

The Influence of External Channel Environment on Channel Governance

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Abstract

External environment has a vital impact on channel operation, but it remains unclear how task and institutional environment influence channel members' governance behavior. With data collected from distributors of a large-scale petrochemical enterprise, this study builds a structural equation model to analyze the influence of channel institutional and task environment on channel members' governance behavior. The empirical results suggest that, both task and institutional environments are influential to channel governance: when the environment is dynamic and complex, channel partners tend to use relational governance mechanism. When the regulatory environment is influential, contractual mechanism is widely used, while relational mechanism is preferred when cognitive environment is sufficiently powerful. This paper provides new insights into research of channel environment, and also provides practical guidance for channel members.

Keywords: channel task environment, channel institutional channel, contractual governance, relational governance, channel satisfaction

1. Introduction

Gordon Moore, the founder of Intel once said, technology of silicon chip involves every 18 months. And in 2015, fifty years after the prediction, Nature proclaimed that in semiconductor industry, the Moore Law may appear invalid, but the generalized Moore Law is working almost in every industry, especially in developing countries such as China, where economy develops rapidly, industrial revolution and upgrading take place frequently, which make the channel task environment more dynamic and complex.

Task environmental change is not the only change companies are facing, institutional environment is also involving rapidly. As business and economic laws come into effect, the legal system has enforced huge influence on corporation management. Besides, regulators, such as industrial and commercial bureau, are also keeping an eye on business operation. Meanwhile, special cultures, norms and customs in China, such as "Guanxi", are also having invisible while important impact on channel management.

However, in the field of channel behavior, researchers paid more attention to intra-channel antecedent factors such as power balances (Frazier, 1983), dependency (Heide, 1994) and dyadic sentiment (Dwyer et al., 1987), and overlooked the influence of channel environment on members' behavior (Stern & El-Ansary, 1992; Weitz & Jap, 1995; Geyskens, Steenkamp & Kumar, 1999; Grewal & Dharwadkar, 2002). The few papers which noticed the influence of channel environment, focused on one task environment variable "Uncertainty" (Dess & Beard, 1984; Boyd, 1990, 1995; Bluedorn, 1993; Carpenter & Fredrickson, 2001), and still neglect other dimensions of task environment and institutional environment (Grewal & Dharwadkar, 2002). Therefore, a systematic analysis of how task and institutional channel environment influence channel behavior is necessary.

This study explores the relationship of channel environment, channel governance behavior and channel satisfaction, which is composed of two parts: channel environment → channel governance behavior → channel relational quality. This study attempts to answer the following three questions: first, how does task environment influence channel members' governance behavior? Secondly, how does institutional environment influence channel members' governance behavior? Thirdly, how does the channel members' governance behavior affect channel satisfaction?

The rest of the paper first discuss relevant literature, summarize and analyze the relationship of the variables, and put forward the conceptual framework, and theoretical hypotheses. Secondly state the empirical methodology,

including questionnaire design, data collection, reliability and validity test. Thirdly, summarize the results of empirical analysis. Last, evaluate and interpret the implications, draw inferences and conclusions from the results.

2. Relevant Literature and Theoretical Framework

2.1 Relevant Research

Etgar (1977) proposed that internal behavior, relationship and structure within a channel are affected by the environmental characteristics and factors. Channel members have to adjust channel behavior according to external environment, and develop a more appropriate strategy, so as to adapt to the environment, which is vital for survival and development in specific environment. However, channel researchers pay more attention to internal factors, such as the distribution of economic and social resources between channel members (Frazier & Summers, 1984; Gundlach & Carotte, 1994; Payan & McFarland, 2003), power structure and status (Frazier et al., 1989; Frazier & Summers, 1984), transaction specific investment (Joshi & Stump, 1999; Frazier, Sawhney & Shevani, 1999), channel relational quality, such as channel trust commitment (Dwyer, Schurr & Oh, 1987), channel relationship the strength, such as the degree of intimacy and mutuality (Stanko, Bonner & Clantone, 2007; Gilliland & Bello, 2002), channel state (Anderson & Narus, 1990; Mohr & Nevin, 1990), etc.. However, the influence of channel environment on channel operation process and results has been largely neglected and underestimated (Etgar, 1977; Anchrol et al., 1983; Grewal & Dharwadkar, 2002).

Kotler (2000) put forward that channel environment is composed of all factors that has direct or indirect, explicit or invisible influence on channel operation, which can be divided into macro and micro environment. The macro environment includes political, economic, technological, cultural and natural factors, which indirectly affect channel operation. While micro environment refers to the sum of supplier, distributor, customer and competitor, which have a direct influence on channel members. Although the definition and deconstruction are comprehensive and systematic, it's hard to measure and assess. Therefore, relevant empirical studies rarely take this perspective.

Empirical studies of channel environment extract measurable dimensions, such as environmental uncertainty, which refers to environment volatility and unpredictability of environmental changes. Environmental uncertainty has been taken as an important antecedent of channel behavior (Anchrol et al., 1983; Boyd, et al., 1990, 1995; Bluedorn, 1993; Carpenter & Fredrickson, 2001; Grewal & Dharwadkar, 2002; Zhou & Poppo, 2010; Sheng et al., 2011). In a highly uncertain environment, it's impossible to obtain sufficient information to assess the relationship between environmental factors and their results (Child, 1972), which leads to high level of information asymmetry, opportunistic and operational risk (Williamson, 1989; Heide & Steenkamp, 1994). Channel members rely on frequent use of interactive communication to obtain more information, conduct informal coordination to flexibly adjust to environmental (Meyer & Rowan, 1977; Scott, 1987). Etgar (1977) used four dimensions to describe channel environment: growth of demand, stability of demand, complexity of operation, and competition intensity. His study pointed out that when demand is growing rapidly or unstable, channel members would employ flexible control mechanism to stay creative and quick responsive, while centralization is preferred when demand slows down or stable (Guiltinan & Joseph, 1974; Guiltinan & Joseph, 1974). In an environment where operation involves few factors and elements, channel members tend to use standardization and procedural control method, while flexible control mechanism is preferred in a complex operation environment. In a highly competitive environment, channel members pursue maximum efficiency, thus centralization and high level of control would be often employed. Aldrich (1974) described a framework of six organizational environmental dimensions: environmental capacity, environmental homogeneity, environmental stability, environmental stability, environmental concentration, environmental turbulence, and domain consensus. Achrol, Reve and Stern (1983) modified Aldrich's framework, put forward a seven-dimension framework, and applied it to channel scenario, including environmental capacity, environmental homogeneity, environmental stability, environmental stability, environmental concentration, environmental turbulence, environmental dependency and environmental conflict. Wu (2006) explored the relationship of the seven environmental dimension and channel conflict as well as channel cooperation, and found out that environmental capacity decreases channel conflict and promote cooperation, environmental dependency leads to channel conflict, while channel dynamism enhances channel cooperation. However, these studies only take task environment into consideration and neglect the impact of institutional environment.

As new institution theory rise, institutional analysis paradigm has become an important perspective of organizational research (Zucker, 1983; DiMaggio, 1988; Scott, 1987, 1994). Grewal and Dharwadkar (2002) proposed that the institutional environment consists of three dimensions, regulatory environment, normative and

cognitive environment, which influence channel members' behavior respectively through government agencies, industry associations and cultural traditions. Yang, Su and Fam (2012) used a Chinese sample of manufacturers that export product to various foreign markets through local distributors, developed and tested a model that bridges the effects of institutional environments and governance strategy on channel performance, and found that firms can use two governance strategies, contract customization and relational governance, to deal with both legitimacy and efficiency issues and to safeguard channel performance. Jia and Wang (2013) explored the relationship of institutional environment on government Guanxi, interfirm Guanxi and interpersonal Guanxi, developed a set of propositions focusing on issues such as Guanxi, trust and dependence from an institutional perspective. Guo (2013) pointed out that relational governance method, such as co-planning and co-solving problems are influenced by task and institutional environment characteristics.

Previous studies about channel environment only focused on one perspective, either task environment or institutional environment, and didn't combine those two views to systematically analyze the influence of channel environment. Besides, the relationship of channel environment and governance strategies, such as contractual and relational governance still remains unclear.

2.2 Conceptual Background

Channel environment: Marketing channel is "a set of interdependent organizations participating in the process of making a product or service available for use or consumption" (Kotler, 2000). In the most common scenario, marketing channel refers to the system composed of manufacturer and distributors (El-Ansary et al., 2000), and channel environment exists outside of the boundary of the binary relationship (Zhangchuang, 2007). Economics theories point out that channel environment is composed of all factors directly influential to goal setting and attainment (Dill, 1958; Penrose, 1959). However, sociology perspective takes into consideration more macro factors into this concept, such as political, social and cultural environment (Scott, 1992). Daft (1998) combined two perspectives and put forward that external factors existing outside the channel boundary and having direct or indirect impact on organization, are all environmental factors. Empirical research has found that having appropriate strategies for managing the marketing channels has long-term positive impacts on business profitability, customer satisfaction, and market share (Ansari & Riasi, 2016; Riasi, 2015).

Channel environment can be divided into two dimensions, task environment and institutional environment (DiMaggio and Powell, 1983), corresponding to the two perspectives of economics and sociology. Channel members pursue two goals: economic and social goals. Economic goals stress the significance of task environment, and underscore economic efficiency, while social goals emphasize the importance of institutional environment, and pursue legitimacy (Scott, 1987; Oliver, 1991). Table 1 shows the difference between the two types of environments.

Most previous empirical research of organizations focused on task environment, which has been recognized as the environment that directly influences organizations (Scott 1983), specifically, Scott (1981) points out that task environments can be reduced to major groups of actors: customers of the output, suppliers of the input, and competitors. Most organizational theories acknowledge that the task environment can be divided into multiple dimensions (Boyd, 1995), and the most acknowledged dimensions are dynamism, complexity and munificence (Castrogiovanni, 1991; Bluedorn, 1993; Carpenter & Fredrickson, 2001). Dynamism refers to the unpredictability of environmental change (Dess & Beard, 1984) and the degree of interconnection between different elements (Aldrich, 1979). Complexity suggests whether the environment is concentrated or disperse, and describes the heterogeneity and the range of the organizations activities in the task environment (Keats & Hitt, 1988). Castrogiovanni (1991) defines munificence as the abundance of needed resources that companies could get from the environment. Thus, munificence refers to the capacity and ability of environments for organizations to grow (Aldrich, 1979). Researches proved that dimensions of task environment are all influential factors to organization behaviors (Koberg, 1987; Irwin et al., 1998; Zyglidopoulos & Stelios C, 2007).

However, economic efficiency perspective has ignored the impact of macro-environment and social context, unlike the task environment approach, institutional approach focuses on organizational legitimacy of social stakeholders (Granovetter, 1985).

Institutional environment consists of three dimensions from the perspective of legitimacy sources (DiMaggio & Powell, 1983; Suchman, 1995). Regulatory environment uses political or legal system and mechanism to force channel members to behave in certain ways. Regulatory environment includes government, law system and other regulatory mechanism, and emphasizes pragmatic legitimacy concerns (Kelman, 1987). Normative environment refers to trade associations, professional agencies and other industrial traditions and customs. Normative institutions stresses procedural legitimacy concerns (Selznick 1984). Cognitive environment includes social

values, beliefs and norms that exert subtle, invisible yet vital influence on channel behaviors, which are associated with cognitive legitimacy concerns (Berger & Luckmann, 1967).

Compared to developed countries, developing countries' institutional environment is more important (Farashahi, Mehdi, Hafsi, et al., 2005), especially in China, where special political, economic and cultural environment is more influential. Therefore, institutional environment may play a more important role in China (Renxingyao et al., 2010).

Table 1. Institutional VS. Task environment perspectives

	Task environment	Institutional environment
Channel character	Economic system	Social system
Environmental context	Market	Social, political and cultural
Demand factor	Resources	Legitimacy
Pressure	Competitive	Coercive, mimetic, normative
Constituents	Agencies, associations and norms	Source of needed factors
Mechanism of control	Rules, regulations, inspections	Exchange dependencies
Success factor	Conformity to rules and norms	Control of critical resources

Christine Oliver. The Influence of Institutional & Task Environment Relationship on Organizational Performance. The Canadian Construction Industry, 1997, 34(1): 99-110

Channel governance: Channel governance is behavior of initiation, maintenance and termination of exchange relationship with channel partners, and accordingly, channel governance mechanisms are tools used to implement these behaviors (Heide, 1994). Transaction cost economics suggests channel members to craft and enforce complex contract, which specify processes and stipulate rules (Williamson, 1985). However, many researchers argued that relational mechanism is a less costly and more effective substitute for complex and explicit contracts (Hill, 1990; Uzzi, 1997). Two widely acknowledged mechanisms, contractual and relational governance are defined from these two perspectives.

Formal contractual governance represents obligations and promises to behave in particular ways (Macneil, 1978). Channel members manage channel relationship by developing and complying a set of formalized and legally binding agreement (Gergen et al., 1992). Formal contracts specify obligations, roles and rights for channel members, detail procedures and schedules of cooperation, determine outputs and outcomes, and elaborate on rewards for compliance and penalties for noncompliance (Joskow, 1988; Moorman et al., 1993). On the opposite, relational governance structure and manage exchange relationship on the basis of informal agreement and flexible adjustments (Hakansson & Snehota, 1995). Relational governance involves significant relationship-specific asset, mutuality, flexibility and solidarity (Zaheer & Venkatraman, 1995). A mutual orientation develops which leads to a common language (Heide & Miner, 1992), shared expectations and values, implicit principles and norms (Johanson & Mattsson, 1987).

Channel satisfaction: Channel members' satisfaction is defined as a positive affective state because of behaviors, relationships with their counterparts (Frazier et al., 1989). Channel satisfaction is a fundamental concept of channel relationships (Ruekert & Churchill, 1984).

Satisfaction constitutes of two dimensions: economic and non-economic satisfaction (Gassenheimer et al., 1994). Economic satisfaction refers to the positive state resulting from financial rewards benefited from the channel relationship, such as revenue, sales volume (Dwyer & Gassenheimer, 1992). While non-economic satisfaction is because of psychosocial reasons in the interaction with his channel partner, such as gratifying and fulfilling (Mohr et al., 1996)

2.4 Research Hypothesis

Our conceptual framework, summarized in Figure 1, is a two-part model aimed at understanding the following relationships: channel environment → channel members' governance behavior → channel relational quality. H1-H6 describe the relationships of the first part of our model, which analyze the influence of each factor of channel environment on use of power. H7-H10 elaborate on the second part of our model, which focus on the influence of channel members' governance behavior on channel satisfaction.

As stated by Buchko (1994), in dynamic and complex environments, firms try to adopt more flexible and informal processes, in order to minimize the risk and negative influence brought by information asymmetry (Ouchi, 1980). The lack of information calls for frequent interactive communication and information exchange (Meyer & Rowan, 1977). Koberg (1987) suggested that frequency of information exchange is related to the perceived environmental uncertainty. Tushman and Romanelli (1985) also found that management style of companies in uncertain environment tend to be more flexible and loose. Brown and Eisenhardt (1997) also

proved that companies exchange information more frequently and freely in velocity environment. Besides, the difficult situation enhances a sense of solidarity as a community, which helps establish common vision and values. The emotional bond encourages reciprocal and informal behaviors (Beckman et al., 2004).

H1: Channel members tend to use relational governance mechanism in a dynamic environment.

H2: Channel members tend to use relational governance mechanism in a complex environment.

Merchant (1990) found that companies conduct flexible and convenient practices in lean environment in order to reduce cost. Besides, channels in lean environment seek to change the adverse situation, which results in innovation, flexibility and solidarity (Ezzamel, 1990). In the contrary, in a munificent environment, it's much easier for channel members to seek and obtain vital resources, which leads to less dependency on channel partners, lower cost of losing them and greater likelihood to find new ones (Goll .I & Rasheed A., 2004). Thus, there's no pressure and motivation for channel members to establish mutual orientation and long-term cooperation.

H3: Channel members tend to use contractual governance mechanism in a munificent environment.

In an environment where regulatory systems and institutions are sufficiently powerful to impose constraints and orders, the use of contracts is guaranteed with its power (Joskow, 1985). On the contrary, if regulatory institutions are not influential, they are unable to provide valued impact on channel partners, and contracts and legal agreements would be difficult to implement without strong legal support (Williamson, 1991).

H4: Channel members tend to use contractual governance mechanism when the regulatory environment is influential.

Influential normative environment comes with a greater presence of authorization mechanisms, such as industrial associations, companies tend to exchange ideas about channel management practices more frequently, which leads to high level of participation, consensus building (Dwyer et al., 1987; Meyer & Scott, 1992), and homogenized standards in an industry (DiMaggio & Powell 1983; Scott et al., 1987). Therefore, normative environment establishes foundation for relational governance, and encourages relational control within channels.

H5: Channel members tend to use relational governance mechanism when the normative environment is influential.

Cognitive environment promote informal mechanism as a substitute for formal coordination and control behaviors, which contribute to long-term cooperation and bonding (Ouchi 1980). As a result, members would not resort to formal contracts to solve problems and come to an agreement (Gundlach and Cadotte 1994). Therefore, powerful cognitive institution encourages relational governance (Kumar et al., 1995).

H6: Channel members tend to use relational governance mechanism when the cognitive environment is influential.

Hill (1990) argued that formal contracts define complex items for exchange and cooperation, and specify detailed procedures for solving problems, which takes time and effort to develop a set of regulation. Moreover, when environment changes, contracts have to be adjusted and revised. Therefore, contractual mechanism is inefficient and costly (Uzzi, 1997). Besides, the rigidity and lack of flexibility of formal contracts lead to outdated and unsuitable strategy, which influence channel financial performance.

H7: The use of contractual governance mechanism is negatively related to channel economic satisfaction.

Formal contracts signal distrust (Ghoshal & Moran, 1996; Fehr & Gächter, 2000) and intention of manipulation (Provan & Skinner, 1989) of channel partners, which lead to psychological reactance and revolt, even retaliation and opportunism (Venkatesh et al., 1995).

H8: The use of contractual governance mechanism is negatively related to channel non-economic satisfaction.

The use of relational governance mechanism offers a higher value for channel partners through joint plan developing and joint problem solving (Gaski, 1984), which promote the welfare of channel partners, and help members get out of an adverse situation or obtain competition advantage (Raven & Kurglanski, 1970; Kasulis & Speckman, 1980). Especially in a dynamic environment, the flexibility of relational governance helps channel swiftly adjusting to current situation (Angelmar & Stern, 1978). Therefore, economic satisfaction is effectively promoted.

H9: The use of relational governance mechanism is positively related to channel economic satisfaction.

Use of relational governance mechanism promotes mutuality, solidarity and flexibility (Heide & Miner, 1992), which result in common language, shared expectation and values, and improve the level of channel satisfaction (Bhatnagar, 1993).

H10: The use of relational governance mechanism is positively related to channel non-economic satisfaction.

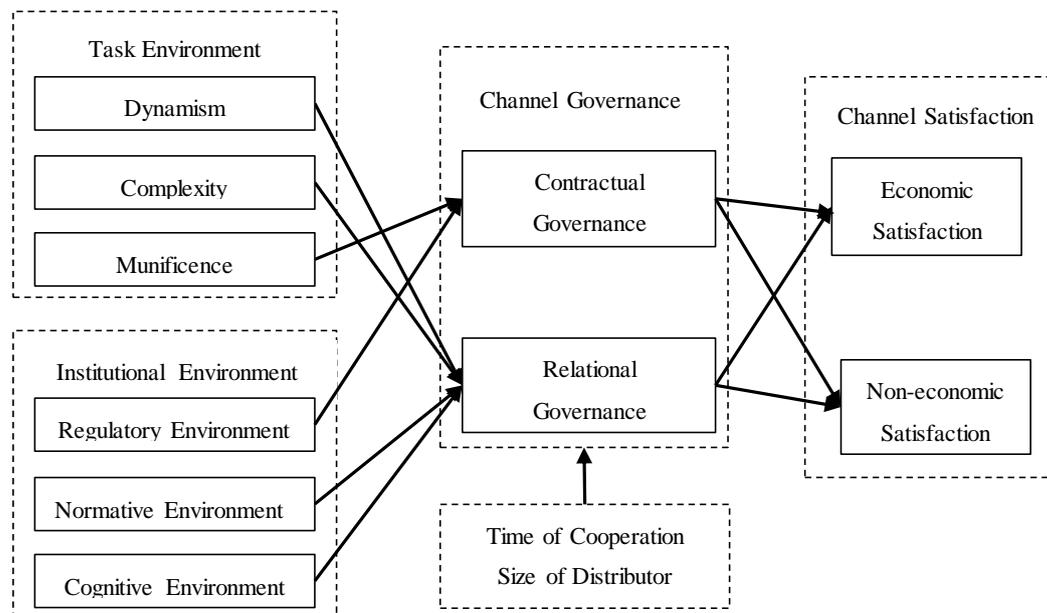


Figure 1. Theoretical Framework

3. Method

3.1 Data Collection

We test the hypotheses using a sample of distributors of a large-scale petrochemical enterprise. We choose respondents in petrochemical industry for two reasons: firstly, this industry is strictly regulated and influenced deeply by industry associations and norms, which is suitable for our research to analyze the impact of institutional environment. Secondly, this industry is going through big changes because of the technological revolution of automobiles, such as electric vehicles, therefore the influence of task environment is significant.

Before sending out formal questionnaires, we communicated with managers of Sinopec, and set a standard for stratified sampling to balance numbers of distributors of different sizes, provinces and organization forms. According to Benter and Chou (1987), in empirical study using factor analysis, the minimum sample size is three times the number of relevant parameters. Taking research requirements and actual situation into consideration, we picked 400 gas stations as respondents, and communicated with them about the objectives instructions of this survey, and mailed out questionnaires. Out of the 400 respondents, 259 sent back their answers, and 221 validated questionnaires are collected overall, the validated response rate of 55.3%.

Of all the respondents, 71% are general managers of gas stations, and 15% are operational managers; 77% have worked in gas stations for at least 3 years, which suggest that the respondents know well about the cooperation and relationship with Sinopec. Of all the sample gas station, 48% are in Jiangsu Province, 25% are in Hunan Province, and the ones in Hebei and Guagndong Provinces both take up for more than 12%; 25% have been cooperated with Sinopec for at least 10 years, 43% for 5 to 10 years, and 32% for less for 5 years, which suggest that the sample is highly diversified and not biased.

3.2 Measures

Questionnaire was designed to collect data from Sinopec distributors (gas stations). First, we established research framework and constructs, and developed a set of measure on the basis of literature. Secondly, we communicated with representatives of distributors, and revised the measure according to the industrial context. Then, we made modification after a pilot study.

The questionnaire was designed in Likert five-point scale. Respondents were asked to pick and answer from “1” (totally disagree) to “5” (totally agree) with respect to the statements. Measures of related constructs are as below:

Dynamism: In local market, technology updates rapidly; consumer demands and preferences constantly change; changes in the environment are difficult to predict (Dess&Beard, 1984).

Complexity: In local market, the marketing environment is very complex; consumer demand is influenced by many factors; sales are influenced by many factors (Dess&Beard, 1984).

Munificence: Oil is in great demand; there are few competitors; the overall sales situation is satisfactory (Dess&Beard, 1984).

Regulatory environment: local government severely punishes violations of laws and regulations; government protects the interests of market players through strict law enforcement; government drives companies to abide by laws and regulations; government responds swiftly to regulation violation (Grewal & Dharwadkar, 2002; Zhang, 2003).

Normative environment: companies learn industry standards from professional associations; companies abide by industrial norms; whether to abide by the industrial norm has strong influence on enterprise operation; the public appreciate that stakeholders are treated well (Grewal & Dharwadkar, 2002; Hyun, 2001).

Cognitive environment: local culture influences channel construction and management; local values and unwritten norms influence channel management; companies comply with local conventions and traditions; local traditions and customs influence channel management (Grewal & Dharwadkar, 2002; Mcfarland, 2003).

Contractual governance: We have a very specific and detailed contract; our contract stipulates obligations and responsibilities for both sides; our contract specifies the process of cooperation and coping strategies for unplanned events (Lusch & Brown, 1996; Ferguson et al., 2005).

Relational governance: We make plans together; we solve problems together; we share with each other long-term development strategy; it's our common responsibility to cooperate and fulfill tasks together (Gundlach, 1995; Claro, 2003).

Economic satisfaction: we are satisfied with achievements of sales; with return on investment; with sales growth (Cannon & Perreault, 1999; Mayo et al., 1998)

Non-economic satisfaction: we are satisfied with credibility and reliability of the supplier; with service attitude of the supplier; with effective communication and timely response; with the ability of solving problems (Ruekert & Churchill, 1984; Geyskens & Steenkamp, 2000)

3.3 Reliability and Validity Tests

A reliability analysis using Cronbach's alpha and composite reliability index were performed to ensure the internal consistency of the items that constituted each construct, the results are as shown in Table 3 (Cronbach, 1951; Fornell & Larcker, 1981). The table shows the values of Cronbach's alpha and CR for each of constructs all exceed 0.7, indicating a good internal consistency and reliability of the constructs.

Then, we used explanatory factor analysis to identify a possible underlying factor structure. The factor solutions confirmed our expectations, that all items had factor loadings that exceeded the recommended level of 0.5 (Hair et al., 1998), and none of the items cross-loaded on multiple factors. We can safely conclude that constructs are dissimilar constructs.

In addition, we analyzed all measures in a single confirmatory factor analysis model, and all items loaded significantly on their corresponding latent factors, with coefficients above 0.5, indicating good convergent validity.

Furthermore, we ran a test to assess the discriminatory validity. As we can see from Table 2, average variance extracted (AVE) values, are all above 0.5, indicating good discriminatory validity.

Table 2. Reliability and validity tests

Constructs	CR	Cronbach's alpha	AVE	Factor loading
Dynamism	0.9674	0.954	0.8	0.939
				0.935
				0.748
Complexity	0.8652	0.845	0.6	0.883
				0.821
				0.77
Munificence	0.9186	0.906	0.7	0.842
				0.876
				0.894
Regulatory environment (RE)	0.9425	0.938	0.88	0.883
				0.909
				0.912
				0.882
Normative environment (NE)	0.9198	0.920	0.68	0.921
				0.857
				0.788
				0.839
Cognitive environment (CE)	0.9316	0.935	0.7	0.86
				0.864
				0.847
				0.808
Contractual governance (CG)	0.7706	0.753	0.559	0.635
				0.777
				0.764
Relational governance (RG)	0.7758	0.759	0.567	0.819
				0.669
				0.703
				0.792
Economic satisfaction (ES)	0.8723	0.839	0.78	0.819
				0.882
				0.612
				0.846
Non-economic satisfaction (NES)	0.8912	0.901	0.7	0.858
				0.77
				0.864
				0.847

3.4 Model Estimation Method

This study builds a structural equation model (SEM) to estimate the theoretical model and test the research hypotheses. Structural equation modeling is a multivariate statistical framework that is used to model complex relationships between directly and indirectly observed (latent) variables. SEM involves simultaneously systems of equations and encompasses other techniques such as regression, factor analysis, path analysis and latent growth curve modeling.

Since the method of collecting data with questionnaire attempt to get respondents' overall opinion of each latent variable (constructs) with several relevant observed variables (items), the method of SEM is the most suitable method for model estimation with data collected via questionnaire survey. In social science domain, the method of SEM is widely used to bridge causal hypotheses and survey data, to reveal relationship of all latent variables (constructs) from an overall perspective.

In this study, we use statistical software R and its package SEM and LAVAAN to estimate the theoretical model.

4. Empirical Results

The fitness of this structural equation model is good, as we can see from Table, 3, $\chi^2/df=1.48$, below the recommended level of 5, CFI and TLI index are all below the recommended level of 0.9 (Bentler, 1987), RMSEA and SRMR are separately below their recommended level of 0.1 and 0.08 (Steiger, 1990).

Table 3. Empirical results

	Hypotheses	Relationships	Coefficients	T value	Results
Task environment	H1	Dynamism-> RG	0.448***	4.155	+
	H2	Complexity-> RG	0.166*	1.956	+
	H3	Munificence-> CG	-0.032	-1.256	n.s.
Institutional environment	H4	RE -> CG	0.284**	3.11	+
	H5	NE-> RG	0.101	0.912	n.s.
	H6	CE-> RG	0.277**	2.98	+
Governance Behavior	H7	CG->ES	-0.052	-0.355	n.s.
	H8	CG ->NES	-0.408**	-3.431	-
	H9	RG->ES	0.047	0.841	n.s.
	H10	RG->NES	0.491***	4.187	+
Control variables		Time of cooperation->RG	0.196*	2.436	
		Size of distributor ->CG	0.056	0.751	
Model fitness		χ^2	563.218		
		df	378		
		χ^2/df	1.48		
		CFI	0.977		
		TLI	0.963		
		RMSEA	0.048		
		SRMR	0.061		

***: Significant at the 0.001 level; **: Significant at the 0.01 level; *: Significant at the 0.05 level.

As we can see from Table 3, H1, H2, H4, H6, H8 and H10 are all supported by the empirical results.

Task environmental dynamism and complexity are influential to channel governance mechanism. Due to risk brought by information asymmetry, channel partners tend to develop strategy of more flexibility and less formality, and use relational governance mechanism in a dynamic and complex environment.

Institutional environment also has a huge impact on channel governance, especially in regulatory and cognitive environment. Since regulatory environment provides a fundamental system for channel members to develop and enforce formal contracts, channel partners tend to use contractual governance mechanism when the regulatory environment is influential. Besides, as cognitive environment facilitates the evolution of shared values and common language, informal relational mechanism are widely used when the cognitive environment is influential.

In addition, this study also analyzes the relation between governance mechanism and channel satisfaction. We find that the different mechanism has distinct influences on non-economic satisfaction: contractual mechanism is associated with lower satisfaction while relational mechanism improves satisfaction.

5. Conclusion and Discussion

This study builds a structural equation model to explore the relationship of channel environment, governance behavior and channel satisfaction, which is composed of two parts: channel environment → channel members' governance behavior → channel relational quality.

This study successfully answers the three questions stated in the beginning: first, about the corresponding reaction to specific task environment: suppliers tend to use relational governance strategy in a dynamic and complex environment; secondly, about the corresponding reaction to specific institutional environment: suppliers tend to use contractual governance strategy when the regulatory environment is influential and tend to use relational governance strategy when the cognitive environment is influential; thirdly, about the influence of channel members' governance behavior on the level of channel satisfaction: the use of contractual governance strategy is negatively related to channel non-economic satisfaction, while the use of relational governance strategy is positively related to non-economic satisfaction.

This study systematically analyzes the relation between external channel environment and channel governance behavior. And empirical research with data collected from Sinopec distributors suggests that, both task and institutional environment are influential to channel governance. When the environment is dynamic and complex, channel partners tend to use relational governance mechanism. When the regulatory environment is influential, contractual mechanism is widely used, while relational mechanism is preferred when cognitive environment is sufficiently powerful.

Theoretical contributions: this study contribute to the marketing channel research in three ways: first, this paper proves that the overlooked concept, channel environment, has a huge impact on behaviors of channel members; second, this paper takes every dimension of external environment into consideration, specifically, and systematically analyzes their influence; third, this paper combined theories from different domains, such as

institutional theory from organizational sociology, task environment from economics, and governance from economic transaction cost economics.

Managerial implications: this study offers multiple implications to marketing practice: first, channel decision makers should take a contingency perspective to adjust strategy along with the change of channel external environment; second, environment is composed of both task and institutional environment, which can be further divided into more specific dimensions, and the different dimensions influence channel behavior in different ways, channel members should scan every aspect of environment and pay attention to the influential ones; third, contractual governance mechanism deteriorates channel relation while relational mechanism improves relationship quality. If channel members aim to maintain a good relationship with distributors, the use of relational governance is strongly recommended.

Limitations and future study: first, data was collected from one side of the dyadic relation, which may lead to bias, future studies may consider collecting data from both suppliers and manufactures; second, this study explores correlations in channel of petroleum industry, future studies may consider diversifying the data sources and collect data from multiple industries.

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