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Ownership Structure of Franchise Chains: Trade-Off Between Adaptation and Control

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ABSTRACT

This study provides a new explanation of the ownership structure of franchise firms by highlighting a trade-off between adaptation and control under increasing uncertainty. Franchise chains are formed to reduce transaction costs by combining franchisee outlets as an adaptation mechanism and company-owned outlets as a control mechanism. We argue that under low to moderate uncertainty, franchisors prioritize local responsiveness to profit opportunities by operating a lower proportion of company-owned outlets (PCO); by contrast, under high environmental uncertainty, franchisors prefer more central control through a higher PCO to coordinate interdependent local market outlets better. Hence, the franchisor must find an optimal PCO by balancing the PCO decreasing effect of higher local adaptation with the PCO increasing effect of higher central coordination under increasing uncertainty. Therefore, we posit a U-shaped relationship between the PCO and environmental uncertainty. Data from German and Swiss franchise systems provide support for the study's hypotheses.

KEY WORDS

Ownership Structure; Franchising; Trade-Off Between Adaptation and Control; Transaction Cost Theory: Information **Processing View**

JEL CLASSIFICATIONS L22; L24; M21

The "economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place" (Hayek 1945, p. 524). On the other hand, "The authority relationship (fiat) has adaptive advantages over autonomy for transactions of a ... multi-laterally dependent kind" (Williamson 1996, p. 103).

1. Introduction

The central issue of organization design is to solve the trade-off between adaptation and coordination (Alonso, Dessein, and Matouschek 2008, 2015; Levinthal and Workiewicz 2018). A franchise chain is a governance form that balances local adaptation advantages with central coordination advantages. Previous transaction cost literature has dominantly focused on explaining how environmental uncertainties lead to

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more coordination and control, and hence to higher vertical integration (i.e., a higher proportion of company-owned outlets [PCO]; Williamson 1973, 1985). However, this explanation has not considered the incentives and entrepreneurial role of franchisees under increasing local market uncertainty. Franchisees, as independent entrepreneurs, have higher local adaptation capabilities than managers of company-owned outlets, and are more motivated to acquire and transmit local market knowledge to increase their residual income. Therefore, we argue that the relationship between environmental uncertainty and the PCO can only be explained by combining the adaptation and control effects of the ownership structure of franchise networks.

In this paper, we argue that the franchisor's choice on PCO depends on the changing trade-off between adaptation and control under increasing environmental uncertainty. Franchised outlets increase local adaptation, whereas company-owned outlets increase coordination and control. Specifically, we analyze the impact of environmental uncertainty on the PCO in franchise chains by arguing that the franchisor seeks the optimal PCO by balancing the adaptation advantage of more franchised outlets with the coordination and control advantage of more company-owned outlets.

The study's primary contribution is to explain the ownership structure of the franchise chain by revealing a U-shaped relationship between environmental uncertainty and the PCO. In particular, we combine the adaptation and control views of governance by arguing that the franchisor uses more franchisees (i.e., lower PCO) to acquire local market information – thereby reducing the information costs – under low to moderate levels of environmental uncertainty, and uses more company-owned outlets to realize lower coordination and control costs under high levels of environmental uncertainty. In other words, we reveal a trade-off between the negative impact of increasing PCO on local responsiveness under low to moderate uncertainty and the positive impact of increasing PCO on franchisor control under high environmental uncertainty. Accordingly, as local outlet environments become more uncertain, the interdependence of the local outlet decision increases. Thus, franchisors tend to favor more coordination and control relative to local adaptation by choosing a higher PCO. This explanation of PCO is based on the information processing view of organization design (IPVO; Galbraith 1973, 1974; Tushman and Nadler 1978; Gulati and Singh 1998; Gulati, Lawrence, and Puranam 2005; Burton and Obel 2018), according to which the governance structure of the franchise network will match its information processing capacity with the information processing requirements due to uncertainty. Hence, to address the higher information processing needs due to high local adaptation requirements, the franchise chain needs more decentralized information processing capacity through more franchisees; by contrast, to address higher information processing needs due to high inter-unit coordination requirements, the franchise chain needs more centralized control capacity through more company-owned units.

Although uncertainty has played an important role in explaining the organization as an information processing system in organization theory (Simon 1947; Lawrence and Lorsch 1967; Thompson 1967; Galbraith 1973, 1974; Tushman and Nadler 1978; Norton 2004; Puranam 2018), this theoretical perspective has not been applied to the governance of franchise networks. Most studies focus on risk and information asymmetry explanations for the contractual mix between franchised and company-owned outlets (e.g., Brickley and Dark 1987; Martin 1988; Lafontaine 1992; Lafontaine and Bhattacharyya 1995; Allen and

Lueck 1999; Bürkle and Posselt 2008; Pénard, Raynaud, and Saussier 2011), without analyzing the fundamental role of uncertainty (in the sense proposed by Knight 1921) for network governance. This study addresses this research gap by developing a new theoretical view of the ownership structure of franchise chains, thus adding to existing explanations of PCO in the franchise literature, such as the resource scarcity view (Oxenfeldt and Kelly 1968), resource-based theory (Gillis, Combs, and Ketchen 2014), agency theory (Brickley and Dark 1987; Lafontaine 1992; Gonzalez-Diaz and Solis-Rodriguez 2012), search cost theory (Minkler 1992), transaction cost theory (TCT; Manolis, Dahlstrom, and Nygaard 2011; Windsperger 2004), signaling theory (Gallini and Lutz 1992; Dant and Kaufmann 2003), synergistic and tapered integration view (Bradach 1997; Cliquet 2000; Michael 2000; Cliquet and Pénard 2012), property rights theory (Windsperger and Dant 2006), and risk-based theory (Bürkle and Posselt 2008).

This paper is organized as follows. First, we develop a theoretical framework utilizing TCT and the IPVO, producing a conceptual research model that explains the PCO in franchise chains. Then, specific hypotheses based on the model are postulated. Subsequently, the data collection approach, methodology, and empirical results are presented. Finally, the study's findings are discussed in the context of academic literature and managerial practice, thereby concluding this paper.

2. Theory

The governance structure of franchise networks, characterized by a mix of companyowned and franchised outlets, exists primarily to coordinate the transactions between the headquarters and local outlets. A central question concerning the governance structure of franchise networks is whether efficient adaptation and coordination are more easily achieved in more centralized networks (i.e., with a higher PCO) or in more decentralized networks (i.e., with a lower PCO). In this study, we address this research question by using insights from TCT and the IPVO. Specifically, we investigate the impact of environmental uncertainty on the ownership structure of the franchise chain.

TCT highlights that the transaction attribute of uncertainty is an important predictor of the governance structure of inter-organizational networks (Williamson 1971, 1991; Lafontaine and Slade 2014). We conceptualize uncertainty in the sense of Knight (1921) and Galbraith (1973). Galbraith defined it as the difference between the amount of information required to perform a task and the amount of information available. Under given bounded rationality (Simon 1955), uncertainty results from complexity and change of the environment. Under uncertainty, the partners cannot specify all exchange contingencies in contracts ex ante and to evaluate performance ex post. Most scholars argue that environmental uncertainty, including market, technological, and institutional factors, aggravates the problem of bounded rationality, and hence the problem of contractual incompleteness, by increasing transaction costs, thereby influencing firms' governance structures (Rindfleisch and Heide 1997; Williamson 1973, 1991; Hendrikse, Hippmann, and Windsperger 2015). Specifically, in response to increased transaction costs due to high environmental uncertainty, TCT formulates two views on the influence of uncertainty on a firm's governance structure. Under the traditional control view (Williamson 1975), uncertainty positively influences the use of hierarchical controls, that is, franchise chains operate more company-owned outlets. However, not all transaction cost proponents agree on the influence direction of environmental uncertainty on firms' governance structures (e.g., Geyskens, Steenkamp, and Kumar 2006; Klein 1989; Walker and Weber 1984). Some argue that higher environmental uncertainty needs mechanisms of higher local responsiveness and adaptation. Based on this adaptation view (Gulati, Lawrence, and Puranam 2005; Gibbons 2005), higher uncertainty requires fewer hierarchical controls, that is, franchise chains have more franchised outlets. Therefore, both the control and adaptation effects of the governance structure should be considered to explain the impact of environmental uncertainty on the PCO.

Previous research has not used the IPVO (Galbraith 1974; Tushman and Nadler 1978; Daft and Lengel 1986; Premkumar, Ramamurthy, and Saunders 2005; Burton and Obel 2018) to explain the governance structure of franchise chains. The IPVO focuses on the fit between the information processing requirements caused by the uncertainty, resulting from environmental complexity, dynamics, and interdependence (Thompson 1967; Duncan 1972; Dess and Beard 1984), and the information processing capacity of the network's governance structure (Galbraith 1973). A franchise network with a lower PCO is characterized by higher local adaptation capacity, whereas a franchise network with a higher PCO is characterized by higher coordination and control capacity. From low to moderate uncertainty, a franchise network's need for local adaptation capacity increases, which is provided by a higher proportion of franchisees (i.e., with a lower PCO). Simultaneously, higher uncertainty – especially under a dynamic and interdependent local units' environment – results in higher coordination and control requirements, which can be processed by a franchise network with a higher centralized coordination and control capacity (i.e., with a higher PCO).

The information processing view of the governance structure of franchise chains can be illustrated with the following example (see Figure 1). The franchisor must



AA – Adaptation Advantage CA – Coordination Advantage

Figure 1. Information processing view of organization design (IPVO).

choose the ownership structure of a franchise system in two environmental situations: (I) low to moderate uncertainty and (II) high uncertainty. Under (I), the decision problems of the franchise chain's local outlets are more independent and hence "nearly-decomposable" (Simon 1962, p. 474); under (II), the local outlets' decision problems are highly interdependent and hence less decomposable. Nickerson and Zenger (2004, p. 619) refer to low-interaction and high-interaction problems. What is the right own-ership structure under (I) and (II)? Where outlet decision problems are nearly decomposable, increasing uncertainty raises the need for autonomous adaptation by operating more franchised outlets; under highly non-decomposable outlet decision problems, increasing uncertainty requires more centralized coordination and control by operating more company-owned outlets. Consequently, if there is an increase in environmental uncertainty affecting local outlets, that is, a shift from (I) to (II), then the franchise chain requires a more centralized governance structure and thus a higher PCO.

Based on these theoretical perspectives, our framework is summarized in Figure 2. Uncertainty – due to environmental complexity, dynamics, and interdependence – has two effects on the ownership structure of franchise firms. First, environmental uncertainty increases the need for autonomous adaptation by local outlets, and hence for more local information processing capacity using a more decentralized governance structure (i.e., a lower PCO; see path A in Figure 2). Second, environmental uncertainty increases the decision interdependencies between local outlets and hence increases the requirements for coordination and control using a more centralized governance structure (i.e., a higher PCO) with higher control capacity (see path B in Figure 2). If, under increasing uncertainty, the local adaptation effect of lower PCO dominates the coordination and control effect dominates the autonomous adaptation effect, the PCO will increase. Therefore, there exists a critical level of uncertainty above which the centralized governance structure (i.e., higher PCO) is better at adapting to outlet-level changes than the decentralized one. In the following section, we develop the hypotheses.



Figure 2. Research model.

3. Hypotheses

3.1. (1) Adaptation View

Williamson (1971) develops an adaptation view of governance by arguing that internal organization better facilitates adaptive, sequential decision making, especially in situations of high environmental uncertainty (Gibbons 2005, 2010). According to the adaptation view, higher environmental uncertainty requires more adaptability and local responsiveness. The view suggests that more decentralized governance structures are more effective under high uncertainty. Consistently, Dessein (2002) argues that delegation will generally lead to better results in situations of high environmental uncertainty. Applied to franchise chains, in a highly uncertain local market environment, the franchisor uses more franchisees and delegates more decision-making rights to local network partners. The franchisee can react more quickly to changes in the local market compared to the manager of a company-owned outlet. The adaptation view argues that the franchisor needs to adapt standardized business formats to the specifics of the local market environment (Gulati, Lawrence, and Puranam 2005). Thus, in the presence of environmental unpredictability, more local responsiveness is provided by franchise partners (Balakrishnan and Wernerfelt 1986; Klein 1989). Consequently, higher flexibility can be obtained by a higher proportion of franchised outlets with a more decentralized governance structure. Hence, we formulate:

Hypothesis 1 (Adaptation Hypothesis): Environmental uncertainty is negatively associated with the PCO.

3.2. (2) Control View

Contrary to the above perspective, the control view of governance argues that under high environmental uncertainty, franchise firms cope more effectively with uncertainty by increasing the level of coordination and control. According to the IPVO (Galbraith 1973; Tushman and Nadler 1978; Burton and Obel 2018), firms increase their coordination and control capacity by implementing elements of hierarchy if the coordination and control requirements increase due to significant changes in the environment and interdependencies between local outlet environments (Thompson 1967; Hill and Hoskisson 1987; Markides and Williamson 1996; Gulati, Lawrence, and Puranam 2005).

Stinchcombe (1990) asserts that organizations implement more elements of hierarchy when the degree of uncertainty increases. John and Weitz (1988) analyze the effects of environmental uncertainty on vertical integration in distribution channels. Their empirical data support the positive relationship between environmental uncertainty and hierarchical control through vertical integration. They argue that vertical integration facilitates more adaptive coordination required by interdependencies of environmental changes.

Similarly, Noordewier, John, and Nevin (1990) show that environmental uncertainty is positively related to the level of control in interfirm alliances. Thus, the extent of contingencies that could weaken the franchisor–franchisee relationship grows when local market environments become more uncertain and interdependent, in turn increasing the need for more control and coordination (Williamson 1973, 1985). Similarly, the meta-analysis by Geyskens, Steenkamp, and Kumar (2006) shows that

environmental uncertainty increases the tendency toward hierarchical controls. If we apply this reasoning to franchising, a similar tendency toward higher control by the franchisor's use of a higher PCO will be expected under increasing environmental uncertainty. Hence, we hypothesize:

Hypothesis 2 (Control Hypothesis): Environmental uncertainty is positively associated with the PCO.

3.3. (3) Trade-Off View Between Adaptation and Control

Franchise networks as plural forms (Bradach 1997; Cliquet 2000; Baker and Dant 2008; Ménard 2013) primarily serve to adapt autonomously to uncertain local market environments using franchisees and simultaneously coordinate the value chain activities between interdependent local outlets using company-owned managers. To do so efficiently, they must resolve a trade-off between coordination and adaptation: the more closely the value chain activities are synchronized across outlets, the less they can adapt to local outlet conditions. To the extent that outlet managers are best informed about their local market conditions, efficient coordination can be achieved only if they communicate with headquarters. A central question in franchise networks is whether efficient coordination is more easily achieved in centralized or decentralized franchise systems, that is, with a higher or lower PCO. Generally, many franchise firms respond to an increased need for coordination – as task interdependencies increase in a dynamic local market environment – by moving to more centralization of control and reducing the tendency toward franchising (i.e., higher PCO). While decentralization through franchising benefits adapting decisions to local conditions, centralization through company-owned outlets benefits the coordination of decisions under increasing local market uncertainty and interdependence (Xue, Ray, and Gu 2011). Hence, a higher PCO is optimal whenever coordination and control are sufficiently important relative to the need for local adaptation. Consequently, there is a trade-off between the use of local market information by franchisees and ensuring that local information is coordinated by using more company-owned outlets.

Specifically, by combining the adaptation and control views, we argue that there is a U-shaped relationship between environmental uncertainty and the PCO. In compliance with the adaptation view, a lower PCO will increase franchisees' incentives for information acquisition and knowledge sharing. However, as the level of uncertainty increases due to higher environmental uncertainty, the benefits of centralized control via more company-owned outlets exceed the benefits from local adaptation (due to franchisees' higher incentives for local information acquisition relative to company-outlet managers). Hence, in the presence of high environmental uncertainty, coordination and control costs are exacerbated by the difficulty of controlling the interdependencies between local outlets. Consequently, under increasing environmental uncertainty, we argue that there is a *trade-off* between the local adaptation advantage of more franchised outlets and the coordination advantage of more company-owned outlets. Under low to moderate environmental uncertainty, the franchisor will operate more franchised outlets to exploit franchise partners' entrepreneurial responsiveness in the local market; under high environmental uncertainty, the franchisor will operate more

company-owned outlets to coordinate the interdependencies between local outlets. Under low to moderate uncertainty, the adaptation advantage of franchising outweighs the coordination advantage of central control by company-ownership; under high uncertainty, the coordination advantage of company-ownership dominates the adaptation advantage of franchising. In other words, under low to moderate uncertainty, it is likely that the information and search cost advantage of lower PCO exceeds the associated disadvantage for coordination and control costs; under high uncertainty, it is likely that the coordination and control cost savings of higher PCO exceed the associated disadvantage for information and search costs. The posited U-shaped relationship between the PCO and environmental uncertainty is illustrated in Figure 3. Hence, we hypothesize:

Hypothesis 3 (Trade-off Hypothesis): There is a U-shaped relationship between environmental uncertainty and the PCO.

4. Empirical Analysis

4.1. Data Collection

To test the hypotheses, data were collected from franchise systems in Germany and Switzerland. The German Franchise Federation (DFV) publishes an annual directory of franchise systems in these two countries. In addition, we collected further data on franchise systems from the "Franchise Wirtschaft," which is a directory similar to Bond's Franchise Guide in the USA. We identified 1013 franchise systems operating in Germany and Switzerland. To refine and improve the questionnaire, several interviews were conducted with franchise professionals from a franchise consultancy. Twenty franchisors participated in the final modification process. They suggested that to ensure a more confident level of knowledge about the franchise partners, respondents should have a minimum number of years of inter-organizational experience and a minimum network size (e.g., several outlets). Thus, we decided that any system selected should have started franchising for at least two years prior to the start of the





Figure 3. Trade-off between local adaptation and central coordination.

study period (2010), and should be operating at least five franchised outlets. After applying these criteria, the questionnaire was mailed to 667 German and Swiss franchise systems.

The questionnaires were sent to senior managers responsible for franchise expansion, whose expertise was considered most relevant to the subject under investigation (McKendall and Wagner 1997). The number of questionnaires returned was 166, representing a response rate of approximately 28% for Germany and 17% for Switzerland. However, due to missing values, 110 responses were retained for analysis. To trace the likelihood of non-response bias, the results obtained from both late and early respondents were examined to see if they differed significantly (Armstrong and Overton 1977). Late respondents, classified as those who completed the questionnaire four weeks after the early respondents, served as proxies for non-respondents. The analysis of variance test revealed no significant difference between the two respondent groups.

4.2. Dependent Variable

The PCO was calculated as the number of company-owned outlets divided by the total number of outlets in the respective country (Germany or Switzerland). Further details on the measurement of this and other variables are provided in the Appendix.

4.3. Independent Variables

4.3.1. Environmental Uncertainty

We operationalized environmental uncertainty with three items measured on a sevenpoint Likert scale (based on Celly and Frazier 1996; Herz et al. 2016), asking franchisors about three outlet-level issues: the rate of sales fluctuations, the difficulty of predicting market developments, and the rate of change of the local economic environment in the market. For these items, Cronbach's alpha was 0.748.

4.3.2. Control Variables

The control variables comprised the transferability of system know-how, franchiseespecific know-how, knowledge-based and general trust, system age, initial investment, system size, brand name strength, country, and economic sector. Transferability of system know-how is represented by eight items measured on a seven-point Likert scale (adopted from Erramilli, Agarwal, and Dev 2002; $\alpha = 0.915$); franchisee-specific knowhow is operationalized by five items measured on a seven-point Likert scale (Gorovaia and Windsperger 2013; $\alpha = 0.78$); knowledge-based trust is represented by four items measured on a seven-point Likert scale ($\alpha = 0.877$); and general trust is operationalized by three items measured on a seven-point Likert scale (both from Hendrikse, Hippmann, and Windsperger 2015; $\alpha = 0.803$). Average initial investment (excluding entry fee) is the monetary amount required for a franchisee to start a new outlet. Brand name strength is operationalized by four items measured on a seven-point Likert scale (based on Barthélemy 2008; $\alpha = 0.815$). This variable was included because a stronger brand name value requires more control. System size is represented by the number of employees in the franchise firm's headquarters. System age is calculated as

the number of years since opening the first franchised outlet in a given country. A country dummy distinguishes between Germany and Switzerland, and a sector dummy between service and product sectors. Due to non-normality, the control variables system age, initial investment, and system size were transformed by a natural logarithmic function (ln) to alleviate this potential issue.

Factor analysis (principal component analysis) was conducted on environmental uncertainty, transferability of system know-how, franchisee-specific know-how, and trust to verify the construct's dimensionality. All constructs behaved as expected based on the relevant literature. Environmental uncertainty, transferability of system know-how, and franchisee-specific know-how are unidimensional, whereas trust was two-dimensional (general and knowledge-based trust).

4.4. Heteroscedasticity

Due to heteroscedasticity in the residuals of the original ordinary least squares model, revealed by visual inspection and confirmed statistically by Breusch–Pagan (BP = 32.94, df = 12, p = 0.001) and Koenker (K = 30.89, df = 12, p = 0.002) tests of homosce-dasticity, standard errors were not deemed reliable. As a remedy, heteroscedasticity-consistent standard error estimators (Hayes and Cai 2007) were evaluated, and given the applicable sample size (N = 110), the HC3 variant was selected as the most appropriate estimator (Long and Ervin 2000).

5. Results

A stepwise procedure was applied when adding the variable of interest, environmental uncertainty, in order to assess our adaptation (Hypothesis 1), control (Hypothesis 2), and trade-off hypotheses (Hypothesis 3) on the relationship between environmental uncertainty and the PCO. As a first step, we ran a regression with controls only (Model 1; see Table 1). In this case, four controls have a *p*-value of <0.05: transferability of system know-how, franchisee-specific know-how, system age, and initial investment. The model's adjusted R^2 was 0.20. In the second step, environmental uncertainty was added to the model (Model 2; see Table 1), producing an adjusted R^2 of 0.23. Finally, the squared term of environmental uncertainty was added to Model 2 (Model 3, see Table 1), yielding an R^2 of 0.26. The significance or non-significance of the control variables was stable across all three models.

The addition of the variables of environmental uncertainty to the models improves their respective adjusted R^2 and Akaike information criterion. This supports our selection of Model 3.

Model 1 indicates the relevance of the control variables; Model 2 supports the inclusion of environmental uncertainty as an important predictor; and Model 3 (the final model) tests all the hypotheses, including the curvilinear relationship of environmental uncertainty and company-owned outlets. Thus, for hypotheses testing, we simply refer to Model 3. Given the directionality of the influence of environmental uncertainty (see Table 1; a significant positive coefficient for its squared term, p = 0.0461) on the PCO,

Variable	Model 1	Model 2	Model 3
Constant	40.65 (26.48)	16.35 (28.05)	48.62 (34.24)
Environmental uncertainty		4.53* (2.14)	-15.72 (10.02)
Environmental uncertainty (squared)			2.66* (1.32)
Transferability of system know-how	-6.03** (2.29)	-6.22** (2.24)	-7.04*** (2.31)
Franchisee-specific know-how	6.57*** (2.01)	6.61*** (1.97)	7.78*** (2.12)
Knowledge-based trust	-1.54 (3.18)	0.61 (3.40)	0.52 (3.44)
General trust	-2.46 (2.08)	-3.90 (2.30)	-3.25 (2.31)
System age (In)	-7.61* (3.52)	-8.17* (3.46)	-9.19** (3.36)
Initial investment (In)	4.03** (1.59)	4.80*** (1.62)	4.68** (1.56)
System size (In)	3.18 (2.84)	2.82 (2.71)	3.11 (2.56)
Brand name	-0.05 (2.96)	0.04 (2.96)	0.08 (2.87)
Country (dummy)	-0.69 (10.62)	-0.56 (10.01)	-0.33 (10.00)
Sector (dummy)	-9.05 (5.67)	-8.42 (5.55)	-9.31 (5.37)
Adjusted R ²	0.2014	0.2336	0.2574
AIC	1028.941	1025.296	1022.698
BIC	1061.347	1060.402	1060.504

Table 1. Regression models with adjusted SE (HC3).

Notes: N = 110; Coefficients (SE); ***p < 0.001, **p < 0.01, *p < 0.05.

AIC, Akaike information criterion; BIC, Bayesian information criterion.



Figure 4. Relationship between the proportion of company-owned outlets and environmental uncertainty. AA, adaptation advantage; CA, coordination advantage.

the resulting function is convex. This U-shaped relationship (see Figure 4) supports Hypothesis 3.

The coefficients of environmental uncertainty and its squared term were used to plot predicted values against the dependent variable (environmental uncertainty, on the *x*-axis in Figure 4): the relationship is U-shaped, with the PCO first decreasing when moving from very low to moderate environmental uncertainty and then increasing when moving further to very high environmental uncertainty. Thus, we find

support for our trade-off hypothesis (Hypothesis 3). Figure 4 utilizes predicted values from regression coefficients for the whole range of the environmental uncertainty scale. We also indicate the respective areas under the curve where the conceptualized effect of adaptation advantage (AA)>coordination advantage (CA) switches to AA < CA.

6. Discussion

6.1. Findings and Implications

Despite the growing literature on the ownership structure of franchise chains (e.g., Baker and Dant 2008; Dant, Grünhagen, and Windsperger 2011; Cyrenne 2016), no previous study has examined the impact of environmental uncertainty on the franchisor's PCO choice by combining the adaptation and control views of governance. This study's purpose was to help to fill this gap and explore the relationship between environmental uncertainty and the PCO in franchise chains by applying the information processing view of organization design.

The study evidences a U-shaped relationship between environmental uncertainty and the PCO. More precisely, combining the adaptation and control views of governance, we show that the franchisor is more likely to operate more franchised outlets (i.e., lower PCO) for local information acquisition when there is low to moderate environmental uncertainty. However, if the level of uncertainty increases in highly interdependent local market environments, the coordination and control cost advantage of franchise chains with more company-owned outlets (i.e., higher PCO) dominates the associated local adaptation disadvantage. Our findings indicate that under very high environmental uncertainty, a more centralized franchise chain with a higher PCO may be better regarding coordinated adaptations than a more decentralized franchise chain with a lower PCO, even when franchisees, as local outlet managers with a strong entrepreneurial orientation, have superior local market knowledge. Where local outlet decisions are highly interdependent due to high environmental uncertainty in local markets, an effective response to local market changes requires less autonomous and more coordinated adaptations (Williamson 1991). In these circumstances, the headguarters of a franchise chain with more company-owned outlets are better able to coordinate locally interdependent market changes than franchisees as local entrepreneurs with narrow information about their local markets. Therefore, we concur with Williamson that "Some kind[s] of disturbances require coordinated responses" (1991, p. 278), and "[t]he authority relationship (fiat) has adaptive advantages over autonomy for transactions of a ... multi-laterally dependent kind" (1996, p. 103).

This study adds to the franchise literature by presenting a new explanation of the ownership structure of franchise chains based on the IPVO. Specifically, we argue that the franchisor must find an optimal PCO by balancing the adaptation cost advantage of a higher proportion of franchise outlets with the coordination cost advantage of a higher proportion of company-owned outlets under increasing environmental uncertainty due to changes and interdependence of local market environment.

This study's findings also yield some managerial implications. We draw attention to the relationship between environmental uncertainty and the information processing effects of the ownership structure in franchise chains. According to our trade-off view between adaptation and control, the franchisor should set up a franchise chain with a lower PCO when the local market environment is characterized by low to moderate uncertainty in order to realize the higher adaptation advantages of franchised outlets compared to company-owned outlets. Conversely, the franchisor should choose a higher PCO when the local environment is characterized by high environmental uncertainty, due to inter-unit interdependencies and strong changes in the local market, in order to realize the higher control and coordination advantages of company-owned outlets compared to franchised outlets. Hence, we expect that in circumstances of high interaction problems between local outlets due to high environmental uncertainty, the synergistic effects of the plural form are more important than in circumstances of low interaction problems due to low to moderate uncertainty (Cliquet 2000; Menard 2013). In the latter case, inter-unit relations are more independent.

6.2. Limitations

Several important limitations must be acknowledged. First, our uncertainty variable as determinant of PCO of franchise chains is operationalized by market and volume uncertainty. Hence, other dimensions, such as performance uncertainty and technological uncertainty are not included in this measure. Future research should improve the operationalization of the uncertainty construct by including additional dimensions, such as demand uncertainty, performance uncertainty, and technological uncertainty (e.g., Parmigiani 2007; Schnaider, Ménard, and Saes 2018; Ju et al. 2019),

Second, this study explains the ownership structure of franchise chains based on the IPVO, which primarily focuses on adaptation and control costs due to the information processing effects of the governance structure under bounded rationality of network partners. Franchised outlets have local information acquisition advantages, whereas company-owned outlets have coordination and control advantages. We therefore argued that under highly interdependent and changing local outlet environments, the costs of control could be reduced by increasing hierarchical control through more company-owned outlets. However, this positive information processing effect does not consider possible additional control costs due to the lower incentive intensity, that is, the lower motivation and entrepreneurial orientation of the managers of companyowned outlets compared to franchisees (Williamson 2003; Puranam, Gulati, and Bhattacharya 2013; Lanchimba, Windsperger, and Fadairo 2018). As Gibbons (2005, p. 206) argues, higher control costs may result from "the loss of initiative." Similarly, Foss (2002, 2007) reveals that knowledge processes are closely interrelated with agents' motivation. Therefore, future research on the governance structure of franchise chains should study the "crossover effects," whereby mechanisms for changing coordination impact on network partners' motivation (Puranam 2018, p. 82).

Moreover, our information processing perspective of governance of franchise chains does not consider the safeguarding effects of ownership structure due to transaction-specific investments, which is the primary focus of the TCT of plural form in franchising (Williamson 1991; Krzeminska 2009; Ménard 2013; Raynaud, Schnaider, and Saes 2019). Recently, Schnaider, Ménard, and Saes (2018) extended this transaction cost explanation

of plural forms by combining the asset specificity and uncertainty effect on the specific types of plural forms. Based on these research results, higher uncertainty under increasing transaction-specific investments may influence the trade-off between adaptation and control and hence the level of PCO in franchise chain. Future research should extend our theoretical framework by integrating the impact of the interplay between transaction-specific investments and uncertainty on the ownership structure of franchise chains.

References

- Allen, Douglas W., and Dean Lueck. 1999. The Role of Risk in Contract Choice. *Journal of Law, Economics, and Organization* 15 (3): 704–736.
- Alonso, Ricardo, Wouter Dessein, and Niko Matouschek. 2008. When Does Coordination Require Centralization? *American Economic Review* 98 (1): 145–179.
- Armstrong, J. Scott, and Terry S. Overton. 1977. Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research* 14 (3): 396–402.
- Baker, Brent L., and Rajiv P. Dant. 2008. Stable Plural Forms in Franchise Systems: An Examination of the Evolution of Ownership Redirection Research. In *Strategy and Governance of Networks: Cooperatives, Franchising, and Strategic Alliances*, edited by George Hendrikse, Mika Tuunanen, Josef Windsperger and Gérard Cliquet, 87–112. Heidelberg: Springer Verlag.
- Balakrishnan, Srinivasan, and Birger Wernerfelt. 1986. Technical Change, Competition and Vertical Integration. *Strategic Management Journal* 7 (4): 347–359.
- Barthélemy, Jérôme. 2008. Opportunism, Knowledge, and the Performance of Franchise Chains. *Strategic Management Journal* 29 (13): 1451–1463.
- Bradach, Jeffrey L. 1997. Using the Plural Form in the Management of Restaurant Chains. *Administrative Science Quarterly* 42 (2): 276–303.
- Brickley, James A., and Frederick H. Dark. 1987. The Choice of Organizational Form: The Case of Franchising. *Journal of Financial Economics* 18 (2): 401–420.
- Bürkle, Thomas, and Thorsten Posselt. 2008. Franchising as a Plural System: A Risk-Based Explanation. *Journal of Retailing* 84 (1): 39–47.
- Burton, Richard M., and Borge Obel. 2018. The Science of Organization Design: Fit between Structure and Coordination. *Journal of Organization Design* 7: 5
- Celly, Kirti Sawhney, and Gary L. Frazier. 1996. Outcome-Based and Behavior-Based Coordination Efforts in Channel Relationships. *Journal of Marketing Research* 33 (2): 200–210.
- Cliquet, Gérard. 2000. Plural Forms in Store Networks: A Model for Store Network Evolution. *The International Review of Retail, Distribution and Consumer Research* 10 (4): 369–387.
- Cliquet, Gérard, and Thierry Pénard. 2012. Plural Form Franchise Networks: A Test of Bradach's Model. *Journal of Retailing and Consumer Services* 19 (1): 159–167.
- Cyrenne, Philippe. 2016. The Determinants of Dual Distribution Revisited. *International Journal of the Economics of Business* 23 (2): 167–182.
- Daft, Richard L., and Robert H. Lengel. 1986. Organizational Information Requirements, Media Richness and Structural Design. *Management Science* 32 (5): 554–571.
- Dant, Rajiv P., Marko Grünhagen, and Josef Windsperger. 2011. Franchising Research Frontiers for the Twenty-First Century. *Journal of Retailing* 87 (3): 253–268.
- Dant, Rajiv, and Patrick J. Kaufmann. 2003. Structural and Strategic Dynamics in Franchising. *Journal of Retailing* 79 (2): 63–75.
- Dess, Gregory G., and Donald W. Beard. 1984. Dimensions of Organizational Task Environments. *Administrative Science Quarterly* 29 (1): 52–73.
- Dessein, Wouter. 2002. Authority and Communication in Organizations. *Review of Economic Studies* 69 (4): 811–838.
- Duncan, Robert B. 1972. Characteristics of Organizational Environments and Perceived Environmental Uncertainty. *Administrative Science Quarterly* 17 (3): 313–327.

- Erramilli, M. Krishna, Sanjeev Agarwal, and Chekitan S. Dev. 2002. Choice between Non-Equity Entry Modes: An Organizational Capability Perspective. *Journal of International Business Studies* 33 (2): 223–242.
- Foss, Nicolai J. 2002. 'Coase vs Hayek': Economic Organization and the Knowledge Economy. International Journal of the Economics of Business 9 (1): 9–35.
- Foss, Nicolai J. 2007. The Emerging Knowledge Governance Approach: Challenges and Characteristics. *Organization* 14 (1): 29–52.
- Galbraith, Jay R. 1973. Designing Complex Organizations. Boston: Addison-Wesley Longman.
- Galbraith, Jay R. 1974. Organization Design, an Information Processing View. Interfaces 4 (3): 28–36.
- Gallini, Nancy T, and Nancy A. Lutz. 1992. Dual Distribution and Royalty Fees in Franchising. *Journal of Law, Economics, & Organization* 8 (3): 471–501.
- Geyskens, Inge, Jan-Benedict E. M. Steenkamp, and Nirmalya Kumar. 2006. Make, Buy, or Ally: A Transaction Cost Theory Meta-Analysis. *Academy of Management Journal* 49 (3): 519–543.
- Gibbons, Robert. 2005. Four Formal (Izable) Theories of the Firm? *Journal of Economic Behavior & Organization* 58 (2): 200–245.
- Gibbons, Robert. 2010. Transaction-Cost Economics: Past, Present, and Future? *Scandinavian Journal of Economics* 112 (2): 263–288.
- Gillis, William E, James G. Combs, and David J. Ketchen. 2014. Using Resource-Based Theory to Help Explain Plural Form Franchising. *Entrepreneurship Theory and Practice* 38 (3): 449–472.
- Gonzalez-Diaz, Manuel, and Vanesa Solis-Rodriguez. 2012. Why Do Entrepreneurs Use Franchising as a Financial Tool? An Agency Explanation. *Journal of Business Venturing* 27 (3): 325–341.
- Gorovaia, Nina, and Josef Windsperger. 2013. Real Options, Intangible Resources and Performance of Franchise Networks. *Managerial and Decision Economics* 34 (3–5): 183–194.
- Gulati, Ranjay, Paul R. Lawrence, and Phanish Puranam. 2005. Adaptation in Vertical Relationships: Beyond Incentive Conflict. *Strategic Management Journal* 26 (5): 415–440.
- Gulati, Ranjay, and Habir Singh. 1998. The Architecture of Cooperation: Managing Coordination Costs and Appropriation Concerns in Strategic Alliances. *Administrative Science Quarterly* 43 (4): 781–814.
- Hayek, Friedrich August. 1945. The Use of Knowledge in Society. *American Economic Review* 35 (4): 519–530.
- Hayes, Andrew F., and Li Cai. 2007. Using Heteroskedasticity-Consistent Standard Error Estimators in OLS Regression: An Introduction and Software Implementation. *Behavior Research Methods* 39 (4): 709–722.
- Hendrikse, George, Patrick Hippmann, and Josef Windsperger. 2015. Trust, Transaction Costs and Contractual Incompleteness in Franchising. *Small Business Economics* 44 (4): 867–888.
- Herz, Marc, Clemens Hutzinger, Haris Seferagic, and Josef Windsperger. 2016. Trust, Decision Rights Delegation, and Performance-the Case of Franchising. *Journal of Small Business Management* 54 (3): 973–991.
- Hill, Charles W. L., and Robert E. Hoskisson. 1987. Strategy and Structure in the Multiproduct Firm. *The Academy of Management Review* 12 (2): 331–341.
- John, George, and Barton A. Weitz. 1988. Forward Integration into Distribution: An Empirical Test of Transaction Cost Analysis. *The Journal of Law, Economics, & Organization* 4 (2): 337–355.
- Ju, Min, Janet Y. Murray, Gerald Y. Gao, and Masaaki Kotabe. 2019. Concurrent Sourcing Strategy of Multinational Firms in China: Drivers and Performance Implications. *Journal of World Business* 54 (6): 101015.
- Klein, Saul. 1989. A Transaction Cost Explanation of Vertical Control in International Markets. *Journal of the Academy of Marketing Science* 17 (3): 253–260.
- Knight, Frank. 1921. Risk, Uncertainty and Profit. Boston: Houghton Mifflin.
- Krzeminska, Anna. 2009. Determinants and Management of Make-and-Buy: An Extension to Transaction Cost Economics. Berlin: Springer Gabler.

- Lafontaine, Francine. 1992. Agency Theory and Franchising: some Empirical Results. *RAND Journal of Economics* 23 (2): 263–283.
- Lafontaine, Francine, and Sugato Bhattacharyya. 1995. The Role of Risk in Franchising. *Journal of Corporate Finance* 2 (1–2): 39–74.
- Lafontaine, Francine, and Margaret E. Slade. 2014. Incentive and Strategic Contracting: Implications for the Franchise Decision. In *Game theory and business applications, international series in operations research & management science*, edited by Kalyan Chatterjee and William Samuelson, Vol. 194, 137–188. Berlin: Springer.
- Lanchimba, Cintya, Josef Windsperger, and Muriel Fadairo. 2018. Entrepreneurial Orientation, Risk and Incentives: The Case of Franchising. *Small Business Economics* 50 (1): 163–180.
- Lawrence, Paul R., and Jay W. Lorsch. 1967. *Organization and Environment*. Boston: Division of Research, Graduate School of Business Administration, Harvard University.
- Levinthal, Daniel A., and Maciej Workiewicz. 2018. When Two Bosses Are Better than One: Nearly Decomposable Systems and Organizational Adaptation. *Organization Science* 29 (2): 207–224.
- Long, Scott J., and Laurie H. Ervin. 2000. Using Heteroscedasticity Consistent Standard Errors in the Linear Regression Model. *The American Statistician* 54 (3): 217–224.
- Manolis, Chris, Robert Dahlstrom, and Arne Nygaard. 2011. A Preliminary Investigation of Ownership Conversions in Franchised Distribution Systems. *Journal of Applied Business Research* (Jabr) 11 (2): 1–8.
- Markides, Constantinos C., and Peter J. Williamson. 1996. Corporate Diversification and Organizational Structure: A Resource-Based View. *Academy of Management Journal* 39 (2): 340–367.
- Martin, Robert. 1988. Franchising and Risk Management. *American Economic Review* 78 (5): 954–968.
- McKendall, Marie A., and John A. Wagner. III 1997. Motive, Opportunity, Choice, and Corporate Illegality. *Organization Science* 8 (6): 624–647.
- Ménard, Claude. 2013. Plural Forms of Organizations: Where Do We Stand? *Managerial and Decision Economics* 34 (3–5): 124–139.
- Michael, Steven C. 2000. Investments to Create Bargaining Power: The Case of Franchising. *Strategic Management Journal* 21 (4): 497–514.
- Minkler, Alanson P. 1992. Why Firms Franchise: A Search Cost Theory. *Journal of Institutional and Theoretical Economics* 148 (2): 240–259.
- Nickerson, Jack A., and Todd R. Zenger. 2004. A Knowledge-Based Theory of the Firm the Problem-Solving Perspective. *Organization Science* 15 (6): 617–632.
- Noordewier, Thomas G., George John, and John R. Nevin. 1990. Performance Outcomes of Purchasing Arrangements in Industrial Buyer–Vendor Relationships. *Journal of Marketing* 54 (4): 80–93.
- Norton, Seth W. 2004. Information Processing in the Theory of the Firm: The Rise of General Motors. *International Journal of the Economics of Business* 11 (2): 123–140.
- Oxenfeldt, Alfred R., and Anthony O. Kelly. 1968. Will Successful Franchise Systems Ultimately Become Wholly-Owned Chains? *Journal of Retailing* 44 (Winter): 69–83.
- Parmigiani, Anne. 2007. Why Do Firms Both Make and Buy? An Investigation of Concurrent Sourcing. *Strategic Management Journal* 28 (3): 285–311.
- Pénard, Thierry, Emmanuel Raynaud, and Stéphane Saussier. 2011. Monitoring Policy and Organizational Forms in Franchised Chains. *International Journal of the Economics of Business* 18 (3): 399–417.
- Premkumar, G., K. Ramamurthy, and CarolStoak Saunders. 2005. Information Processing View of Organizations: An Exploratory Examination of Fit in the Context of Interorganizational Relationships. *Journal of Management Information Systems* 22 (1): 257–294.

Puranam, Phanish. 2018. The Microstructure of Organizations. Oxford: Oxford University Press.

Puranam, Phanish, Ranjay Gulati, and Sourav Bhattacharya. 2013. How Much to Make and How Much to Buy? An Analysis of Optimal Plural Sourcing Strategies. *Strategic Management Journal* 34 (10): 1145–1161.

- Raynaud, Emmanuel, Paula S. B. Schnaider, and Maria Sylvia Macchione Saes. 2019. Surveying the Economics of Plural Modes of Organization. *Journal of Economic Surveys* 33 (4): 1151–1172.
- Rindfleisch, Aric, and Jan B. Heide. 1997. Transaction Cost Analysis: Past, Present, and Future Applications. *Journal of Marketing* 61 (4): 30–54.
- Schnaider, Paula S. B., Claude Ménard, and Maria S. M. Saes. 2018. Heterogeneity of Plural Forms: A Revised Transaction Cost Approach. *Managerial and Decision Economics* 39 (6): 652–663.
- Simon, Herbert A. 1947. Administrative Behavior. New York: Macmillan.
- Simon, Herbert A. 1955. A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics* 69 (1): 99–118.
- Simon, Herbert A. 1962. The Architecture of Complexity. *Proceedings of the American Philosophical Society* 106 (6): 467–482.
- Stinchcombe, Arthur L. 1990. *Information and Organizations*, Vol. 19, Oakland: University of California Press.
- Thompson, James D. 1967. Organization in Action. McGraw-Hill: New York.
- Tushman, Michael L., and David A. Nadler. 1978. Information Processing as an Integrating Concept in Organization Design. *The Academy of Management Review* 3 (3): 613–624.
- Walker, Gordon, and David Weber. 1984. A Transaction Cost Approach to Make-or-Buy Decisions. *Administrative Science Quarterly* 29 (3): 373–391.
- Williamson, Oliver E. 1971. The Vertical Integration of Production: Market Failure Considerations. *American Economic Review* 61 (2): 112–123.
- Williamson, Oliver E. 1973. Markets and Hierarchies: Some Elementary Considerations. *American Economic Review* 63 (2): 316–325.
- Williamson, Oliver E. 1975. Markets and Hierarchies: Analysis and Antitrust Implications: A Study in the Economics of Internal Organization. New York: Free Press.
- Williamson, Oliver E. 1985. The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting. New York: Free Press.
- Williamson, Oliver E. 1991. Comparative Economic Organization: The Analysis of Discrete Structural Alternatives. *Administrative Science Quarterly* 36 (2): 269–296.
- Williamson, Oliver E. 1996. The Mechanisms of Governance. Oxford: Oxford University Press.
- Williamson, Oliver E. 2003. Examining Economic Organization through the Lens of Contract. *Industrial and Corporate Change* 12 (4): 917–942.
- Windsperger, Josef. 2004. The Dual Network Structure of Franchising Firms Property Rights, Resource Scarcity, and Transaction Cost Explanations. In *Economics and Management of Franchising Networks*, edited by Josef Windsperger, Gérard Cliquet, George Hendrikse and Mika Tuunanen, 69–88. Heidelberg: Physica-Verlag.
- Windsperger, Josef, and Rajiv P. Dant. 2006. Contractibility and Ownership Redirection in Franchising: A Property Rights View. *Journal of Retailing* 82 (3): 259–272.
- Xue, Ling, Gautam Ray, and Bin Gu. 2011. Environmental Uncertainty and IT Infrastructure Governance: A Curvilinear Relationship. *Information Systems Research* 22 (2): 389–399.

Appendix

Measurement of variables

Proportion of company-owned outlets: Number of company-owned outlets in a given country divided by the total number of outlets in a given country.

Environmental uncertainty: Summated scale of three items (Cronbach's $\alpha = 0.748$) measured on a seven-point Likert-type scale (ranging from 1="strongly disagree" to 7="strongly agree"):

- 1. The sales at the outlet level are very fluctuating.
- 2. It is very difficult to predict the market development at the outlet level.

3. The economic environment in the local market is changing rapidly.

Transferability of system know-how: Summated scale of eight items (Cronbach's $\alpha = 0.915$) measured on a seven-point Likert-type scale (ranging from 1="very easy" to 7="very difficult"): How difficult is it to transfer from the franchisor to the franchisee...

- 1. brand name
- 2. marketing know-how
- 3. organizational know-how
- 4. administrative know-how
- 5. quality management know-how
- 6. accounting know-how
- 7. human resources know-how
- 8. IT know-how

Franchisee-specific know-how: Summated scale of five items (Cronbach's $\alpha = 0.780$) measured on a seven-point Likert-type scale (ranging from 1="great advantage through franchising" to 7="great advantage through company ownership"):

As a franchisor, how do you see the advantages of franchising compared to company-owned outlets ...

- 1. better quality control
- 2. more innovation
- 3. higher administrative skills
- 4. more efficient human resource management
- 5. higher local market knowledge

Knowledge-based trust: Summated scale of four items (Cronbach's $\alpha = 0.877$) measured on a seven-point Likert-type scale (ranging from 1="strongly disagree" to 7="strongly agree"):

- 1. The cooperation is based on partnership basis.
- 2. The exchange of information between us and the partners goes beyond the agreed scope.
- 3. There is great trust between us and the partners.
- 4. There is an atmosphere of openness and honesty between us and the partners.

General trust: Summated scale of three items (Cronbach's $\alpha = 0.803$) measured on a sevenpoint Likert-type scale (ranging from 1="strongly disagree" to 7="strongly agree"):

- 1. The majority of people trust others.
- 2. Most people are trustworthy.
- 3. Most people behave cooperatively if they are trusted.

System age: Number of years since opening the first franchised outlet in a given country. *Initial investment*: Average investment (excluding franchise entry free) required by a franchisee to start a new franchised outlet (in thousand euros).

System size: Number of employees in headquarters.

Brand name: Summated scale of four items (Cronbach's $\alpha = 0.815$) measured on a seven-point Likert-type scale (ranging from 1="strongly disagree" to 7="strongly agree"):

- 1. Our brand name is very strong as compared to our competitors.
- 2. Our franchise system enjoys higher brand recognition as compared to our competitors.
- 3. Our franchise system enjoys a good reputation for quality.

4. Our brand name is very important for achieving competitive advantage.

Country: Dummy variable: 0 = Switzerland, 1 = Germany.

Sector: Dummy variable: 0 = product/distribution franchising systems, 1 = services franchising systems.