 9 Shell assists us with courses and training	

Table 6.3 The table presents the operationalization of the vertical interaction concept.

6.2 Opportunism

Opportunism is defined as the potential for covert self-interest-seeking behavior by the exploitation of asymmetric information between the two parties. The level of opportunism is related to the extent to which the company and the dealer feel that the other party hides information important to the dyadic exchange, prevents information impactedness (Williamson 1975), and follows the intentions inherent in the contract. The construct describes the potential self-interest seeking behavior or the informational consequences of the lack of bilateral trust between the principal company and the agent.

The operationalization of the construct of opportunism is based on insights presented in previous studies (Anderson 1988, Dwyer and Oh 1987, John 1984, Phillips 1982, Reve and Stern 1986). E.g., items 1, 2, 3 and 5 are basically the same as in Anderson (1988) but are altered somewhat in order to fit the context. The items describe whether one of the parties hides information important to the bilateral relationship (OPP.1, OPP.3, OPP.5), does not keep what he promises (OPP.2) or has to be controlled to follow the intentions in the bilateral contract (OPP. 4).

DEALERS` VERSION

IN A BUSINESS RELATIONSHIP, IT IS IMPORTANT THAT THE PARTIES HAVE MUTUAL TRUST IN THE FULFILMENT OF THE INTENTIONS IN THE CONTRACT. TO WHAT DEGREE DO YOU AGREE OR DISAGREE WITH THE STATEMENTS LISTED BELOW?

SALES AREA MANAGER VERSION

IN A BUSINESS RELATIONSHIP, IT IS IMPORTANT THAT THE PARTIES HAVE MUTUAL TRUST IN THE FULFILMENT OF THE INTENTIONS IN THE CONTRACT. TO WHAT DEGREE DO YOU AGREE OR DISAGREE WITH THE STATEMENTS LISTED BELOW?

Please put a cross in the square 1(very strongly disagree) to 7 (very strongly agree):

Dealers Version	Sales Area Manager Version
Opp. 1 We have the reason to believe that the company hides important information regarding our station	Opp. 1 We have the reason to believe that the dealer hides important information of interests to the company
Opp. 2 The company has not kept what it promised when we entered into the relationship	Opp. 2 The dealer has not kept what s/he promised when we entered into the relationship
Opp. 3 Our impressions are that it does not always pay off to tell the truth	Opp. 3 Our impressions are that it does not always pay off to tell the truth
Opp. 4 In order to be motivated to follow the company strategy of high service quality, the company has to control our service-level	Opp. 4 In order to be motivated to follow the company strategy of high service quality, the company has to control the service-level of the dealer
Opp . 5 It has happened that we in order to defend our interests have not provided information to the company that may be /could have been useful	Opp . 5 It has happened that we in order to defend the interests of the company have not given the dealer information that may be/could have been useful for him/her

Table 6.4 The table presents the operationalization of the concept of opportunism.

6.3 Transaction Costs

Transaction costs are costs of running the economic system. All transactions imply friction costs (Arrow 1969) and resource losses because of imperfect information (Dahlman 1979). Transaction costs are caused by imperfect and incomplete coordination and cooperation between two parties.

The importance of the face validation process as well as the content validity is crucial to the research conducted here because I am developing new constructs. The intention is to develop multi-item proxy-variables that describe various elements of these contract-related costs. The items were generated through the pretest interviews and two previously company-conducted internal surveys. Also two previous studies presented in table 6.5 provided interesting insights into the operationalization problem discussed here.

To our knowledge (Dahlstrom and Nygaard 1999), previous research have attempted to operationalize transaction costs only twice before (Noordewier, John and Nevin 1990, Walker and Poppo 1991). Noordewier, John and Nevin (1990) analyzed heterogeneous companies, but homogeneous products. Walker and Poppo (1991), on the other hand, studied one company, but heterogeneous products.

Research conducted by Noordewier, John and Nevin (1990) categorized transaction costs into possession and acquisition costs. Possession costs were operationalized as inventory turnover and acquisition costs were operationalized as unacceptable bearings, percentage on time record and accuracy of filled orders.

Walker and Poppo (1991) used a two-item approach to describe transaction costs: the difficulty of agreement with the supplier on allocation of costs due to 1) engineering changes for the part and 2) changes in material costs for the part. Still, the difficulties of obtaining an agreement may not reflect the use of resources from both parties in the relationship or cost

ineffective output by e.g., suboptimal allocation of investments in the distribution system. Also difficulties of obtaining an agreement may have to do with the nature of the technology or the heterogeneous products in question. Noordewier, John and Nevin (1990) and Walker and Poppo (1991) specified the measurement model on the same sample as they tested the structural model. The measurement model, therefore, may be produced by the specific character of the one sided sample.

	Transaction Costs Items	**Empirical Setting**	**Market Context**	**N**
Noordewier, John and Nevin, JM (1990)	3	Heterogeneity Diversity of companies	Homogeneity Bell and roller purchasers	140 cases One side data
Walker and Poppo, ASQ (1991)	2	Homogeneity One large US company	Heterogeneity Generic inputs to an assembly division in one company	99 cases One side data

Table 6.5 Some central aspects of research that have operationalized transaction costs.

Thus, the exploratory profile of this research emphasizes the necessity of generating new items in order to reflect the theory. This is also why we, unlike previous research, have chosen to develop the measurement model first and then test the structural model afterwards on another sample.

Consistent with Williamson (1988), the investigation focuses on ex post costs. Transaction cost-dimensions are defined as cost elements surrounding the realization of bilateral exchange (Williamson 1985:22). The empirical problem is to describe contract-related cost elements. Basically, I have applied

the previously discussed categories described by Williamson (1985) and the taxonomy presented by Dahlman (1979:148).

6.3.1 Bargaining Costs

Bargaining costs appear because of the ex post effort to correct misalignments and to maintain the contractual relationship as well as the continuous bilateral ability to take decisions regarding the optimal distribution of company efforts among the trademark dealers (Milgrom and Roberts 1992). Item 1 and 2 in the construct are reversed.

DEALER VERSION

IT TAKES TIME AND RESOURCES TO GOVERN AND TO COORDINATE THE COOPERATION WITH THE COMPANY. TO WHAT EXTENT DOES THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

SALES AREA MANAGER VERSION

IT TAKES TIME AND RESOURCES TO GOVERN AND TO COORDINATE THE COOPERATION WITH THE COMPANY. TO WHAT EXTENT DOES THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

Please put a cross in the square 1(erroneous description) to 7 (completely correct description):

Dealers version	**Sales Area Managers Version**
Barg. 1 (Reversed) It does not give us any advantages relative to other dealers regarding company investment- and modernization policy to play an active role vis a vis Shell	Barg. 1 (Reversed) It does not give any dealer any preferences regarding our investment- and modernization policy, to play an active role vis a vis Shell
Barg. 2 (Reversed) Our meetings with Shell representatives are very effective and systematic	Barg. 2 (Reversed) Our meetings with the dealer are very effective and systematic
Barg. 3 (Reversed) Both parties are always well prepared in the meetings with Shell, so that decisions can be made	Barg. 3 Both parties are always well prepared in the meetings with the dealer, so that decisions can be made

Table 6.6 The table presents the operationalization of the concept of bargaining costs.

6.3.2 Control and Monitoring Costs

Control and monitoring costs reflect the time and resources used to safeguard the interests of both parties in the contract through bilateral control and monitoring activities (Nygaard and Myrtveit 2000). These costs are effecting secure commitments between the parties in the transaction (Williamson 1985:21, 1988). The items describe the efforts dedicated to various control activities. From the dealers point of view the obvious alternative to the use of time on control activities is to sell more and increase profitability. While this trade off exists at the dealer level, the role of the sales area manager is to control and monitor the gas stations in his area. So he is not loosing sales by increasing control of the dealer in question, but when using too much time on the particular dealer he has to use less time on the other dealers in his area. The cost represents the pay off from alternative use of time (the time used to control the dealer in question versus time used on the other dealers). So when the area manager perceives that he uses too much time on the dealer, I assume that it is relative to the time used on the other dealers in his area.

DEALERS` VERSION

IT TAKES TIME AND RESOURCES TO GOVERN AND TO COORDINATE THE COOPERATION WITH THE COMPANY. TO WHAT EXTENT DO THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

SALES AREA MANAGER VERSION

IT TAKES TIME AND RESOURCES TO GOVERN AND TO COORDINATE THE COOPERATION WITH THE COMPANY. TO WHAT EXTENT DO THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

Please put a cross in the square 1(erroneous description) to 7 (completely correct description):

Dealers version	Sales Area Managers Version
Cont. 1 We use to much time to control deliveries of gasoline from the company regarding quantity and quality. Instead the time could have been used to increase the profitability of the station	Cont. 1 We use to much time to monitor payment for deliveries of gasoline from the dealer
Cont. 2 We use to much time on account books that instead could have been used to improve profitability at the station	Cont. 2 We use to much time on economic control of the activities at the station
Cont. 3 We use to much time to control deliveries of mineral oil products from Shell, that instead could have been used to improve profitability at the station	Cont. 3 We use to much time to control payment and deliveries of mineral oil products to this dealer

Table 6.7 The table presents the operationalization of the concept of the costs of control- and monitoring.

6.3.3 Maladaption Costs

Maladaption costs according to Williamson (1988:572) are the most important category of costs. These costs appear in an incomplete contracting context where transactions drift out of alignment.

The construct reflects bilateral coordination, cooperation and informational difficulties and information produced by one party that cannot sufficiently be applied or understood by the other part.

DEALERS` VERSION

IT TAKES TIME AND RESOURCES TO GOVERN AND TO COORDINATE THE COOPERATION WITH THE COMPANY. TO WHAT EXTENT DO THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

SALES AREA MANAGER VERSION

IT TAKES TIME AND RESOURCES TO GOVERN AND TO COORDINATE THE COOPERATION WITH THE COMPANY. TO WHAT EXTENT DO THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION OF THIS ASPECT OF THE COOPERATION

Please put a cross in the square 1 (erroneous description) to 7 (completely correct description):

Dealers version	**Sales Area Managers Version**
Mal. 1 The information from Shell is often poorly formulated and difficult to understand	Mal. 1 The information from the dealer is often poorly formulated and difficult to understand
Mal. 2 Important information from the company seldom comes at the right time	Mal. 2 Important information from the dealer seldom comes at the right time
Mal. 3 The information from Shell is either incomplete or to voluminous so that we do not catch the message	Mal. 3 The information from the dealer is either incomplete or to voluminous so that we do not catch the message

Table 6.8 Operationalization of the concept of maladaption costs.

6.3.4 Costs of Free-Riding

The costs of free-riding are costs due to degradation of the brand name by production of inferior product or service quality in the market (Dahlstrom and Nygaard 1994). Costs of free-riding are entailed by the inter-dependency between the single dealer and the rest of the distribution system (Kidwell, et al. 2007). Because I anticipated that the dealer would not directly admit and report that he broke the restrictions defined in the bilateral contract, I asked him instead about his opinion of the quality-restrictions in the contract. The sales area manager version, though, measures to what extent free-riding is taking place.

DEALERS` VERSION

TO WHAT EXTENT DO THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION

SALES AREA MANAGER VERSION

TO WHAT EXTENT DO THE FOLLOWING SENTENCES GIVE AN ERRONEOUS OR CORRECT DESCRIPTION

Please put a cross in the square 1 (erroneous description) to 7 (completely correct description):

Dealers version	**Sales Area Managers Version**
Free. 1 (Reversed) The restriction from Shell to wear uniforms is necessary	Free. 1 The restriction from Shell to wear uniforms is seldom followed by this dealer
Free. 2 (Reversed) The company restrictions to keep the station clean and tidy are necessary and relevant also to us and our station	Free. 2 The company restrictions to keep the station clean and tidy are not followed by this dealer
Free. 3 (Reversed) It is no problem to keep the station perfectly clean even when there are a lot of customers	Free. 3 (Reversed) The station is always cleaned and tidy even when there are a lot of customers
Free. 4 (Reversed) Our employees are often informed about the quality standards defined by the company	Free. 4 (Reversed) It is unnecessary for us to control that the dealer respects the quality standards, because s/he keeps him/herself and the employees informed about these quality standards
Free. 5 (Reversed) Our employees are often informed about the importance of service quality	

Table 6.9 The table presents the operationalization of the costs of free-riding.

The items on the dealer's side were reversed and had to be recoded. Also item 3 and 4 in the sales area manager version was reversed and had to be recoded.

The free-riding problem reflects suboptimal dealer behavior that reduces the value of trademark specific assets signaling a standard quality in the market. Items 1 to 5 seek to measure how much the dealer is dedicated to the standard quality signaled by the trademark. A dealer free-ride when s/he refuses to wear uniform because it hurts the ability to build a trademark profile in the market (item 1). Likewise, the dealer who do not follow the cleaning instructions (item 2) or prefer to use resources to increase sales instead of keeping the station clean (item 3) is taking advantage of such quality-activities produced by the other trademark dealers in the system. The trademark dealer has to secure quality in all activities at the station that signal quality (or not) to the customers. The question is, therefore, whether or not the dealer informs his employees about the quality standards (item 4) and the importance of such standards (item 5). I assume that if the employee is not well enough informed about the quality standards given by the trademark company, he is not able to keep the standards signaled by the trademark either. The assumption is that the other parts of the distribution system have to carry the losses induced by one single free-rider, because he is not properly engaged in quality management (Kidwell, et al. 2007).

6.4 Performance

Consistent with the previous discussion of the conceptual model, the concept of performance is divided into effectiveness and efficiency (Stern and El-Ansary 1988:478). Effectiveness is measured by perceptual measures that describe the success of interorganizational activities in order to meet the demand for service outputs (Hyvonen 1983). Efficiency is measured as agent profitability. Because

I study a principal-multi-agent setting company efficiency can be held constant. Objective data that describe efficiency was available only from the dealer - side of the dyad. It is in general preferable to apply objective and multi-source measures of performance (Haugland, et al. 2007). Accounting data has most probably content validity better than other sources of data. According to the company, there are scale advantages in distribution of gasoline. Thus, the construct of efficiency was divided by gross sales revenue.

In a distribution system there is a problem to measure interorganizational efficiency. It is a problem to divide company productivity into dealer related costs and income. A solution applied here is to see company performance as a constant and dealer productivity as a proxy for interorganizational efficiency. This is a rather robust assumption because I have the same principal company on the supply-side in all dyads. The robustness of the structural relation between costs and efficiency is highly based on this assumption.

DEALER VERSION

PLEASE CHARACTERIZE HOW SUCCESSFUL THE COOPERATION WITH THE OTHER PART HAS BEEN IN THESE FIELDS OF ACTIVITIES?

SALES AREA MANAGER VERSION

PLEASE CHARACTERIZE HOW SUCCESSFUL THE COOPERATION WITH THE OTHER PART HAS BEEN IN THESE FIELDS OF ACTIVITIES?

Please put a cross in the square 1(very unsuccessful) to 7(very successful)

Dealers Version	**Sales Area Manager Version**
Perc. 1 Marketing activities	Perc. 1 Marketing activities
Perc. 2 Training and courses	Perc. 2 Training and courses
Perc. 3 Management and control	Perc. 3 Management and control

Table 6.10 Operationalization of effectiveness.

Dealers Version
OPER.1 Net operating income/gross sales revenue

Table 6.11 Operationalization of efficiency.

7. MEASURE VALIDATION

This chapter presents the specification of the measurement model. The empirical investigation follows a three step approach described in chapter 5. The dyadic data sample is used for measurement validation purposes in this chapter. The input to the measurement validation was the unilateral model described in table 7.1 and 7.2 below.

7.1 Methodological Approach

The methodological approach was rather conventional. The applied method in the screening process of the measurement model specification was item-to-total correlation in the unilateral model and common factor analysis to specify the measurement model in the dyadic screening process. A Cronbach`s Alpha test of the measurement model specification is also reported during the three step process.

7.2 Measurement Model Specification

The first step in the process is to determine the reliability of each construct. Psychometric literature (Nunnally 1978, Lord and Novick 1968) argues that measurement error is related to measurement of all non-directly observed theoretical concepts. Because of real world complexity, a theoretical concept, therefore, should only be constructed by multi-item approximation. A conventional method in order to assess the level of measurement error is Cronbach`s Alpha (Peter 1979). Cronbach`s Alpha is the most commonly accepted reliability test. Discriminant validity has been defined as "the extent to

which the measure is indeed novel and not simply a reflection of some other variable" (Churchill 1979:70). In order to assess the unidimensionality of the constructs on the same side of the equation, common factor analysis was used. However, common factor analysis also assesses convergent validity. The number of latent variables was determined in advance; that is, the number of latent variables is restricted by the parallel dimensions of the conceptual model: the dimensions of vertical control and the dimensions of transaction costs. Item to total correlations were used to reduce the number of items to a more manageable data set (Gerbing and Anderson 1988) and to provide acceptable reliability scores in the unilateral model (Nunnally 1967) before analysis of dyadic data.

Factor analysis was also applied to assess convergent and discriminant validity of the model. Common factor analysis (Principal Axis) uses the initial estimates of communalities in the diagonal of the correlation matrix. The single item communality is determined by the part of its variance explained by factors.

Orthogonal factor rotation was conducted in order to obtain interpretable factor loadings. The varimax method (orthogonal rotation) reported here, maximizes the sum of variances of squared loadings in the columns of the factor matrix. The principal axis option (common factor analysis) in the SPSS-program was applied. The principal axis method estimates the square multiple correlation coefficients obtained when each item is regressed on the remaining set of observed items (Bollen 1989, Harman 1976).

7.3 Unilateral Measurement Model

The first step in our three step analysis approach was the unilateral measurement model. First, the unilateral measurement model was determined

by simple use of item-total correlation (not reported here). Unilateral model analysis is based on the data from 179 dealers. The intention is to provide a manageable set of data with satisfactory internal consistency as well as acceptable face validity before the measurement model specification in the dyadic model analysis.

Dimensions	Initial Number of Items	Revised Number	C. Alpha
Centralization	19	9	0.86
Formalization	12	4	0.63
Interaction	17	9	0.89
Opportunism	9	5	0.74
Bargaining Costs	7	3	0.69
Contr. & Monitor.	6	3	0.70
Maladaption Costs	12	5	0.85
Free-Riding Costs	15	5	0.64
Effectiveness		3	0.67

Table 7.1 The number of items before and after the convergent screening by using item total correlation in the unilateral model analysis (N=179).

The initial intention in the unilateral measurement model design was to satisfy the 0.7 Cronbach's Alpha - criteria defined by Nunnally (1978). However, as we can see from table 7.1, four of the constructs had a lower alpha than 0.7.

I have presented the construct alphas in table 7.1. Alpha's range from 0.63 to 0.89 in the unilateral model. It is still above the conventional acceptance criterion for basic research (Nunnally 1967). The many items in the initially designed questionnaire reflected the exploratory nature of the research conducted here. The constructs of centralization, formalization, interaction and opportunism already had acceptable face validity because the items were imitations based on previous research. Transaction costs dimensions, though, have a more improvisation character because I am not able to take advantage of prior operationalizations. Table 7.2 shows that in the unilateral model, the lowest item-total correlations after having deleted items that do not contribute to internal consistency was 0.32.

Unilateral Model Constructs	Corrected Item - Total Correlation
Centralization	0.42
Formalization	0.33
Interaction	0.56
Opportunism	0.42
Bargaining Costs	0.38
Contr. & Monitoring costs	0.50
Maladaption Costs	0.66
Free-Riding Costs	0.32
Effectiveness	0.33

Table 7.2 The lowest item total correlation in each construct in the unilateral model analysis (N=179).

7.4 Dyadic Analysis: Measurement Model Design

The criticism against developing the measurement model and testing the model on the same sample is met here by formulating the measurement model by using dyadic information as a measurement validation sample. Dyadic data was collected from 72 cases where each dealer and the company manager respectively are represented. The reliability of the dyadic scales was tested by using Cronbach`s Alpha. Common factor analyses and item-total correlation (not reported here) were applied to improve discriminant and convergent validity. Factor analysis is a conventional method that is instrumental in order to identify the not-directly observable factors based on observable data. Varimax rotation is reported from both sides of the dyad.

The factor analysis was instrumental in order to secure unidimensionality of the constructs. Whenever one of the items from one side of the dyad did not show satisfactory discriminant and convergent validity it was deleted from the scale (Kidwell, et al. 2007). The basic assumption here is that the model should have the same configuration on both sides because the items describe the same aspects of vertical control and contractual costs on both sides of the dyad. During the dyadic model specification parallelism was applied (Anderson and

Weitz 1991). So if one item was deleted from one side, it was also deleted from the other side. Thus, in any case, where one item is not loading consistently on the same construct on both sides, I assume that it is not satisfactorily related to the conceptual model.

ROTATED FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	COMMUNALITY
CENTR.1	**.68**	-.02	**.42**	.65
CENTR.2	**.85**	.12	.27	.81
CENTR.4	**.70**	.22	**.51**	.81
CENTR.5	**.74**	.29	.16	.67
CENTR.8	**.63**	.20	.35	.57
CENTR.9	**.72**	.14	.17	.57
FORM.2	.13	.19	**.46**	.27
FORM.3	.18	.04	**.47**	.26
FORM.4	.20	.00	**.61**	.41
INT.1	**.33**	**.82**	.01	.80
INT.2	-.09	**.77**	.10	.61
INT.3	**.45**	**.67**	.01	.65
INT.6	.08	**.83**	.21	.74
INT.8	.29	**.36**	.05	.22
PCT. OF VAR.	39.7	13.6	4.7	

Table 7.3 *Varimax rotation common factor analysis of vertical control; centralization, formalization and interaction based on data from the company side of the dyad. Non-construct factor-loadings above 0.30 are boldfaced (N=72).*

ROTATED FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	COMMUNALITY
CENTR.1	**.56**	-.02	.07	.33
CENTR.2	**.75**	.09	.07	.58
CENTR.4	**.79**	.06	-.26	.70
CENTR.5	**.68**	.10	-.16	.50
CENTR.8	**.71**	.05	-.10	.53
CENTR.9	**.49**	.22	.05	.29
FORM.2	.00	.13	**.62**	.40
FORM.3	-.07	.03	**.35**	.13
FORM.4	-.07	.29	**.55**	.39
INT.1	.03	**.88**	-.01	.78
INT.2	.00	**.80**	.14	.66
INT.3	.11	**.77**	.16	.63
INT.6	.21	**.60**	**.36**	.54
INT.8	.18	**.43**	.22	.27
PCT.OF VAR.	25.2	17.8	5.5	

Table 7.4 *Varimax rotation common factor analysis of vertical control; centralization, formalization and interaction based on data from the dealer side of the dyad. Non-construct factor loadings above 0.30 are boldfaced (N=72).*

The vertical control dimensions create a less clear picture. Five non-construct factor loadings are above 0.3 on the company side of the dyad and one non-construct factor loading is above 0.3 on the dealer side. However, the dyadic measurement model of vertical control dimensions still has an acceptable unidimensionality.

The results showed that the construct of centralization was the strongest dimension in the factor analysis of vertical control. Centralization on both sides of the dyad was determined by factor 1, which produced highest total variance of the three constructs. Likewise factor 2, interaction, accounted for 13.6% of the variance on the company side and 17.8% of the variance on the dealer side of the dyad. The third and weakest construct in the three dimensionalized space of vertical control was formalization reflected by factor 3 both on the company side and the dealer side. It accounted for only 4.7% (company side) and 5.5% (dealer side) of the variance.

ROTATED FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	COMMUNALITY
BARG.2	.17	.06	-.03	**.52**	.31
BARG.3	.14	.14	.00	**.94**	.92
CONT.1	.19	.11	**.79**	-.15	.70
CONT.2	-.12	.08	**.76**	.19	.64
CONT.3	**.32**	.04	**.75**	-.09	.68
MAL.1	**.84**	.14	.14	.18	.78
MAL.2	**.69**	**.41**	.10	.19	.69
MAL.3	**.81**	.29	.14	.18	.80
FREE.1	.21	**.63**	.00	.00	.45
FREE.2	.23	**.90**	.17	.15	.92
FREE.3	.12	**.77**	.09	.14	.65
PCT.OF VAR.	36.1	15.0	9.5	8.4	

Table 7.5 *Varimax rotation common factor analysis of transaction cost dimensions based on data from the company side of the dyad (N=72). Non-construct factor loadings above 0.30 are boldfaced.*

ROTATED FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	COMMUNALITY
BARG.2	.05	**.96**	.10	.11	.95
BARG.3	.17	**.64**	.14	-.01	.46
CONT.1	.09	.07	**.76**	-.05	.60
CONT.2	.26	.00	**.55**	.03	.38
CONT.3	.03	.17	**.48**	.07	.26
MAL.1	**.58**	.20	.08	-.01	.39
MAL.2	**.67**	-.01	.25	.00	.52
MAL.3	**.89**	.08	.06	.00	.82
FREE.1	.02	.06	.03	**.67**	.46
FREE.2	.02	.08	.07	**.63**	.41
FREE.3	-.05	-.05	-.04	**.55**	.32
PCT.OF VAR.	21.7	12.1	9.4	7.8	

Table 7.6 *Varimax rotation factor analysis of transaction cost dimensions based on data from the dealer side of the dyad (N=72). Non construct factor loadings above 0.30 are boldfaced.*

Transaction costs dimensions had acceptable convergent and discriminant validity on both sides of the dyad. On the company side, the lowest construct loading was 0.52 and the greatest non-construct loading was 0.41. Only one non-construct loading was above 0.30 (MAL.2).

Dealer side data produced even better unidimensionality. The lowest construct loading was 0.48 and greatest non-construct loading was 0.26. Although the factor pattern of the vertical control dimensions was the same on each side of the dyad, the factor analysis of the transaction cost dimensions (see table 7.5 and 7.6) produced a less consistent picture. The maladaption cost dimension (MAL) was determined by factor 1 on both sides and accounted for most variance (36.1 on the company side and 21.7 on the dealer side). While

the construct of free-riding was represented by factor 2 on the company side of the dyad, the free-riding cost dimension was represented by the fourth factor with poorest percentage of variance on the dealer side. This may indicate that the problem of producing inferior service and product quality more consistently is seen as a company problem than a dealer issue.

The result of the dyadic analysis is a purified measurement model that has dyadic validity. That is, the items belong to the exact same construct on both sides of the dyad. Both dealers and company managers have consistent perceptions about the content of the concepts vertical control and contractual costs related to the dyad.

All deleted items but one was eliminated from the model because of low discriminant validity on the company side of the dyad. One item in the construct of opportunism (OPP.5) was deleted because of item-total correlation below 0.20 on the dealer side. The reliability of the measurement model seems to be adequate for further analysis. All Cronbach` s Alpha`s are above the 0.5 criterion established by Nunnally (1967).

CONSTRUCT	NUMBER OF ITEMS UNILATERAL ANALYSIS	NUMBER OF ITEMS DYADIC ANALYSIS	DEALER-SIDE (N=72) ALPHA	COMPANY-SIDE (N=72) ALPHA
CENTRALIZATION	9	6	0.83	0.91
FORMALIZATION	4	3	0.55	0.55
INTERACTION	9	5	0.84	0.82
OPPORTUNISM	5	4	0.67	0.68
BARGAINING COSTS	3	2	0.79	0.70
CONTROL COSTS	3	3	0.64	0.80
MALADAPTION COSTS	3	3	0.77	0.89
FREE-RIDING COSTS	5	3	0.64	0.84
EFFECTIVENESS	3	3	0.68	0.77

Table 7.7 *The number of items and Cronbach`s Alpha after convergent and divergent validity tests of dyadic data (N=72).*

		LOWEST ITEM-TOTAL CORRELATIONS	
	ITEMS	DEALERS (N=72)	COMPANY (N=72)
CENTRALIZATION	6	0.44	0.71
FORMALIZATION	3	0.29	0.34
INTERACTION	5	0.45	0.42
OPPORTUNISM	4	0.38	0.29
BARGAINING COSTS	2	0.65	0.70
CONTROL COSTS	3	0.39	0.80
MALADAPTION COSTS	3	0.53	0.89
FREE-RIDING COSTS	3	0.41	0.84
EFFECTIVENESS	3	0.39	0.77

Table 7.8 Lowest corrected item-total correlation in each construct in the dyadic model (N=72).

There are, as we can see from table 7.8 above, two items in the revised dyadic model that have corrected item-total correlations below 0.30. They are FORM.2 on the dealer side (0.29) and OPP.3 on the company side (0.29).

7.5 Final Model Analysis: Retest of the Measurement Model

The retest of the final measurement model formulated in the previous dyadic analysis is evaluated by a Cronbach`s Alpha test, common factor analyses and item-total correlation. The constructs of centralization, formalization, interaction, and opportunism have been tested in several previous studies. I present a comparison of the internal consistency of the retested measurement model of vertical control and opportunism with previous channel research that have used the same conceptual variables.

		UNILATERAL MODEL ANALYSIS (179)	DYADIC MODEL ANALYSIS		FINAL MODEL ANALYSIS (N=179)
			DEALERS (N=72)	COMPANY (N=72)	
CENTRALIZATION		0.86 (9)	0.83 (6)	0.91 (6)	0.81 (6)
FORMALIZATION		0.63 (4)	0.55 (3)	0.55 (3)	0.58 (3)
INTERACTION		0.89 (9)	0.84 (5)	0.82 (5)	0.85 (5)
OPPORTUNISM		0.74 (5)	0.67 (4)	0.68 (4)	0.73 (4)
BARGAINING COSTS		0.69 (3)	0.79 (2)	0.70 (2)	0.74 (2)
CONTROL COSTS		0.70 (3)	0.63 (3)	0.80 (3)	0.70 (3)
MALADAPTION COSTS	0.85 (3)	0.77 (3)	0.89 (3)	0.85 (3)	
FREE-RIDING COSTS		0.64 (5)	0.64 (3)	0.84 (3)	0.64 (3)
EFFECTIVENESS		0.67 (3)	0.68 (3)	0.77 (3)	0.67 (3)

Table 7.9 *Cronbach`s Alpha and the number of items () in the unilateral model analysis, dyadic model analysis and final model analysis.*

Internal consistency in general shows satisfactory Cronbach`s Alpha above the 0.5 criterion for basic research (Nunnally 1967). All constructs according to Nunnally (1967) had acceptable Alpha`s in the dyadic model analysis. Three constructs, though, had Alpha`s below the 0.7 criterion later suggested by Nunnally (1978).

The construct of centralization produced an Alpha of 0.81 in the final model. Although this is lower than the unilateral model analysis, it is higher than revised Alpha`s in some previous research presented in table 7.10 below.

	Cronbach`s Alpha
Dwyer and Welsh (1985)	0.49
John (1984)	0.79
John and Martin (1982)	0.52
Haugland and Reve (1988)	0.76/0.74
	0.43/0.58
Phillips (1982)	0.70
Spekman and Stern (1979)	0.63
Reve and Stern (1986)	0.69/0.58

Table 7.10 Cronbach`s Alpha of the construct of centralization in some selected previous studies.

The construct of formalization has the lowest Alpha in the final empirical model. Although a Cronbach`s Alpha of 0.58 is above the acceptance criterion of 0.5 for basic research it is lower than expected due to an anticipated good face validity of the construct. The reliability of the construct of formalization is somewhat lower than what is mostly obtained in previous studies.

	Cronbach`s Alpha
Dwyer and Welsh (1985)	0.72
John (1984)	0.63
John and Reve (1982)	0.75
Haugland and Reve (1988)	0.64/0.53
	0.65/0.54
Hyvonen (1983)	0.83
Phillips (1982)	0.68
Reve and Stern (1986)	0.70/0.63
Spekman and Stern (1979)	0.68

Table 7.11 Cronbach`s Alpha of the construct of formalization in some selected previous studies.

Interaction, though, shows acceptable reliability (0.85) compared to related studies that have used the same construct variable. It has, however decreased relative to the unilateral model. It is about the same as in Stern and Reve (1986) that was the main source of items (Wholesaler C.Alpha=0.88, Retailer C.Alpha =0.86).

	Cronbach`s Alpha
Dwyer and Welsh (1985)	0.53
John and Martin (1984)	0.85
John and Reve (1982)	0.86
Phillips (1982)	0.70
Stern and Reve (1986)	0.88/0.86
Dahlstrom (1990)	0.84

Table 7.12 Cronbach`s Alpha of the construct of interaction of some selected previous studies.

The construct of opportunism reflects relatively robust item combination. Only one of the items was deleted through the dyadic screening process. An Alpha of 0.73 is acceptable compared with other studies referred in table 7.13.

	Cronbach`s Alpha
Anderson (1988)	0.88
John (1984)	0.88
Phillips (1982)	0.59
Reve and Stern	0.71/0.80

Table 7.13 Cronbach`s Alpha of the construct of opportunism of some selected previous studies.

The constructs that describe transaction cost dimensions gained reliability through the screening process. On the other hand, because of low discriminant validity in the dyadic model analysis, one item in bargaining costs and two items in maladaption costs had to be deleted. In general, data from the managers reflects higher Alpha's of the cost dimensions. The three step process has slightly reduced reliability of the constructs of vertical control and opportunism. The situation is different for the cost dimensions. One of the cost dimensions has slightly increased Alpha after the dyadic screening process. The lowest item-total correlation in each construct is presented below in table 7.14.

	ITEMS	LOWEST ITEM-TOTAL CORRELATION
CENTRALIZATION	6	0.45
FORMALIZATION	3	0.33
INTERACTION	5	0.50
OPPORTUNISM	4	0.41
BARGAINING COSTS	2	0.59
CONTROL COSTS	3	0.50
MALADAPTION COSTS	3	0.67
FREE-RIDING COSTS	3	0.38
EFFECTIVENESS	3	0.33

Table 7.14 The lowest corrected item-total correlation in the revised final model (N=179).

ROTATED FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	COMMUNALITY
CENTR.1	-.01	**.50**	-.01	.25
CENTR.2	.00	**.67**	.00	.45
CENTR.4	.06	**.75**	-.20	.61
CENTR.5	.18	**.58**	-.17	.41
CENTR.8	.13	**.64**	-.10	.44
CENTR.9	.14	**.61**	-.04	.40
FORM.2	.17	-.12	**.41**	.21
FORM.3	.00	-.07	**.49**	.25
FORM.4	.21	-.09	**.75**	.62
INT.1	**.82**	.06	.06	.69
INT.2	**.81**	.05	.07	.66
INT.3	**.69**	.14	.13	.51
INT.6	**.74**	.07	.15	.58
INT.8	**.54**	.11	.04	.30
PCT.OF VAR.	23.5	17.2	5.4	

Table 7.15 *Varimax rotation common factor analysis of vertical control; centralization, formalization and interaction based on data from the dealers (N=179). Non-construct factor loadings above 0.30 are boldfaced.*

As we can see from table 7.15, the construct of interaction in factor 1 produces more variance and higher communalities than the construct of centralization. The construct of interaction, therefore, seems to have improved unidimensionality relative to the two other dimensions of vertical control. Formalization still seems to be the weakest variable in the multidimensional concept of vertical control after the dyadic model analysis. The formalization construct had poor communalities and lowest percent of variance (5.4%).

ROTATED FACTOR MATRIX:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	COMMUNALITY
BARG.2	.14	.04	.15	**.67**	.50
BARG.3	.12	.14	.02	**.82**	.71
CONT.1	.07	**.63**	.01	.06	.40
CONT.2	.10	**.73**	.07	.05	.55
CONT.3	.04	**.60**	.17	.06	.40
MAL.1	**.76**	.08	.03	.09	.60
MAL.2	**.70**	.09	-.05	.15	.53
MAL.3	**.94**	.07	.06	.07	.90
FREE.1	.01	.11	**.68**	.09	.48
FREE.2	.08	.06	**.75**	.03	.59
FREE.3	-.04	.04	**.43**	.03	.19
PCT.OF VAR.	23.4	13.2	8.9	8.2	

Table 7.16 *Varimax rotation common factor analysis of transaction cost dimensions based on data from the dealers (N=179). Non-construct factor loadings above 0.30 are boldfaced.*

The maladaption cost construct still seems to be the strongest variable determined by factor 1 with highest communalities and per cent of variance (23.4%), while bargaining costs with two items (factor 4) produced 8.2% of the variance.

The final measurement model test shows the retest of the constructs purified through the dyadic model analysis. No items measuring each construct of vertical control had less factor loadings than 0.41. Also, no items measuring any other variable had loadings above 0.21. Although the unilateral model analysis of the cost-dimensions indicated acceptable convergent validity, some

items were deleted due to low discriminant validity through the dyadic model analysis. The factor analyses of the final model, therefore, indicate a model with acceptable unidimensionality. No construct item loaded lower than 0.43 and no non-construct loading was higher than 0.17. Thus, the final measurement model produced both better convergent validity and better discriminant validity, though fewer items of the parallel constructs in model.

VERTICAL CONTROL	LOWEST CONSTRUCT LOADING	HIGHEST NON-CONSTRUCT LOADING
FINAL MODEL (N=179)	0.41	0.21

Table 7.17 *Lowest construct factor loadings and highest non-factor loadings of vertical control dimensions in the retest of the measurement model.*

TRANSACTION COST DIMENSIONS	LOWEST CONSTRUCT LOADING	HIGHEST NON-CONSTRUCT LOADING
FINAL MODEL (N=179)	0.43	0.17

Table 7.18 *Lowest construct factor loadings and highest non-factor loadings of transaction cost dimensions in the retest of the measurement model.*

The single construct of perceived interorganizational performance obtained satisfactory internal consistency through the three step process without loosing items. Based on the measures provided by the three step analyses design means, standard deviation and ranges were calculated and presented in table 7.19 below.

VARIABLE	MEAN	STD. DEV.	MINIMUM	MAXIMUM
CENTRALIZATION	2.68	1.12	1.00	6.50
FORMALIZATION	4.52	1.39	1.00	7.00
INTERACTION	3.79	1.38	1.00	7.00
OPPORTUNISM	2.90	1.33	1.00	6.75
BARGAINING COSTS	4.01	1.39	1.00	7.00
CONTROL COSTS	3.42	1.50	1.00	7.00
MALADAPTION COSTS	3.70	1.38	1.00	7.00
FREE-RIDING COSTS	2.18	0.95	1.00	7.00
EFFECTIVENESS	4.57	0.90	1.67	6.67
EFFICIENCY	0.01	0.06	-0.67	0.31

Table 7.19 Mean, standard deviation and range of the constructs in the final model (N=179).

7.6 Ex Ante contracts and Ex Post Vertical Control

Before testing of the structural relations in our conceptual model, it is interesting to relate the independent variables defined by vertical control dimensions to the ex ante formal structural alternatives given by the three categories of company-dealer contracts. The formal contracts are the ex ante structures that presumably were consistent with our vertical control dimensions.

The question is how the three categories of ex ante contracts within the plural form (employee dealers, contracted dealers and independent dealers) are associated to the three aspects of vertical control.

I have argued consistent with figure 2.1, that the three types of contracts reflect the ex ante market-hierarchy dimension in the transaction cost theory. In this study though, I have focused the ex post perspective of the theory. I chose a trademark company with sufficient variation in ex ante contracts because I wanted to secure variation in ex post vertical control. Our initial expectation, therefore, was that the level of vertical control was greater between the company and employee managers than between the company and contracted dealers. I also expected that vertical control was greater between the company and contracted dealers than between the company and independent dealers. Yet, since the number of dimensions of vertical control was extended, there may be no significant relationship between the three types of formal contracts regarding the dimensions of vertical control. I expected, though, that centralization was closest related to the formal ex ante contractual structure. That is, employee dealers were more subjected to one-sided decisions from the company.

	EMPLOYEE DEALERS - CONTRACT DEALERS	EMPLOYEE DEALERS - INDEPENDENT DEALERS	CONTRACT DEALERS - INDEPENDENT DEALERS
Centralization	2, 76 **	3, 78 ***	2, 26 **
	(3, 6-2,7)	(3, 6-2,3)	(2, 7-2,3)
Formalization	1, 10	0, 54	-0, 97
	(4, 9-4,4)	(4, 9-4,6)	(4, 4-4,6)
Interaction	2, 47 **	1, 63	-0, 84
	(4, 4-3,7)	(4, 4-3,8)	(3, 7-3,8)

Table 7.20 *T-tests of the differences between formal contracts (employee dealers, contract dealers and independent dealers) and dimensions of vertical control (centralization, formalization and interaction). Mean values (). (N=179)*

The test based on the final revised model (179) shows that centralization is related to the ownership structure defined in the formal contract. Table 7.20 shows that employee dealers consistent with the transaction cost literature (Williamson 1975, Dwyer and Oh 1988), are exposed to a significantly greater level of centralization than contracted dealers. The more the company owns, the more hierarchical decisions the company takes. Contracted dealers are subjected to more hierarchical decisions than independent dealers. The T-values in table 7.20 reflect significant differences and are consistent with our pretest anticipations.

Although internal dealer's relations to the company are more formalized than company dealers and independent dealers, the results presented in table 7.20 are not significant. The T-values also indicate that contracted dealers have a slightly less formalized relationship to the company than the independent dealers. The level of formalization, therefore, is not significantly related to the

ownership structure and the explicit contractual structure and is not opposing our initial choice of the dimension as instrumental to describe the level of vertical control.

Vertical interaction as I can see from table 7.20, is somewhat related to the formal ex ante contract. Employee dealers significantly interact more with the company than contracted dealers and independent dealers. Still, the data seems to reflect slightly more interaction between independent dealers and the company than between contracted dealers and the company. But the relationships are not significant.

In general, centralization and interaction seem to be more associated with the ownership structure defined in the contracts than formalization. The concept of centralization is most strongly related to the ownership structure. The concept of centralization is also the most important vertical control dimension. The close relationship between the ownership structure and centralization shows that the company uses hierarchical authority associated to the ex ante formal contract. Conclusively, dimensions of vertical control are therefore not inconsistent with the formal control inherent in the ex post contract.

8. HYPOTHESES TESTING

The structural relations in the final model analysis are inspected by using ordinary least square regression and Pearson correlation. ß-coefficients are standardized. That is, they are comparable because they are measured in standard normal deviates. Coefficient of determination (adjusted R^2) is also presented in the structural model analysis.

The first step in the structural analysis is a Pearson correlation in table 8.1 below. It presents the bivariate correlations in the structural model. Bivariate correlations are instrumental to inspect nomonological validity and the collinearity problem as well as to draw a preliminary picture of the model.

The correlations indicate that centralization and formalization may be alternative governance structures. There is a significant negative association between the two constructs, while both centralization and formalization correlate positively with vertical interaction. Both transaction cost dimensions and opportunism correlate positively with each other. It is also the case with the two constructs of performance.

The obtained data patterns in the correlation matrix, therefore, support nomological validity. That is, the correlations indicate a fit between dimensions in the theoretical network and the data (Cook and Campbell 1979). Pearson correlation is also instrumental in order to reveal a potential collinearity problem (multicollinearity diagnostics not reported here). The diagnostic tests do not indicate unstable coefficients or shifting signs. The maximum difference between ß-coefficients when one, two or no independent variable was taken out of the model was 0.13. Neither does the presented correlation matrix in table 8.1 indicate a collinearity problem related to the three independent variables. Although the multicollinearity diagnostics do not indicate a collinearity problem, it cannot be ignored.

	Centr.	Form.	Int.	Opp.	Barg.	Cont.	Mal.	Free.	Perc.P.	Oper.P
Centr.	1,00	-	-	-	-	-	-	-	-	-
Form.	-,19*	1,00	-	-	-	-	-	-	-	-
Int.	,19**	,22**	1,00	-	-	-	-	-	-	-
Opp.	,10	-,41**	-,22**	1,00	-	-	-	-	-	-
Barg.	-,09	-,19*	-,41**	,32**	1,00	-	-	-	-	-
Cont.	,20**	-,25**	-,16*	,29**	,18*	1,00	-	-	-	-
Mal.	-,01	-,25**	-,23**	,29**	,25**	,17*	1,00	-	-	-
Free.	,17*	-,23**	-,19**	,17*	,15*	,16*	,04	1,00	-	-
Perc.Perf.	,07	,24**	,56**	-,34**	-,39**	-,18*	-,34**	-,21**	1,00	-
Oper.Perf.	-,09	,16*	,00	-,08	,04	,05	-,05	-,03	,12	1,00

*p< 0, 05 **p<0, 01 (2-tailed)

Table 8.1 Two tailed Pearson correlation of the final structural model (N=179).

In order to investigate the relationship between multiple dimensions of the independent variables and the dependent variable described in the conceptual model, I have applied ordinary least squares regression. The method is instrumental to compute an estimate of the hypothesized structure in the model, and is providing an evaluation of how the model fits the data by calculating adjusted R^2.

INDEPENDENT VARIABLES	DEPENDENT VARIABLE OPPORTUNISM
CENTRALIZATION	0.07
FORMALIZATION	-0.36 ***
INTERACTION	-0.16 **
ADJUSTED R^2	0.18

* p < 0.10
** p < 0.05
*** p < 0.001

Table 8.2 *Ordinary least square regression ß-coefficients in the final model analysis between vertical control and opportunism (N=179).*

Independent Variables	**Dependent Variables**			
	Bargaining Costs	Control Costs	Maladaption Costs	Free-Riding Costs
Centralization	-0,04	0,21**	-0,02	0,18**
Formalization	-0,11	-0,18**	-0,22**	-0,15**
Interaction	-0,39***	-0,17**	-0,18**	-0,20**
Adjusted R^2	0, 17	0, 10	0, 08	0, 09

*p< 0.10

**p< 0.05

***p< 0.001

Table 8.3 *Ordinary least square regression ß – coefficients in the final model analysis between vertical control and transaction cost dimensions (N=179).*

Independent Variable	Dependent Variables: Bargaining Costs	Control Costs	Maladaption Costs	Free-Riding Costs
Opportunism	0,33***	0,30***	0,30***	0,17**
Adjusted R^2	0,10	0,08	0,08	0,02

*p <0,10

**p <0,05

***p <0,001

Table 8.4 *Ordinary least square regression ß -coefficients in the final model analysis between opportunism and transaction cost dimensions (N=179).*

INDEPENDENT VARIABLES	DEPENDENT VARIABLES EFFECTIVENESS	EFFICIENCY
BARGAINING COSTS	-0.30 ***	0.06
CONTROL COSTS	-0.07	0.07
MALADAPTION COSTS	-0.25 ***	-0.08
FREE-RIDING COSTS	-0.15 **	-0.05
ADJUSTED R^2	0.23	-0.009

* $p < 0.10$
** $p < 0.05$
*** $p < 0.001$

Table 8.5 *Ordinary least square regression ß-coefficients in the final model analysis of the relation between transaction cost dimensions and performance (N=179).*

The analysis of the structural model indicates that the impact of vertical control is less consistent. Centralization increases, though, not significantly the level of opportunism as can be noted from table 8.2. On the other hand, hierarchical decision making as I can see from table 8.3 increases significantly the level of costs of control (0.21, $p<0.05$) and free-riding (0.18, $p<0.05$).

Thus centralization has a rather fragmental effect on opportunism and costs (tables 8.2 and 8.3). The regression and correlation coefficients are consistently providing significant relationship-estimates between centralization and control costs and between centralization and free-riding costs. The results do not support hypothesis 1a that there is a negative relationship between centralization and opportunism. The indications that centralization increases costs of control and free-riding costs contradict predictions derived in

hypothesis 2b and hypothesis 2d. The positive relationship in the correlation matrix between free-riding costs and control costs (0.16, $p<0.05$) may, however, indicate that the company increases centralization in order to control the free-riding problem.

Yet, post test interviews indicated that centralization may itself produce free-riding (Kidwell, et al. 2007). The reason is that the basic assumption when the company takes decisions one-sided is that it has necessary information available. When the company takes decisions without crucial information regarding the dealer businesses, it may take wrong or poor decisions. Free-riding costs, therefore, according to the debriefing interviews, may be a dealer reaction to mistaken company policy. Centralization of decisions rests on assumptions that the principal company is well informed about the situation in the distribution system. When this is not the case, the company might take poor decisions affecting the company-dealer relationship, increasing opportunism, control costs and the costs of free-riding.

Formalization seems to have a more consistent impact on opportunism and cost-dimensions (tables 8.2 and 8.3). Formal rules and procedures reduce the level of opportunism (β =-0.36, $p<0.001$). Increased formalism also is associated to significant reduced control costs, maladaption costs and free-riding costs as (see table 8.3).

Vertical interactions seem to reduce both opportunism and the cost dimensions (tables 8.2 and 8.3). Supportive activities from the principal company create a better channel environment and better efficiency. The adjusted R^2 seems to indicate that the model fit to the data is rather weak. Vertical control explains 18% of the variation in the construct of opportunism (Adj.R^2 = 0.18). Also vertical control relationship to the cost dimensions results in a quite low adjusted R^2 of 0.08.

The structural test, therefore, supports the prediction in Hypotheses 1b, c, and 2f, g, h, i, j, k, l. Aspects of formalization and interaction reduce

opportunism and costs. The OLS regression model is consistent with the results presented in the Pearson correlation. The test-results provide a weak model support. The model-test indicates a clear negative relationship between formal and interactive aspects of vertical control and the cost dimensions.

The structural model test indicates that more opportunism increases the level of costs significantly (see table 8.4). The impact of opportunism on free-riding costs resulted in the lowest explained variance of 0.02, which is low. All ß-coefficients describing the relationships between opportunism and cost-dimensions were significant.

Hypothesis 3a, b, c, d, that there is a positive relationship between opportunism and costs, therefore, is strongly supported. The test also indicates that the social mechanisms of opportunism are related to the conduct of vertical control. Thus, the results support the application of the political economy framework in transaction cost analysis. Both behavioral and contractual aspects of the relationship affect the dimensions of transaction costs.

Transaction costs as indicated in table 8.5 reduce effectiveness, but seem to have no impact on the dealers` efficiency (operating income/gross sales revenue-ratio). The lack of model support for relations between cost-dimensions and objective performance measures may have at least two reasons (Haugland, et al.2007). First, the income/sales revenue-ratio reflects only one part of the dyadic performance. Also one-sided performance information may lack essential information about interorganizational efficiency. Another potential reason is that transaction costs may not be of enough importance relative to production costs for the agent dealer in the short term, so that it is not possible to detect structural relationships between costs and efficiency. Since transaction costs are caused by more structural reasons, defined by the bilateral contract, time series between transaction costs and annual report data may be needed. There is, however, a marginal positive, though not significant association between bargaining costs and control costs and dealer efficiency

(see table 8.6). Although the estimates did not reach the critical significance level, the signs according to Jensen and Meckling (1976) are right. There may be a long term trade-off between increased control and bargaining and agent performance. When the company uses resources on bargaining and monitoring activities the contractual disharmony may be reduced and efficiency will increase. Maladaption costs relate to an imperfect information system. This leaves both parties misinformed and incompetent to realign the contract and to optimize the contractual relationship. The relationship drifts out of alignment (Williamson 1988). Free-riding does not, consistent with our theoretical discussion (H4h) increase performance. Free-riding costs and maladaption costs have consistent with hypotheses 4 f a negative effect on efficiency.

The estimates of the relationship between costs and perceived performance in the OLS regression model and in the correlation matrix are consistent. The same is the case in the relation between the cost dimensions and the efficiency construct (OPER). In order to control for production cost explanations, sales revenue was applied as a third variable in the regression model (see table 8.6). Instead of using the sales revenue/ net operating income-ratio as a dependent variable in the estimation model, I used only net operating income as a proxy for efficiency. The following results presented in table 8.6 then strongly support production costs explanations. However, only control costs did not significantly affect perceptual performance/effectiveness. Control costs did not receive significant support as a determinant for perceptual performance in the prior model estimation either. The model now explains 25 % of the variation that is better than previously stated (see table 8.5). The test supported that sales revenue affects net operating income. Transaction costs dimensions, however, do not produce significant ß-coefficients at all.

INDEPENDENT VARIABLES	DEPENDENT VARIABLES	
	PERCEPTUAL PERFORMANCE	NET OPERATING INCOME
SALES REVENUE	0.15 **	0.38 ***
BARGAINING COSTS	-0.29 ***	0.03
CONTROL COSTS	-0.06	-0.03
MALADAPTION COSTS	-0.26 ***	-0.05
FREE-RIDING COSTS	-0.13 **	0.01
ADJUSTED R^2	0.25	0.11

* $p < 0.10$
** $p < 0.05$
*** $p < 0.001$

Table 8.6 *Ordinary least square regression ß-coefficients in the final model analysis of the relation between sales revenue, transaction cost dimensions and performance (N=179).*

The final structural model produces significant results. The adjusted R^2 indicated support for the conceptual model. Vertical control is related to opportunism. Transaction costs affect opportunism. Opportunism affects transaction costs. Finally, transaction costs influence interorganizational performance.

Thus, the empirical results support the prediction derived from theory that transaction costs dimensions are related to the ex post contract and affected by opportunism. The results, also question how contract related costs relate to performance. Our indications (table 8.6) that production cost theory were far more powerful in predicting efficiency contradicts evidence produced by Anderson (1985) and John and Weitz (1988). In their studies production cost theory was dominated by transaction cost explanations. John and Weitz (1988) also like the study presented here measured sales volumes as a proxy for production cost explanations. Anderson (1985), though, applied the value of assets as a proxy for the production costs argument. However, economies of

scale are closely related to production techniques in the industry and might differ between industries. Production costs, therefore, might or might not be related to size measures. On the other hand, studies conducted by both Lilien (1979), Walker and Weber (1984) and Klein, Frazier and Roth (1990), consistent with our results supported the importance of production costs.

9. IMPLICATIONS AND LIMITATIONS

The implications of this research are theoretical, methodological, and managerial. The study also has some clear limitations. This chapter presents these aspects of the conducted study. The research presented here may have focused on some relevant fields for future research. But prior to the implications and limitations, I will relate our findings to the four conventional dimensions of validity (Cook and Campbell 1979);

a) Statistical conclusion validity
b) Internal validity
c) Construct validity
d) External validity

Statistical conclusion validity refers to inferences about whether it is reasonable to presume covariation (Cook and Campbell 1979:41). More precisely statistical conclusion validity focuses the magnitude of covariation between the variables in the model. As I have presented previously, our structural tests indicate that the dimensions of vertical control accounts for 8% to 17% of the variation in the dimensions of transaction costs and 18% of the variation in the level of opportunism. The explained variation is relative moderate. However, seven of the hypotheses are supported at the 0.05 % level of significance and two hypotheses produce significant results in the opposite direction. Although the general support for the model is quite weak, the data have revealed significant and strong indications of a structural relationship between the independent and dependent variables. The estimates produced in the empirical model, therefore, indicate that the study is sensitive enough to draw reasonable statements about covariation between ex post vertical control and transaction costs.

Our investigation of correlational relationships based on survey data do not intend to derive decisions about the direction of causality. Internal validity refers to whether it is possible to infer a causal relationship between the independent and the dependent variable. Thus, the results presented here do not provide statements about causal direction. The grounding in prior channel research and theory as well as the chosen homogeneous setting may control for alternative explanations. Still, the need for sequential data in order to legitimate statements of causal direction is not satisfied here.

In the transaction cost literature the concept of transaction costs is outlined very loosely (Hennart 1986, Williamson 1985, 1988). Therefore, A more precise and operational definition was needed in order to provide content validity of the concept. The dimensionalization of transaction costs is derived from the exploratory interviews guided by theory. Chapter 6 presented the operational definitions and operationalizations of the other concepts in the theoretical model. Other concepts than transaction costs were not new to empirical modeling. It was possible to draw the lines from cumulative research here.

The ambition was to test predictions derived from the presented theory and to develop new constructs. In order to do so I chose to study the phenomenon of transaction cost dimensions in a real world context by using a survey research design instead of experimentation. The research, therefore, emphasizes the importance of construct validity (Reve 1985). Construct validity refers to the approximate validity with which I can make generalizations about higher-order constructs from research operations (Cook and Campbell 1979). Construct validity-testing evaluates the relation between measures in a way that is consistent with the theoretical model. Construct validity, discriminant, and convergent validity were assessed by applying item-total correlation and common factor analysis. That is, when an applied set of indicators has only one underlying construct in common, the construct is unidimensional and have achieved satisfactory construct validity. As reported

in table 7.17 and 7.18, the final measurement model indicates satisfactory unidimensionality.

Generalization of the presented results had no priority in this study. The empirical setting for this study might constrain external validity of the results. In addition cultural, political and market factors might be critical for generalization of the findings.

9.1 Theoretical Implications

The cumulative empirical research (presented in table 2.1) in transaction cost theory still has not investigated contract-related cost-dimensions (Dahlstrom and Nygaard 2005). The situation indicates that a more performance oriented research perspective is needed (Dahlstrom and Nygaard 2000). Some aspects of the empirical evidence presented here may contribute to the investigation of the problem. Despite the exploratory character of this research of a plural formed franchise system, significant test-results as well as a retest of the measurement model, indicate the existence of contract-related costs. The empirical model supports the cost-dichotomy suggested in the transaction cost literature (Williamson 1985:22).

However, the fact that our model results not reveal consistent significant support in favor of transaction cost analysis do not imply that these costs have no impact on efficiency (David and Han 2004). There might be a trade off between bargaining costs, control costs on one side and maladaption costs and free-riding costs on the other (Milgrom and Roberts 1992). That is, if the contractual arrangements are changed, the balance between cost dimensions will affect efficiency. For instance, the company can by increased centralization increase resources used in bargaining and control activities more than it gets back from reduced maladaption and free-riding. Decreased centralization might reduce bargaining costs and control costs but on the other hand increase maladaption costs and free-riding costs.

The research also focuses on the association between dimensions of vertical control. Contrary to what is believed in the transaction cost literature, hierarchical decision modes have little or no consequences on the level of opportunism. Centralization seems to be closely related to the level of control and monitoring costs and the costs of free-riding (Nygaard and Myrtveit 2000). Centralization, therefore, might be instrumental to increase control in order to reduce the level of free-riding.

However, control costs have an impact on performance. The indication may be consistent with the Jensen and Meckling (1976) theory that there is a trade-off between the principals` costs of control and residual loss by using agents.

The results partly support observations from Eccles and White (1988) that internalization may be related to transaction costs. The investigation emphasizes the importance of formalization and interaction inherent in the dyadic contract. Both contractual aspects produce cost-efficiency consistent with predictions derived from transaction cost theory.

This calls for fewer restrictions on the scope of transaction cost analysis. Other dimensions of the bilateral contract than hierarchical decision modes such as formalization and interaction seem to be of crucial importance to transaction cost efficiency. However, the results reported here contradict John (1984) that formalization leads to erosion of positive attitudes and more opportunism. Our results, on the other hand, indicate that formalization reduces the level of opportunism.

In particular, because our study and the investigation conducted by John (1984) gathered data from oil companies, the inconsistent results provide interesting speculations. Aspects related to the empirical setting and the strategy of each company might have affected the results. Cultural factors (Norwegian versus American culture) and the time difference might have influenced the test conditions. Methodological differences also might have caused diverging results. John (1984) based his research on data from the dealer-side only. On the other hand, our indications that opportunism is reduced by increased formalism, is consistent with the multi-industry study conducted by Reve (1980) and the study conducted by Dwyer and Oh (1987) from the automobile industry.

Formalization limits the agents` access to internal decision processes and restricts the agents` participation in political activities. Formalization reduces

the room for potential subgroup control and therefore any pay off by utilizing asymmetric information. In addition, formalization reduces external uncertainty. More formalization creates a stable interorganizational context and makes both parties more committed to their relationship. Rules and routines define the roles that both parties have. Thus, formalization decreases the potential for role conflicts. The structural test indicates a negative relationship between centralization and formalization. Centralization and formalization might be alternative governance structures of vertical control. The principal may use hierarchical decision modes in some relationships and routines and rules to govern other agents.

Vertical interaction seems to create goal congruence. When the principal company helps the dealer to operate in the market, the transaction climate is affected positively. In a principal company-dealer relationship, the agent has an informational advantage related to the market operations. Interaction might motivate the parties to be more open to each other. When interaction increases, the decision making probably will be more decentralized and the dealer does not feel that the company threatens his autonomy.

The results seem to indicate that both parties are more motivated to share information when the level of vertical interactions is greater (Williamson 1985). Also vertical interactions have direct effects on cost dimensions. The agent might be more receptive to influence from the company when the agent has a real option to participate or not. Vertical interactions may create synergy effects. That is, both parties can, through the resources the principal-company offers to the dealer, combine forces in a more efficient way. Our results do not support theory that centralization and formalization is negatively related to interaction (Dwyer and Oh 1988). Our results instead indicate a positive association between centralization and interaction.

Centralization of decisions as a contractual instrument also makes centralization of information necessary. However, in a principal-agency

context, information asymmetry in favor of the agent is typical (Milgrom and Roberts 1988, 1992). Contrary to what was expected, costs of free-riding increased when centralization increased. The results may indicate that centralization may pulverize responsibility for quality-signal activities (Dahlstrom and Nygaard 1994). Also, it is possible that fewer output-dependent incentive structures inherent in more centralized contracts produce a shirking problem and that shirking also affects the problem of free- riding. Hierarchical decisions may negatively motivate the agent and make him less committed to the quality standards defined by the company. On the other hand, the company might increase one sided decisions to cope with the free-riding problem. The indication that centralization is significantly associated to both control costs and free-riding costs supports this speculation. The company controls dealer businesses to diminish the problem of free-riding (Kidwell, et al. 2007).

Debriefing interviews indicate that causality might go both ways. Centralization may increase the control costs and costs of free-riding (Dahlstrom and Nygaard 1999). Yet, the phenomenon of free-riding also increases the need for more centralized governance structures. The lack of temporal asymmetry in the data makes it impossible to investigate causal direction.

The indications that centralization increases opportunism are consistent with results from the investigation conducted by John (1984) and Reve (1980). Also Dwyer and Oh (1987) found that centralization had a negative impact on relationship quality.

The research supports the predictions derived from the political-economy framework those social aspects such as the level of opportunism has economic consequences (Stern and Reve 1980). The results indicate that the level of opportunism has impact on the cost structure.

Thus, our results support previous research on the political economy framework. Structural dimensions of vertical control affect the level of

opportunism. Opportunism as a socio-political dimension also affect the cost structure. Our results support the thoughts that there is a strong interplay between social aspects of the transaction and economic components of the interorganizational relationship.

9.2 Methodological Implications

The study introduced an hour glass shaped three step analyses design. The design is applicable to settings were data from some but not all cases are available as dyads. Then it is possible to tune the measurement model before final structural testing as well as retesting of the measurement model. The first step was a unilateral model analysis. The unilateral model provided an overview and a more manageable data set with acceptable face validity and reliability for further analyses. The screening process through the dyadic model analyses defined a measurement model before final model testing. The three-step approach produced acceptable convergent and discriminant validity of parallel constructs in the empirical model. The most important aspect of the three step approach is that it provides a measurement model valid to both sides of the same dyad.

Interorganizational research has previously been criticized to be biased because of the single side information (John and Reve 1982). Our results indicate that the final model had better internal consistency and discriminant validity (see tables 7.17 and 7.18). The other methodological implication is the multi-item operationalization and sub-dimensionalization of transaction costs. The research follows the lines from psychometric tradition (Nunnally 1978, Lord and Novick 1968) that a theoretical concept is difficult to measure in an imperfect and complex world and therefore has to be measured by several indicators.

A multi-item approach to the transaction cost-operationalization may also be the only way to study the problem because it seems to be difficult to dimensionalize these costs by using objective measures or dummy-variables. The multi-item operationalization approach to the dimensionalization of transaction costs may produce a richer and more fruitful source for future research and for managerial utilization of the results.

One of the methodological contributions here is the multi-item description of theoretical concepts. But obtaining construct validity is a long term process and cannot be stated by one single study. This study, therefore, might contribute to the cumulative stream of research based on transaction cost theory. The study can be seen as an extension of transaction cost analysis from using traditional specificity, uncertainty or frequency-proxies for transaction costs. Instead, I developed multi-item proxy-variables that describe contract related cost-dimensions.

9.3 Managerial Implications

Formalization and interaction aspects of bilateral contracts produce consequences of interest to the management of distribution activities. The empirical analysis especially emphasizes the strong effects of formalization and interaction. The statistical relationship between more formalization and decreased opportunism is highly significant (-0.36, $p<0.001$) which, indicates that the model also may have practical importance (McCloskey 1985). The same may be the case in the relationship between interaction and reduced bargaining costs (-0.39, $p<0.001$). The research suggests that the principal company, rather than using hierarchical decisions as a mode of managing the distribution system, instead applies more formal routines, procedures, rules etc. and offers more vertical cooperation as an operational instrument of vertical control.

The study provides indications that there is a relationship between centralization, control costs and free-riding costs. It may indicate that the company intervenes to control the agent whenever free-riding occur. Centralization, therefore, might be an appropriate reaction to mitigate the damaging effect of free-riding problems.

Formalization might be a way to economize on transaction costs. Formalization makes it unnecessary to renegotiate the bilateral agreement on every small occasion. Therefore, formal routines and programming reduce bargaining costs. Also the impact of more formal rules and procedures constrain the room for political activities and the need to negotiate.

Formalization makes the relationship more predictable. This might stimulate the commitment between the two parties in the relationship. A predictable and stable relationship reduces the uncertainty for both parties. More formalism also constrains the room for privileges in the system. Therefore, the dealers will reduce their political activities in order to gain private advantages from the rest of the system. For the trademark company that invests in reputation capital, it is important to be able to control dealer activities. A regulated interorganizational system makes company control easier and more efficient. Another managerial advantage of formalization is that it contributes to the standardization of activities that are related to the trademark in the market. Thereby, it may contribute to the production of standard quality signaled by the trademark. The magnitude of interaction between the parties stimulates cooperation where resources do not overlap. Interaction reflects voluntary decisions taken by the parties. The acceptance of the autonomy of both parties in the transaction reduces opportunism and transaction costs.

The managerial implications of our findings are twofold. Formalization and interaction are cost minimizing contractual instruments. Centralization

might be an appropriate contractual instrument when free-riding has been detected.

9.4 Limitations

This research is to our knowledge the first step to pierce the surface of contract-related cost-dimensions. The results, therefore, have to be evaluated as preliminary. Obtaining construct validity is a long-term process and cannot be stated by one single study.

Although, there is sufficient variation in the independent variable, the contractual relation, the study has not inspected the impact of vertical control over time. Because the empirical model does not reflect temporal asymmetry, the structural indications have to be treated carefully. The conclusions are, therefore, based on a ceteris paribus argument. The robustness of the results is as good as this argument. However, the aspects of one company and one relatively homogeneous technology in a stable economic and social context may provide a satisfactory empirical setting to explore the problem of transaction costs. On the other hand, the single informant problem (Phillips 1982) may produce biased perceptions of organizational properties.

While the other constructs in the model reflect satisfactory construct validity across settings and time, the same is not the case with the sub-dimensions of transaction costs. The constructs of transaction costs may be limited to the chosen empirical context. However, the presented study may contribute to the long-term process of construct validation. The homogeneous setting was chosen in order to gain statistical power and to control third variables.

The regression results are based on a linearity assumption. That is, the structural modeling assumes that a marginal step in one variable causes a linear change in another variable. The test-results presented in this study are as strong as this assumption.

Although some diagnostic tests (not reported here) as well as the correlations in table 8.1 do not indicate a multi colinearity problem, the complex problem is not solved and cannot be ignored as a limitation of the presented results.

The three step analysis approach chosen here strongly emphasized the value of construct validity. The reason was that I developed new constructs. During the rather conservative validation process many items were deleted from the model. A more generous specification had produced more items in the final model, but poorer unidimensionality of the final constructs.

9.5 Further Research

The path of progression following this research would indicate more focus on the concept of vertical control as an ex post transaction cost economizing instrument (Dahlstrom and Nygaard 1999). That is, more emphasis on categorizing and development of multi-item constructs. This will provide a more fruitful insight into these aspects subjected to managerial control after the relation is established by the ex ante formal contract.

The focus on agency theory as well as transaction cost theory of cost-efficient contracts will only have a long-term empirical value if it is possible to test theory in a real-world context. Both transaction cost theorists (Williamson 1985:116) and agency theorists (Holmstrom and Tirole 1989:126) call for stronger interplay between theoretical and empirical work. It is therefore necessary to continue to explore the nature of contract-related cost-dimensions theoretically as well as empirically. Although both transaction cost theory and agency theory predict efficiency, few empirical studies have attempted to address the problem (Dahlstrom and Nygaard 2005).

Previous research lacks the methodological power of the time-dimension (Dahlstrom and Nygaard 1999). The consequence is that causal relations have to be grounded theoretically. Future research, therefore, should use time-series or experimental design in order to assess cost efficient contracts.

In order to give construct validity high priority I chose a principal-multi-agent empirical setting. The principal company had invested in trademark specific assets. However, contrary to what is generally believed according to the transaction cost theory, the company had designed a plural distribution system. Both internal and independent dealers operate the same type of business and business relationship with the company. Few studies have approached the theoretical question inherent in this empirical observation (Bradach and Eccles 1988, Minkler 1990, Walker and Weber 1984). Future theory development as well as empirical analysis may focus more on a network of transactions level than on the micro analytic relationship of the single dyad. Our study follows the latter category of research tradition based on transaction cost theory and the transaction as the unit of analysis. However, pursuing the work in theory building might provide more powerful explanations of the phenomenon of plural forms. Macro level perspectives like network theory (Thorelli 1986) and price, authority and trust models (Bradach and Eccles 1989) have produced some insights about the macro level rationality of pluralism. These perspectives, though, do not intend to explain how these companies minimize transaction costs and opportunism and survive as organizational forms (Alchian 1950). A major future challenge is to explain how macro level strategies affect transaction costs and performance.

10. CONCLUSIONS

Researchers have almost never tried to explore the magnitude of contract related transaction costs but instead used transaction characteristics as proxies for the assumed level of these costs (Day and Klein 1987, Klein, Frazier and Roth 1990, Dahlstrom and Nygaard 1999). The question is whether transaction costs can be empirically investigated. The exploratory research presented here provides evidence that it is possible to operationalize and to observe contract related cost dimensions. Transaction cost theory as a normative theory only has value if cost efficiency or performance predictions can be empirically supported. The extension of transaction cost analysis presented here, might be an instrumental avenue of research to inspect interorganizational performance. Empirical evidence from this study may contribute to inspect the normative aspects of the received theory.

I have consistent with transaction cost theory (Williamson 1988) applied an ex post perspective. That is, I have explored how vertical control influences transaction costs after the relationship was established between the principal company and the dealer. Our results indicate associations between vertical control, opportunism and transaction costs.

The study also presents a three step analysis design. Here, the model specification prior to hypothesis testing was based on dyadic data (Kidwell, et al. 2007). Dyadic data served as a validation sample to obtain construct validity prior to the final testing. Hypothesis testing though was based on one sided data from 179 dealers. The analysis approach was designed in order to meet two kinds of criticism. First, that information from one side does not permit valid tests of dyadic relationships (John and Reve 1982). The analysis design also was formulated to meet the criticism against the use of the same data both to develop measures and to test relationships (Noordewier, John and Nevin 1990).

The three step analysis approach provided a measurement model where the constructs had unidimensionality on both sides. The analysis design presented here might be instrumental when dyadic information is available for some but not all cases.

REFERENCES

Acheson, J. (1985),"The Maine Lobster Market: Between Market and Hierarchy," Journal of Law, Economics and Organization, 1, pp.385-398.

Achrol, R. S., T. Reve and L. W.Stern (1982), "The Environment of Marketing Channel Dyads: A Framework for Comparative Analysis," Journal of Marketing, 47, pp.55-67.

Alchian, A. (1950),"Uncertainty, Evolution, and Economic Theory," Journal of Political Economy, 58, pp.211-221.

_____(1979), Organizations and Environments. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Aldrich, H. E. (1976), "Resource Dependence and Interorganizational Relations: Local Employment Service Offices and Social Services Sectors Organizations". Administration and Society, 7, pp.419-454.

Allvine, F.C. and J.M. Patterson (1972), Competition Ltd.: The Marketing of Gasoline, Bloomington: Indiana University Press.

Anderson, E. (1985), "The Salesperson as Outside Agent or Employee: A Transaction Cost Analysis," Marketing Science, 4, pp.234-254.

_____ (1988),"Transaction Costs as Determinants of Opportunism in Integrated and Independent Salesforces," Journal of Economic Behavior and Organization, 9, pp.247-264.

_____ and A. T. Coughlan (1987),"International Market Entry and Expansion via Independent or Integrated Channels of Distribution," Journal of Marketing, 51, 1. pp.71-82.

_____ and H. Gatignon (1986),"Modes of Foreign Entry: A Transaction Cost Analysis and Propositions," Journal of International Business Studies, (Fall), pp.1-26.

_____ and D.C. Schmittlein, (1984),"Integration of the Sales Force: An Empirical Examination," Rand Journal of Economics, 15, pp.3-19.

_____ and B. Weitz (1986),"Make or Buy Decisions: Vertical Integration and Marketing Productivity," Sloan Management Review, (Spring), 1986, pp.3-19.

_____ (1991), The Use of Pledges to Build and Sustain Commitment in Distribution Channels, Working Paper. Cambridge, Mass.: Marketing Science Institute, no. 91-114.

Akerlof, G. A.(1970),"The Market for "Lemons": Quality, Uncertainty and the Market Mechanism," Quarterly Journal of Economics, 84, pp.488-500.

Armour, H.O. and D.J. Teece (1980),"Vertical Integration and Technological Innovation," Review of Economics and Statistics, 62, pp.470-474.

Arrow, K. J. (1969), The Organization of Economic Activity; Issues Pertinent to the Choice of Market Versus Nonmarket Allocation, The PPB System. Vol.1, US Joint Committee, 91.st Congress, 1.st Session. Washington DC; US Government Printing Office pp. 59-73.

_____ (1985), "The Economics of Agency," in John W. Pratt and R. J. Zeckhauser (eds.) Principals and Agents: The Structure of Business. Boston, Mass.: Harvard Business School Press.

Bollen, K.A.(1989), Structural Equations With Latent Variables, New York, N.Y.: John Wiley & Sons Inc.

Bradach, J.L. and R.G. Eccles (1989),"Price, Authority, and Trust: From Ideal Types to Plural Forms," Annual Review of Sociology, 15, pp.97-118.

Caves, R.E. and R.M.Bradburd (1988),"The Empirical Determinants of Vertical Integration," Journal of Economic Behavior and Organization, 9, pp.265-280.

Chandler, A.D.Jr. (1962), Strategy and Structure. Cambridge, Mass.: MIT Press.

_____ (1977), The Visible Hand: The Managerial Revolution in American Business. Cambridge, Mass.: Harvard University Press.

Churchill, G. A. (1979),"A Paradigm for Developing Better Measures of Marketing Constructs," Journal of Marketing Research, 16, pp.64-73.

Coase,R.H. (1937),"The Nature of the Firm," Economica, 4, pp. 386-405.

Cook, T. D. and D. T. Campbell (1979), Quasi-Experimentation; Design and Analysis Issues for Field Settings. Houghton Mifflin Co.

Crosno, J.L., R.Dahlstrom and A. Nygaard(2007),“Trust in the Development of New Channels in the Music Industry,” Journal of Retailing and Consumer Services, vol.14, (3) pp.216-223.

Dahlman, C. J.(1979),"The Problem of Externality," Journal of Law and Economics, 22(April), pp.141-162.

Dahlstrom, R. (1990),Assessing the Political Economy of Relational Exchanges: An Empirical Analysis of Buyer-Seller Relationships in the Mainframe Computer Industry, unpublished Ph.D. dissertation, University of Cincinnati.

_____ A. Nygaard, S.Haugland and A. Rokkan (2009)"An Empirical Investigation of Governance Structures in the Hotel Industry," Journal of Business Research, vol. 62, pp.841-847.

_____ J.L.Crosny and A. Nygaard(2008),"Strategic, Metric, and Methodological Trends in Marketing Research and Their Implications for Future Theory and Practice," Journal of Marketing Theory and Practice, vol. 16, (2), pp. 139-142.

_____ and A.Nygaard (2005)Measurement of Transaction Costs and Falsification Criteria: Toward Future Directions in Empirical Research on Transaction Costs Theory, Essay in Harvey S. James, Jr. (Ed.) New Ideas in Contracting and Organizational Economics Research. Nova Science Publishers, New York, New York.

_____ and A.Nygaard (2000),"A Model of Organizational Antecedents to Franchise Revenues," Journal of Marketing Channels, Vol. 7(4), pp.109-126.

_____ and A.Nygaard (1999), "An Empirical Investigation of Ex Post Transaction Costs in Franchised Distribution Channels," Journal of Marketing Research, May, pp. 160-170.

_____ and A.Nygaard (1999), "Ownership Decisions in Plural Contractual Networks: Twelve Cases From the Quick Service Restaurant Industry," European Journal of Marketing Vol.33, (1/2), pp. 59-87.

_____, C.Manolis and A.Nygaard (1995),"A Preliminary Investigation of Ownership Conversions in Franchised Distribution Systems," Journal of Applied Business Research, Vol.11, (2) Spring.

_____ and A.Nygaard (1995)," An Exploratory Investigation of Interpersonal Trust in New and Mature Market Economies," Journal of Retailing, Vol.71, (4), pp.339-361.

_____ and A.Nygaard (1994) "A Preliminary Investigation of Franchised Oil Distribution in Norway," Journal of Retailing, Vol. 70, (2), pp.171-183.

_____ and A.Nygaard (1993) “Market Structure and Integration in the Norwegian Oil Industry,” the International Journal of Management Science/OMEGA, Vol.21, (2).

Dalton, D. R., W. D. Todor, M.J. Spendolini, G.J. Fielding and L.W. Porter (1980),"Organizational Structure and Performance: A Critical Review," Academy of Management Review, 5, (1), pp.49-64.

Day, G. S. and S. Klein (1987),"Cooperative Behavior in Vertical Markets: The Influence of Transaction Costs and Competitive Strategies," in M.J.Houston(ed.), Review of Marketing, pp.39-66.

David, R.J. and Han S.K. (2004), “A systematic assessment of the empirical support for transaction cost economics,” Strategic Management Journal, **25**,pp. 39-58.

Davidson W.H. and D. McFetridge (1984),"International Technology Transactions and the Theory of the Firm," Journal of Industrial Economics, 32,(3),pp.253-264.

_____ (1982), Global Strategic Management. New York, N.Y.: John Wiley and Sons.

Dwyer, F. R. and M.A. Welsh (1985),"Environmental Relationships of the Internal Political Economy of Marketing Channels," Journal of Marketing Research, 22, pp.397-414.

_____ and S. Oh (1987),"Output Sector Munificence Effects on the Internal Political Marketing Channels," Journal of Marketing Research, 24, (Nov.), pp.347-368.

_____.(1988),"A Transaction Cost Perspective on Vertical Contractual Structure and Intrachannel Competitive Strategies," Journal of Marketing, 52, pp.21-34.

Eccles, R. G. (1983), "Control with Fairness in Transfer Pricing," Harvard Business Review, (Nov.-Dec.), pp.149-161.

_____ and H. G. White (1988), "Price and Authority in Inter-Profit Center Transactions," American Journal of Sociology, 94, (Supplement), pp.17-52.

Eisenhardt, K. M. (1989), "Agency Theory: An Assessment and Review," Academy of Management Review, 14, (1), pp.57-74.

Elster, J. (1982), Explaining Technical Change, Cambridge: Cambridge University Press.

Fama, E.F. and M.C.Jensen (1983),"Separation of Ownership and Control," Journal of Law and Economics, 26 (June), pp.301-326.

Friedman, M. (1953),"The Methodology of Positive Economics," in M.Friedman, Essays in Positive Economics, Chicago: University of Chicago Press.

Gatignon, H. and E.Anderson (1988),"The Multinational Corporation`s Degree of Control Over Foreign Subsidiaries: An Empirical Test of a Transaction Cost Explanation," Journal of Law, Economics and Organization, 4, pp.305-336.

Gerbing, D. W. and J. C.Anderson (1988),"An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment," Journal of Marketing Research, 25, pp.186-192.

Geyskens, I., Steenkamp, J.B. EM, and Kumar MY. (2006),” Make, buy, or ally: A meta-analysis of transaction cost theory.” Academy of Management Journal, **49**, pp. 519-543.

Globerman S. and R. Schwindt (1986),"The Organization of Vertically related Transactions in the Canadian Forest Product Industry," Journal of Economic Behavior and Organization, 7, pp.199-212.

Goldberg, V.P. and J.R.Erickson (1987),"Quantity and Price Adjustment in Long-Term Contracts: A Case Study of Petroleum Coke," Journal of Law and Economics, 30, pp.369-398.

Hage, J. (1965),"An Axiomatic Theory of Organizations," Administrative Science Quarterly, 10, (Dec.), pp.63-74.

Harman, H.H.(1976), Modern Factor Analysis. Chicago: University of Chicago Press.

Haugland, S. A. and T. Reve (1988), Relational Contracting and Distribution Channel Cohesion. Report no.21, Center for Applied Studies, Norwegian School of Economics. Bergen.

_____, A. Nygaard and I. Myrtveit, (2007),“Balancing Market Orientation and Performance in the Service Industry: A Data Envelopment Analysis,” Journal of Business Research, Vol.60(11), pp.1191-1197.

Heide, J. B. and G. John (1988),"The Role of Dependence Balancing in Safeguarding Transaction-Specific Assets in Conventional Channels," Journal of Marketing, 52, 1, pp.20-35.

Hennart, J.-F. (1986),"What Is Internalization?," Review of World Economics, Heft 4, pp.791-804.

_____ (1988),"Upstream Vertical Integration in the Aluminium and Tin Industries," Journal of Economic Behavior and Organization, 9, pp.281-300.

Holmstrom, B. R. and J. Tirole (1989),"The Theory of the Firm," in R.Schmalensee and R.D.Willig (eds.) Handbook of Industrial Organization, 1, pp.95-97.

Hyvonen, S. (1983)Coordination and Cooperation in Vertical Marketing Systems: A Model Verification, Unpublished Lic.degree report. The Helsinki School of Economics, Helsinki.

Jensen, M. C. and W. H. Meckling (1976), "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," Journal of Financial Economics, 3(4) pp.305-360.

John, G. (1984), "An Empirical Investigation of Some Antecedents of Opportunism in Marketing Channel," Journal of Marketing Research, 21, pp.278-289.

_____ and T. Reve (1982), "The Reliability and Validity of Key Informant Data from Dyadic Relationships in Marketing Channels," Journal of Marketing Research, 19, (November), pp.517-524.

_____ and J. Martin (1982),"Effects of Organizational Structure of Marketing Planning on Credibility and Utilization of Plan Output," Journal of Marketing Research, 21, (May), pp.170-183.

_____ and B. Weitz (1988),"Forward Integration into Distribution: An Empirical Test of Transaction Cost Analysis," Journal of Law, Economics and Organization, 4,(2), pp.337-335.

Joskow, P. L. (1987),"Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets," The American Economic Review, 77, (1), pp.168-185.

_____ (1988),"Price Adjustment in Long-Term Contracts: The Case of Coal," Journal of Law and Economics, 31, pp.47-84.

Kidwell, R., A.Nygaard and R.Silkoset (2007)“Antecedents and Effects of Free Riding in the Franchisor-Franchisee Relationship,” Journal of Business Venturing, Vol. 22, (4), pp. 522-544.

Klein, B. (1980),"Transaction Cost Determinants of "unfair" Contractual Arrangements," American Economic Review, 70, pp.356-362.

Klein, S., G. L.Frazier and V. J.Roth (1990),"A Transaction Cost Analysis Model of Channel Integration in International Markets," Journal of Marketing Research, 27, pp.196-208.

Lehman, E.W. (1975), Coordinating Health Care: Explorations in Interorganizational Relations, Beverly Hills, Cal.: Sage Publications.

Levy, D. T. (1985),"The Transactions Cost Approach to Vertical Integration: An Empirical Examination," The Review of Economics and Statistics, 67, 3. pp.438-445.

Lilien, G. (1979),"Advisor 2: Modeling the Marketing Mix Decisions for Industrial Products," Management Science, 25, pp.191-204.

Lord, F. M. and M.R. Novick (1968), Statistical Theories of Mental Tests. Reading, Mass.:Addison - Wesley.

MacDonald, J.M. (1985),"Market Exchange or Vertical Integration: An Empirical Analysis," Review of Economics and Statistics, 67,pp.327-330.

MacMillan, I. D.C.Hambrick and J.M. Pennings (1986), "Uncertainty Reduction and the Threat of Supplier Retaliation: Two Views of the Backward Integration Decision," Organizational Studies, 7,pp.263-278.

Marrett, C. B. (1971), "On the Specification of Interorganizational Dimensions," Sociology and Social Research Vol.56, pp.83-99

Manolis, C., A. Nygaard and B.Stillerud (1997),“Uncertainty and Vertical Control: An International Investigation,” international Business Review, Vol. 6 (6).

Masten, S. E. (1984),"The Organization of Production; Evidence From the Aerospace Industry," Journal of Law and Economics, 27, (Oct.), pp.403-417.

McCloskey, D. N. (1985),"The Loss Function has been Mislaid: The Rhetoric of Significance Tests," American Economic Review, 75, pp.201-205.

Milgrom, P. and J. Roberts (1988),"An Economic Approach to Influence Activities in Organizations," American Journal of Sociology, 94, (Supplement), pp.154-179.

---------- and ---------- (1992), Economics, Organization and Management, Englewood Cliffs, NJ: Prentice-Hall.

Minkler, A.P. (1990),"An Empirical Analysis of a Firm`s Decision to Franchise," Economic Letters, 34, (1), pp.77-82.

Monteverde, K. and D. J. Teece (1982),"Appropriable Rents and Quasi-Vertical Integration," Journal of Law and Economics, 25, (Oct.) pp.321-328.

_____ and D. J. Teece (1982),"Supplier Switching Costs and Vertical Integration in the Automobile Industry," Bell Journal of Economics, 13, pp.206-213.

Mulherin, J.H. (1986),"Complexity in Long-Term Contracts: An Analysis of Natural Gas Contractual Provisions," Journal of Law, Economics and Organization, 2, pp.105-117.

Noordewier, T. G., G. John and J. R. Nevin (1990), "Performance Outcomes of Purchasing Arrangements in Industrial Buyer-Vendor Relationship," Journal of Marketing, pp.80-93.

Nunnally, J. C. (1978), Psychometric Theory, New York, N.Y.: Second Ed. McGraw Hill.

_____ (1967), Psychometric Theory, New York, N.Y.: First Ed. McGraw Hill.

Nygaard, A.(1999)“Inter-firm Control of Plural Formed Marketing Channels,” Journal of Business to Business Marketing, Vol.6 (4).

_____ and R. Dahlstrom (2002), “Role Stress and Effectiveness in Horizontal Alliances,” Journal of Marketing, vol.66 (2), pp.61-82, 2002.

_____ and I.Myrtveit (2000), “Moral Hazard, Competition and Contract Design: Empirical Evidence from Managerial, Franchised and Entrepreneurial Businesses in Norway,” Applied Economics, Vol. 32, pp. 349-356.

Ouchi, W. G. (1980),"Markets, Bureaucracies and Clans," Administrative Science Quarterly, 25, (March), pp.129-141.

Palay, T. M. (1984),"Comparative Institutional Economics: The Governance of Rail Freight Contracting" Journal of Legal Studies, 22, June, pp.265-287.

_____ (1985),"Avoiding Regulatory Constraints: Contracting Safeguards and the Role of Informal Agreements," Journal of Law, Economics and Organization, 1,(1), pp.155-176.

Peter, P. J. (1979),"Reliability: A Review of Psychometric Basics and Recent Marketing Practices," Journal of Marketing Research, 16, pp.6-17.

Phillips, L. W. (1981),"Assessing Measurement Error in Key Informant Reports: A Methodological Note on Organizational Analysis in Marketing," Journal of Marketing Research, 18, (November), pp.395-415.

_____ (1982),"Explaining Control Losses in Corporate Marketing Channels: An Organizational Analysis," Journal of Marketing Research, 19, (Nov.),pp.525-549.

Prisdirektoratet (1984),Oljeselskapenes Kontrakter med Bensinforhandlerne, - Prisdirektoratets Forhandlinger med Oljeselskapene, Notat av 13. august.

Pugh, D.S., D.J.Hickson, C.R.Hinings and C. Turner (1968),"Dimensions of Organization Structure," Administrative Science Quarterly, 13. pp.65-105.

Reve, T. (1980),Interorganizational Relations in Distribution Channels: An Empirical Study of Norwegian Distribution Channel Dyads, Ph.D.-Dissertation, Northwestern University, Evanston, Illinois.

_____ (1985), "Validitet i Økonomisk-Administrativ Forskning," in Metoder og Perspektiver i Økonomisk /Administrativ Forskning, Kjell Grønhaug (ed.), Oslo: Universitetsforlaget pp.52-73.

_____ (1986), "Organization for Distribution,"in L. P. Bucklin and J.M. Carman (eds.) Research in Marketing, Greenwich, Connecticut, JAI Press, 8, pp.1-26.

_____ and L. W. Stern (1986),"The Relationship Between Interorganizational Form, Transaction Climate and Economic Performance in Vertical Interfirm Dyads," in Marketing Channels, Relationships and Performance. L.Pellegrini and S.K. Reddy (eds.) Institute of Retail Management, New York University, New York, N.Y.: Lexington Books. pp.75-102.

Ridgeway, V. F. (1957)"Administration of Manufacturer-Dealer Systems," Administrative Science Quarterly, (March), pp.464-483.

Rubin,P.H. (1978),"The Theory of the Firm and the Structure of the Franchise Contract," Journal of Law and Economics, 21, pp.223-233.

Ruekert, R. W., O. C. Walker, Jr. and K. J. Roering (1985), "The Organization of Marketing Activities: A Contingency Theory of Structure and Performance," Journal of Marketing, 49, pp.13-25.

Spekman, R.E. and L.W.Stern (1979),"Environmental Uncertainty and Buying Group Structure: An Empirical Investigation," Journal of Marketing, 43, pp.54-64.

Stern, L. and A. I.El-Ansary (1988), Marketing Channels. Englewood Cliffs, N.J.: Prentice Hall.

_____ and T. Reve (1980), "Distribution Channels as Political Economics: A Framework for Comparative Analysis," Journal of Marketing. 44, pp.52-64

Teece, D. J. (1976), "Vertical Integration in the U.S. Oil Industry," pp.105-190. In E.J.Mitchell (ed.), Vertical Integration in the U.S. Oil Industry. National Energy Project. Washington, D.C.: American Enterprise Institute.

Thompson, J.D.(1967), Organizations in Action. New York:McGraw-Hill,

Thorelli, H.B. (1986),"Networks: Between Markets and Hierarchies," Strategic Management Journal, 7, pp.37-51.

Ulrich, D. and J. Barney (1984) "Perspectives in Organizations: Resource Dependence, Efficiency and Population," Academy of Management Journal. pp.471-481.

Van de Ven, A. H. (1976), "On the Nature, Formation and Maintenance of Relations Among Organizations," Academy of Management Review. 1, pp.24-36

_____ and D. L. Ferry (1979), Measuring and Assessing Organizations. New York, N.Y.: Wiley Interscience

Walker, G. and L. Poppo (1991),"Profit Centers, Single-Source Suppliers, and Transaction Costs," Administrative Science Quarterly, 36, pp.66-87.

_____ and D. Weber (1984),"A Transaction Cost Approach to Make-or-Buy Decisions," Administrative Science Quarterly, 29, pp.373-391.

Warren, R.L.(1972),"The Concerting of Decisions as a Variable in Organizational Interaction," in Interorganizational Decision Making. M.R.Tuite, R.Chisholm, and N.Randnor (eds) Chicago: Aldine Publishing Company, pp. 20-32.

Williamson, O. E. (1975), Markets and Hierarchies: Analysis and Antitrust Implications. New York, N.Y.: Free Press.

_____ (1981),"The Economics of Organization: The Transaction Cost Approach," American Journal of Sociology, 87, pp.548-577.

_____ (1985), The Economic Institutions of Capitalism. New York: Free Press.

_____ (1988),"Corporate Finance and Corporate Governance," The Journal of Finance, 43, (3), pp.567-591.

_____ (1991),"Comparative Economic Organization: The Analysis of Discrete Structural Alternatives," Administrative Science Quarterly, 36,(June), pp.269-296.

_____ (1999), “Strategy research: Governance and competence perspectives,” Strategic Management Journal, **20**, pp.1087-1109.