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Real Options, Intangible Resources and Performance of Franchise Networks

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This study investigates the performance of franchise networks through the lens of the resource-based and real options theory. First, according to the resource-based view, we argue that the intangible resources of the franchisor (system-specific know-how and brand name) and the intangible outlet-specific resources of the franchisees (exploration and exploitation capabilities) positively impact the performance of the franchise system. Second, on the basis of the real option perspective, we show that the franchisor's use of an explicit call option in the franchise contract—as a clause that gives him or her the right to acquire franchise units—increases the franchisor's managerial flexibility and incentives for intangible investments and hence improves the performance of the franchise network. We test the hypotheses with cross-sectional data from the franchise sector in Germany. The data provide some support of the hypotheses. Our study contributes to the franchise and interorganizational network literature as no prior study has applied the real option perspective to franchising.

1. INTRODUCTION

This study investigates the performance of franchise networks through the lens of the resource-based theory and the real options theory. According to the resource-based view (Wernerfelt, 1984; Barney, 1991; Amit and Schoemaker, 1993; Wu, 2010), intangible resources of the franchisor and franchisees are the most important factors that contribute to the competitive advantage and superior performance of franchise networks. In spite of their importance, they have received relatively little attention in previous research. Most of the previous studies investigate the performance implications of governance structures (e.g. Ehrmann and Spranger, 2004; Yin and Zajac, 2004; Barthélemy, 2008; Mitsuhashi *et al*., 2008; Perrigot *et al*., 2009; Combs *et al*., 2011; Perdreau *et al*., 2011; Kosova *et al*., 2012). Our study extends the view of Barthélemy (2008) by investigating the impact of franchisees' intangible resources, in addition to the brand name assets and system-specific resources on network performance. Furthermore, we apply the real option view to examine the impact of franchisor's use of real option clause—as franchisor's right to acquire the franchise outlets at the end of the contract period—on the performance of franchise networks.

Although the real options view (Trigeorgis, 1998, 2005) has been applied in many studies on interorganizational networks, such as joint ventures, strategic alliances or licensing (e.g. Kogut, 1991; Chi and McGuire, 1996; Folta, 1998; Chi, 2000; Chi and Seth, 2002; Folta and Miller, 2002; Reuer and Tong, 2005; Cuypers and Martin, 2006; Li J. *et al*., 2008, Li Y. *et al*., 2008; Tong *et al*., 2008; Jiang *et al*., 2009; Cuypers and

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Martin, 2010), no prior study used it for the explanation of the governance structure and performance of franchise firms. Franchising as an organizational form has long been viewed as an attractive growth strategy for retail and service chains. Previous research has shown that an important motive to engage in franchising is the franchisor's easier and less costly access to outlet-specific resources. For example, according to the resource scarcity theory, franchisors have constraints on information, managerial and financial resources. Thus expanding through franchising is a way to get access to these resources without asset ownership (e.g. Oxenfelt and Kelley, 1968–1969). However, the use of franchising results in a dilution of ownership rights for the franchisor, due to the division of residual income rights between the network partners. Franchisor's diluted ownership rights can be compensated by including a real option clause in the franchise contract (Windsperger, 2002). The use of the real option clause gives the franchisor the right, but not the obligation, to acquire the franchise outlet at the end of the contract period (Bowman and Hurry, 1993; Reuer and Tong, 2005; Ziedonis, 2007). This is a source of value creation, as the franchisor can defer equity investments in company-owned outlets under conditions of environmental uncertainty and organizational learning (Kogut, 1991; Chi and McGuire, 1996; Folta, 1998). Specifically, the real option clause increases the franchisor's managerial flexibility and incentive to undertake investments in intangible system-specific and brand name assets during the contract period, and consequently improves the performance of the franchise system. At the same time, however, this dilutes the franchisees' ownership rights and reduces their incentives to invest in intangible outlet-specific resources, which may negatively impact the network performance.

Our study makes the following contribution to the literature: Complementary to previous studies in franchising that mainly focus on performance consequences of governance structures by examining agency-theoretical and resource scarcity hypotheses (e.g. Shane, 1996, 1998; Shane and Foo, 1999; Sorenson and Sorensen, 2001; Ehrmann and Spranger, 2004; Yin and Zajac, 2004; Kosová *et al*., 2012), this study develops and tests a resource-based and real option model of network performance in franchising. First, we argue that the franchisor's and franchisees' intangible resources and capabilities are crucial in explaining the network performance. Second, we examine the impact of the franchisor's use of explicit call options on network performance. Although many franchise contracts include real option clauses, the effect of this option clause on network performance has not been analysed yet. Moreover, our study contributes to the real option literature on interorganizational networks (e.g. Kogut, 1991; Reuer and Tong, 2005; Ziedonis, 2007; Cuypers and Martin, 2010), as no prior study has applied the real option perspective to franchising networks.

The paper proceeds as follows: Section 2 develops the theoretical framework and formulates the hypotheses. Section 3 tests the hypotheses by using data from the German franchise networks. Section 4 discusses the results and derives conclusions.

2. THEORY AND HYPOTHESES

2.1. Overview of the Model

Our research model can be summarized as follows (Figure 1). First, according to the resource-based view, intangible system-specific and local market resources have a positive impact on the performance of franchise networks. We hypothesize that intangible system-specific resources and brand name assets positively influence the performance of the franchise chain. In addition, we predict that more intangible resources of the franchisees (exploration capabilities) have a stronger impact on performance than less intangible resources (exploitation capabilities) (Sorenson and Sorensen, 2001). Second, the use of the real option clause in franchise contracts increases the franchisor's managerial flexibility and incentives, and consequently positively impacts the performance of the franchise

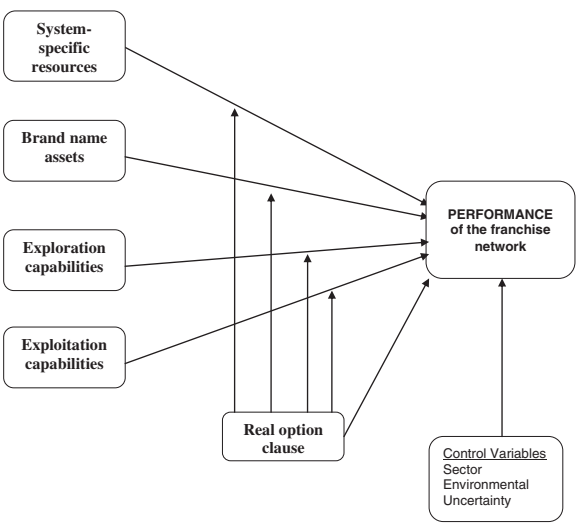

Figure 1. Theoretical framework.

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network. Third, the real option clause moderates the effect of the franchisor's and franchisees' intangible resources on network performance.

2.2. Hypotheses

2.2.1 Resource-based hypotheses. According to the resource-based theory of the firm, intangible resources are unique and difficult to imitate and lead to superior performance (Wernerfelt, 1984, 1989; Barney, 1986, 1991; Grant, 1991). In franchising (like in other businesses in the service and retail sector), intangible resources of the franchisor and franchisees play an important role for the success of the franchise networks (Soerenson and Sorensen, 2001; Sharma and Erramilli, 2004; Watson *et al*., 2005; Blomstermo *et al*., 2006).

2.2.1.1 Franchisors' intangible resources. Franchisors' intangible resources refer to system-specific know-how and brand name assets (Hall, 1989, 1993; Windsperger, 2004b). System-specific know-how includes the knowledge of the business concept referring to site selection, store layout, product or service development, procurement, system marketing and advertising. According to the resource-based theory, intangible resources, which are difficult to imitate, lead to sustainable competitive advantage and superior performance (Wu, 2006; Barthélemy, 2008). The higher the degree of intangibility of system-specific resources, the lower the imitation risk becomes, and the stronger their positive impact on network performance. Therefore, we expect that the franchisor's intangible system-specific resources vary positively with the performance of the franchise system.

H1
The intangible system-specific resources of the franchisor vary positively with the network performance.

From a strategic perspective (Amit and Schoemaker, 1993), intangible brand name assets are less vulnerable to competition because they cannot be easily imitated by potential competitors. Therefore, by applying the resource-based reasoning, a strong brand name leads to competitive advantage of the franchise system, which in turn results in superior network performance. We formulate the following hypothesis:

H2
The brand name assets of the franchisor vary positively with the network performance.

2.2.1.2 Franchisees' intangible outlet-specific resources. On the basis of March (1991), Bradach (1997) and Sorensen and Sorenson (2001), franchisees' intangible resources can be divided in exploration and exploitation capabilities. Exploration capabilities refer to innovation and local market knowledge, and exploitation capabilities to quality control and administrative capabilities of the franchisees (Windsperger and Dant, 2006). By applying the resource-based view, we expect that both the exploration and exploitation capabilities of the franchisees have a positive impact on network performance. However, as the exploration capabilities are more intangible than exploitation capabilities, we expect that their impact on network performance is stronger. We derive the following hypotheses:

H3
Exploration capabilities of the franchisees vary positively with the network performance.

H4
Exploitation capabilities of the franchisees vary positively with the network performance.

H5
The positive impact of the exploration capabilities on network performance is stronger than that of the exploitation capabilities.

2.2.2 Real options hypotheses. Although the real option theory has been applied in many studies on strategic alliances and joint ventures (Kogut, 1991; Chi and McGuire, 1996; Folta, 1998; Reuer and Leiblein, 2000; Folta and Miller, 2002; Reuer and Tong, 2005; Tong *et al*., 2008; Cuypers and Martin, 2010), market entry modes (Miller and Folta, 2002; Brouthers *et al*., 2008; Brouthers and Dikova, 2010) and governance issues of multinational corporations (Tong and Reuer, 2007; Chi and Seth, 2009; Li and Li, 2010), no prior study applies the real option view to franchising networks. Real option reasoning focuses on the creation of strategic value by providing organizational flexibility under uncertainty (Trigeorgis, 1998; Leiblein, 2003; Moretto and Rossini, 2012), for instance through setting up interorganizational networks (such as strategic alliances, joint ventures, licensing and franchise chains). Using franchising as an expansion strategy is an opportunity for the franchisor to learn and develop capabilities about the local markets, products and services. In this case, the franchisor's acquisition of franchised outlets proceeds incrementally as a result of organizational learning (Kogut and Kulatilaka, 2001). Under the real

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option lens, the franchisor can capitalize on favourable opportunities and mitigate downside risk in a flexible way, acting proactively towards uncertainty. Consequently, the franchisor may expand into attractive markets through company-owned outlets, and defer investment, or abandon operations if the market conditions are less attractive.

2.2.2.1 Real option clauses. According to the real option perspective (Trigeorgis, 2005; Li and Li, 2010), the use of explicit call options offers managerial flexibility and incentives to the franchisor to acquire the best performing franchised outlets, under favourable environmental conditions and successful acquisition of local market knowledge. Therefore, this flexibility contributes to superior performance of the franchise network. We can formulate the following hypothesis:

H6
The use of explicit call options increases the performance of the franchise network.

This reasoning is compatible with the search cost explanation of franchising (Minkler, 1992), which predicts that, under high local market uncertainty, the franchisor uses franchising at the beginning of the organizational life cycle and increases the proportion of company-owned outlets in the later stages of the life cycle after getting access to the specific knowledge of the local market environment.

In addition, the real options clause moderates the relationship between the franchisor's and franchisees' intangible resources, and the network performance. First, the real option clause increases the franchisor's incentives to undertake investments in intangible system-specific resources as well as brand name assets. Therefore, its use increases the positive effect of the franchisor's intangible resources on network performance, because of the franchisor's higher incentive to invest in brand name assets and system-specific know-how. We formulate the following hypotheses:

H7a and H7b
The use of explicit call options increases the positive relationship between the franchisor's intangible resources (system-specific know-how and brand name assets) and network performance.

Second, the use of the real option clause in the franchise contract may decrease the franchisees' incentives to invest in intangible outlet-specific resources and capabilities, because it increases the likelihood that the franchisor will acquire the outlet at the end of the contract period. Therefore, the real option clause decreases the positive impact of intangible resources on network performance, because of the reduced incentives of the franchisees to develop and deploy outlet-specific capabilities. We formulate the following hypotheses:

H7c and H7d
The use of explicit call options decreases the positive relationship between the franchisees' intangible resources (exploration and exploitation capabilities) and network performance.

3. EMPIRICAL ANALYSIS

3.1. Data Collection and Measurement

Empirical data were collected from the German franchise sector. The directory of the German Franchise Federation and 'Franchise Wirtschaft' (a Bond's Franchise Guide type directory published in Germany) list all franchise systems operating in the country. The questionnaire was developed in several steps. After several preliminary refinements, we conducted in-depth interviews with franchise professionals from the Austrian and German franchise associations and a pre-test with franchisors in Austria. The personally addressed questionnaires were mailed to the key informants (general manager or expansion manager) of all 491 relevant franchise systems in Germany. We received 137 questionnaires with a response rate of 28%.

To check for the non-response bias, we use two methods. First, non-response bias was estimated by comparing early versus late respondents (Armstrong and Overton, 1977), where late respondents serve as proxies for non-respondents. Second, the respondents were compared with non-respondents in terms of age, size, advertising fee and royalties to determine whether non-response was a serious problem for the data. These variables are available in the 'Franchise Wirtschaft' for the entire listed systems. We found no significant difference between the respondents and the non-respondents (Table 1). In addition, on the basis of Podsakoff *et al*. (2003), we used Harman's single-factor test to examine whether a significant amount of common method variance exists in the data. After we conducted factor analysis on all items and extracted more than one factor with eigenvalues greater than 1, we felt confident that common method variance is not a serious problem in our study.

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Table 1. Non-response Bias

	Means, (SD), and counts			
	Population	Respondents	*t*-value	*p*-value
Age of franchise system (years)	10.102	11.190	−1.298	0.195
	(8.122)	(8.391)		
	$N=449$	$N=121$		
System size (total outlets)	112.718	155.949	0.992	0.322
	(431.444)	(328.376)		
	$N=337$	$N=118$		
Advertising fee (% of sales)	1.002	0.930	−0.478	0.633
	(1.497)	(1.342)		
	$N=326$	$N=127$		
Royalties (% of sales)	4.473	5.442	1.408	0.16
	(6.282)	(7.452)		
	$N=446$	$N=117$		

The measures of initial fee, advertising fee and royalties were first tested by a MANOVA to ensure independence of these variables.

3.2. Measurement

To test the hypotheses, we use the following variables: performance of the franchise system, intangible resources of the franchisor (brand name assets and system-specific resources), intangible resources of franchisees (exploration and exploitation capabilities) and the real option clause. Additionally, we include environmental uncertainty and sector as control variables (Appendix).

3.2.1 Dependent variable. 3.2.1.1 Performance (PERFORM). The measurement of performance can be based on objective or subjective indicators (e.g. Sorenson and Sorensen, 2001; Combs *et al*., 2004, 2011; Kidwell *et al*., 2007). Although objective measures have greater validity, most of the franchise systems in this survey do not disclose financial data. The literature has demonstrated that there is a strong correlation between objective and subjective performance indicators. Furthermore, performance is a multi-faceted construct that cannot be restricted to one indicator only (Elango and Fried, 1997; Combs *et al*., 2005). In this study, network performance (PERFORM) is measured as an average of six items: system growth, reduction in costs, increase in yields, increase in innovation, saving in coordination and control costs, and profit growth. Franchisors were asked to rate the performance of their franchise system on a seven-point Likert scale.

3.2.2. Independent variables. 3.2.2.1. Intangible resources of the franchisor. They refer to system-specific resources and brand name assets. Consistent with the measures used in previous studies (e.g. Darr *et al*., 1995; Windsperger and Dant, 2006), we use annual training days (TDAYS) as a proxy for intangible system-specific resources of the franchisor. The more intangible the system-specific know-how, the more training days are required to transfer it to the franchisees (Simonin, 1999). Adopted from Combs and Ketchen (2004) and Barthélemy (2008), the strength of the brand name (BRAND) is measured by an index of four items on a seven-point Likert scale. Franchisors were asked to rate their systems on brand strength compared with competitors, brand recognition compared with competitors, reputation for quality and the importance of brand name for achieving competitive advantage.

3.2.2.2 Intangible resources of franchisees. These refer to the franchisee's local market know-how consisting of exploration and exploitation capabilities. In the questionnaire, the franchisors were asked to rate on a seven-point scale to evaluate franchisees' intangible resources (Appendix). On the basis of March (1991), Bradach (1997) and Sorensen and Sorenson (2001), we use the following indicators to measure the exploration and exploitation capabilities advantage of the franchisee compared with the manager of a company-owned outlet: The domain of the content of exploration capabilities refers to innovation and local market knowledge, and the domain of the content of exploitation capabilities refers to quality control and administrative capabilities. We use formative indicators, as the constructs are defined by theoretical judgement and produced by the indicators representing the domain of the content (Diamantopoulos and Winkelhofer, 2001).

3.2.2.3 Real option clause (RO). Franchisors were asked to indicate whether the franchise contract contains a real option clause (franchisor's option to acquire

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the franchise outlet at the end of the contract period) (0 = no real option clause, 1 = real option clause).

3.2.3 Control variables. 3.2.3.1 Environmental uncertainty (ENV). According to the transaction cost theory, environmental uncertainty increases the transaction costs as costs of the exchange relationship (Williamson, 1975; Rindfleisch and Heide, 1997). In an uncertain local environment, contractual renegotiations and adjustments are costly, especially in the presence of highly specific investments. Therefore, high environmental uncertainty may negatively impact the performance of the franchise chain. To measure environmental uncertainty, the franchisors were asked to rate fluctuations in outlet sales, unpredictability of the market and volatility of the local economic situation on a seven-point Likert scale.

3.2.3.2 Sector (SEC). We include a sectoral variable to control for sectoral effects because the know-how intensity of franchise firms varies between product/distribution and service firms (Zeithaml *et al.*, 1985; Windsperger, 2004a). Service franchising firms are characterized by more intangible resources compared with product franchising firms. 0 refers to product and distribution franchising and 1 to the service franchising.

3.2.4 Construct validity and reliability. We use multi-item scales for measuring performance of the franchise systems, brand name and environmental uncertainty. To check convergent and discriminant validity of the constructs, we estimated the average intraconstruct correlation as a 'within measure' and the average correlation of each construct's items with each other construct's items as a 'between measure'. The results are presented in Table 2. The 'within' average correlations are higher than the 'between' average correlations, providing support of discriminant validity of these constructs. Cronbach alpha shows values above the recommended cut-off value of 0.70 (Cronbach, 1951): PERFORM = 0.836, BRAND = 0.815, ENV = 0.748.

Table 2. Average Within/Between Correlations

	BRAND	PERFORM	ENV
BRAND	0.62339		
PERFORM	0.264735	0.402562	
ENV	−0.06704	−0.15245	0.539696

3.3. Regression Analysis

Descriptive statistics and correlations are reported in Table 3.

We use an OLS regression analysis to test the proposed model (Figure 1). The dependent variable represents the performance of the franchise network (PERFORM). System-specific resources of the franchisor (TDAYS), brand name of the franchisor (BRAND), exploration (EXPLORE) and exploitation (EXPLOIT) capabilities of the franchisees and the real option clause (RO) are used as explanatory variables. Sector (SEC) and environmental uncertainty (ENV) are included as control variables. Therefore, we estimate the following regression equation:

$$\begin{aligned}\text{PERFORM} = {} & \alpha_0 + \alpha_1 \,\text{lgTDAYS} + \alpha_2 \text{BRAND} \\ & + \alpha_3 \text{EXPLORE} + \alpha_4 \text{EXPLOIT} \\ & + \alpha_5 \text{RO} + \alpha_6 \text{ENV} + \alpha_7 \text{SEC} + \varepsilon\end{aligned}$$

According to the resource-based view, we hypothesize positive effects of system-specific resources of the franchisor (TDAYS), brand name assets (BRAND), exploration (EXPLORE) and exploitation (EXPLOIT) capabilities of the franchisees on network performance. In addition, we hypothesize that the more intangible exploration capabilities have a stronger positive impact on performance than the less intangible exploitation

Table 3. Descriptive Statistics

	Mean	SD	PERFORM	TDAYS	BRAND	EXPLORE	EXPLOIT	RO	ENV	SEC
PERFORM	4.323	1.034	1							
TDAYS	1.408	0.768	0.321**	1						
BRAND	5.633	1.098	0.406**	0.039	1					
EXPLORE	3.021	1.319	0.090	−0.130	0.006	1				
EXPLOIT	4.000	1.485	−0.166*	−0.177	−0.031	0.480**	1			
RO	0.63	0.485	0.285**	0.077	0.145	−0.040	−0.221**	1		
ENV	3.664	1.386	−0.254**	−0.301**	−0.077	0.080	0.159*	−0.184*	1	
SEC	0.593	0.493	−0.110	−0.047	−0.067	0.113	0.244**	−0.011	0.012	1

**Correlation is significant at the 0.01 level (two-tailed).
*Correlation is significant at the 0.05 level (two-tailed).

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capabilities. On the basis of the real option perspective, we expect a positive impact of the real option clause (RO) on network performance (PERFORM).

First, we conduct an OLS regression analysis with only control variables (Model 1). Both environmental uncertainty and sector vary negatively with network performance. The coefficient of environmental uncertainty is highly significant, supporting the negative performance impact of high transaction costs due to high uncertainty. Second, we add the resource-based variables to Model 1. The results of the regression analysis are presented in Table 4 (Model 2).

The coefficients of system-specific know-how and brand name assets are positive and highly significant. These results support hypotheses 1 and 2. The coefficient of the exploration capabilities of the franchisees is also positive and significant, providing strong support for hypothesis 3. The coefficient of the exploitation capabilities is negative and significant, not providing support for the hypothesis 4. One possible explanation of this finding is that the performance of the franchise system might be negatively affected, when the franchisees focus too much on administration and control activities at the local outlets. Hypothesis 5 states that the positive impact of the more intangible exploration capabilities on performance is stronger when compared with the less intangible exploitation capabilities. Our data provide support for this hypothesis. In Model 3, we add the real option variable to the regression equation. The coefficient of the real option variable is positive and highly significant, providing support to hypothesis 6.

Third, we proceed to test the interaction effects (see Models 4–7). We add the interaction terms TDAYS * RO, BRAND * RO, EXPLORE * RO and EXPLOIT * RO to the regression equation:

$$\begin{aligned}\text{PERFORM} = {} & \alpha_0 + \alpha_1 \,\text{lgTDAYS} + \alpha_2 \text{BRAND} \\ & + \alpha_3 \text{EXPLORE} + \alpha_4 \text{EXPLOIT} \\ & + \alpha_5 \text{RO} + \alpha_6 \,\text{lgTDAYS} * \text{RO} \\ & + \alpha_7 \text{BRAND} * \text{RO} + \alpha_8 \text{EXPLORE} * \text{RO} \\ & + \alpha_9 \text{EXPLOIT} * \text{RO} + \alpha_{10} \text{ENV} \\ & + \alpha_{11} \text{SEC} + \varepsilon\end{aligned}$$

Table 4. OLS Regressions

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Constant	5.141***	2.592***	2.011***	2.423***	2.245**	1.636**	0.870
	(0.252)	(0.621)	(0.659)	(0.718)	(0.864)	(0.707)	(0.783)
SEC	−0.101	−0.065	−0.070	−0.060	−0.069	−0.077	−0.055
	(0.170)	(0.168)	(0.167)	(0.167)	(0.168)	(0.167)	(0.164)
ENV	−0.251***	−0.188**	−0.127	−0.135	−0.126	−0.126	−0.125
	(0.059)	(0.058)	(0.061)	(0.060)	(0.061)	(0.060)	(0.059)
TDAYS	—	0.241**	0.248**	0.075	0.246**	0.263**	0.265***
		(0.106)	(0.105)	(0.191)	(0.106)	(0.106)	(0.103)
BRAND	—	0.358***	0.360***	0.349***	0.315**	0.341***	0.347***
		(0.077)	(0.076)	(0.076)	(0.129)	(0.077)	(0.074)
EXPLORE	—	0.180**	0.176**	0.163*	0.181**	0.334**	0.192**
		(0.066)	(0.066)	(0.066)	(0.067)	(0.107)	(0.064)
EXPLOIT	—	−0.179**	−0.124	−0.127	−0.125	−0.099	0.226
		(0.060)	(0.064)	(0.064)	(0.065)	(0.065)	(0.115)
RO	—	—	0.207**	0.002	0.027	0.484**	0.889**
			(0.174)	(0.352)	(0.922)	(0.443)	(0.588)
RO * TDAYS	—	—	—	0.294	—	—	—
				(0.221)			
RO * BRAND	—	—	—	—	0.192	—	—
					(0.161)		
RO * EXPLORE	—	—	—	—	—	−0.327	—
						(0.130)	
RO * EXPLOIT	—	—	—	—	—	—	−0.710**
							(0.129)
N	137	120	117	117	117	117	117
Model *F*	6.044***	9.599***	8.923***	8.129***	7.772***	5.569***	9.018***
R^2	0.075	0.338	0.362	0.374	0.363	0.374	0.398
Adjusted R^2	0.062	0.302	0.322	0.328	0.316	0.328	0.354

Values in parentheses represent standard errors.
***$p < 0.01$.
**$p < 0.05$.
*$p < 0.1$.

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We hypothesize that the use of the real option clause (RO) will strengthen the franchisor's incentives, hence increasing the positive effect of his or her intangible resources on network performance. In Models 4 and 5, the coefficients of the interaction terms TDAY * RO and BRAND * RO are positive but not significant; hence, the data provide insufficient support for hypotheses 7a and 7b. Finally, in Models 6 and 7, we include interaction terms between the real option variable and franchisees' intangible resources (EXPLORE * RO, EXPLOIT * RO). We expect that the use of real option clauses will decrease franchisees' incentives and hence weaken the positive impact of their intangible resources on network performance. As shown in Model 6, the coefficient of the interaction term EXPLORE * RO is negative but not significant, providing insufficient support of hypothesis 7c. In Model 7, the coefficient of the interaction term EXPLOIT * RO is negative and significant, providing support of hypothesis 7d. To summarize, the results of the hypotheses test are presented in Table 5.

4. DISCUSSION AND IMPLICATIONS

This study investigates the performance of franchise networks through the lens of resource-based and real option theory. First, according to the resource-based theory, only resources that are difficult to imitate lead to competitive advantage and superior performance. In franchising, resources with a low degree of imitability are the franchisor's intangible system-specific know-how and brand name assets, as well as the franchisees' intangible outlet-specific resources (exploration and exploitation capabilities). Using data from 137 franchise companies in Germany, the results show that both the franchisor's and franchisees' intangible resources positively impact the performance of franchise networks. In addition, we find that more intangible exploration capabilities have a stronger impact on network performance than less intangible exploitation capabilities.

Second, to the best of our knowledge, this study is the first one that applies the real option reasoning to franchising. Specifically, we test the impact of the use of explicit call options on the performance of franchise networks. Our results show that the use of explicit call options—as clause which gives the franchisor the right to acquire franchise units at the end of the contract period—strongly increases the network performance, because of the franchisor's higher investment incentive and managerial flexibility.

Third, we test the moderating role of the real option clause in the relationship between the franchisor's and franchisees' intangible resources and network performance. On the one hand, the real options clause increases the positive impact of the franchisor's intangible resources on network performance, because of his or her higher incentives to invest in the brand name assets and the system-specific know-how. On the other hand, the real option clause decreases the positive impact of the franchisees' intangible resources on network performance, because of their lower incentives to invest in innovation, local market knowledge, quality control and administrative capabilities. The data provide weak support of the moderating role of the real option clause. Although all the signs of the interaction terms are as expected, only the negative impact of the interaction between exploitation capabilities and the real option variable on network performance is significant. This supports the view that the positive impact of franchisees' intangible resources on network performance is weakened, when the franchise contract contains a real option clause that dilutes franchisees' residual rights of control.

Overall, this study makes the following contribution: Complementary to previous studies that mainly focus on performance consequences of governance structures by examining agency-theoretical and resource scarcity

Table 5. Results of the Regression Analysis

Hypothesis 1	The intangible system-specific resources of the franchisor vary positively with the network performance	Supported
Hypothesis 2	The brand name assets of the franchisor vary positively with the network performance	Supported
Hypothesis 3	Exploration capabilities of the franchisees vary positively with the network performance	Supported
Hypothesis 4	Exploitation capabilities of the franchisees vary positively with the network performance	Not supported
Hypothesis 5	The positive impact of the exploration capabilities on network performance is stronger than of the exploitation capabilities	Supported
Hypothesis 6	The use of explicit call options increases the performance of the franchise network	Supported
Hypotheses 7a and 7b	The use of explicit call options increases the positive relationship between the franchisor's intangible resources (system-specific know-how and brand name assets) and network performance	Insufficient support
Hypotheses 7c and 7d	The use of explicit call options decreases the positive relationship between the franchisees' intangible resources (exploration and exploitation capabilities) and network performance	Insufficient support for H7c, H7d is supported

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hypotheses (e.g. Shane, 1996; Sorenson and Sorensen, 2001; Ehrmann and Spranger, 2004; Yin and Zajac, 2004; Perrigot *et al*., 2009; Perdreau *et al*., 2011), this study is the first one that tests a resource-based and real option model of network performance in franchising. Furthermore, this study adds to the real option literature on interorganizational networks (e.g. Kogut, 1991; Chi and McGuire, 1996; Folta, 1998; Chi, 2000; Folta and Miller, 2002; Reuer and Tong, 2005; Ziedonis, 2007; Li J. *et al*., 2008; Tong *et al*., 2008; Jiang *et al*., 2009; Cuypers and Martin, 2010), as no prior study has applied the real option perspective to franchising networks.

The study also has important implications for the franchisors and franchisor–managers: First, our results indicate that the intangible resources of the franchisor are very important performance drivers in franchise networks. The franchisor therefore has to invest in the development of the brand name and the system-specific know-how in order to create competitive advantage of the franchise system. In addition, the franchisees' intangible resources (especially innovation capabilities and local market knowledge) are very important for the success of the franchise chain. Accordingly, the franchisor must provide incentives to the franchisees (e.g. by transferring residual income rights and/or ownership surrogates) to increase their motivation to invest in intangible resources (Windsperger, 2002). Second, the use of the real option clause in franchise contracts increases the network performance, because it increases the franchisor's managerial flexibility and incentives. However, the use of real option clauses may weaken the franchisees' incentives to efficiently develop and deploy local market capabilities, thereby negatively impacting the network performance. To mitigate this disincentive effect, the franchisor has to include other incentive provisions in the franchise contract (such as exclusive territory and customer clauses, or multi-unit arrangements) (Windsperger, 2002, 2012), in particular when the local market know-how of the franchisees is very important for the success of the franchise system.

Finally, one important limitation of the study is that the performance measurement is based on subjective indicators. Elango and Fried (1997) recommended the use of multiple indicators. Recently, Crook *et al*. (2008) argued that the validity of the performance measures depends on the underlying theory. For instance, the resource-based theory requires different performance indicators compared with the transaction cost and agency theory. Consequently, future studies on network performance have to consider that the performance measures must be compatible with the theoretical frameworks applied in the empirical analysis.

APPENDIX
MEASURES OF THE VARIABLES

Performance of the franchise system (PERFORM)

Six items measured on a seven-point scale, Cronbach alpha = 0.836

Evaluated by the franchisor, to which extent did the franchise system achieve the following goals last year?

1. System growth
2. Reduction of costs
3. Increase of revenues
4. More innovation
5. Savings on coordination and control costs
6. Profit growth

Franchisor's intangible resources:

Annual training days (TDAYS): Number of franchisee's training days per year

Brand name (BRAND):

Four items measured on a seven-point scale, Cronbach alpha = 0.815

1. Our brand name is very strong compared with that of our competitors.
2. The quality of our franchise system has a very good reputation.
3. Our franchise system is well recognized compared with that of our competitors.
4. Our brand name is very important to achieve a competitive advantage.

Franchisees' intangible resources:

Exploration capabilities (EXPLORE)

Two items measured on a seven-point scale

Franchisee's know-how advantage compared with company-owned outlets evaluated by the franchisor regarding:

1. Innovation capabilities
2. Local market knowledge

Exploitation assets (EXPLOIT)

Two items measured on a seven-point scale

Franchisee's know-how advantage compared with company-owned outlets evaluated by the franchisor regarding:

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1. Quality control
2. Administrative capabilities

Real option clause (RO)

A dichotomous variable indicating the presence of the real option clause in the franchise contract (franchisor's option to acquire the outlet): 0 = no real option clause, 1 = real option clause

Environmental uncertainty (ENV)

Four items on a seven-point scale, Cronbach alpha = 0.748

1. Sales at the local markets are very unpredictable.
2. It is very difficult to forecast the market development in the local markets.
3. Economic environment is changing quickly in the local markets.

Sector (SEC): Sectoral variable: 0 = product franchising; 1 = services

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