Effects of Contract and Trust on Franchisor Performance

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ABSTRACT

The franchisor-franchisee relationship is governed by contracts and trust. This paper analyzes how formal (contracts) and relational (trust) governance mechanisms affected franchisor performance in a service sector franchise for the period 2008¬2015. Using the SOM method in the empirical analysis, the results revealed that trust-based governance was more prominent than contract-based governance in the multi-unit franchise network and the cross-franchising network, negatively affecting franchisor performance in the multi-unit franchise network and positively affecting franchisor performance in the cross-franchising network. In contrast, contracts were more prominent than trust in single-unit franchising, negatively affecting franchisor performance. The primary practical implication is that the franchisor should prevent franchisees in the MUF network from opening new outlets in the same city and competing for the existing outlet's customers.

KEY WORDS: single-unit franchising, multi-unit franchising, cross-franchising, trust, contract

JEL Classification: M13, M31

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Introduction

The literature generally addresses contracts and co-operation separately rather than considering them together within an integrated framework. Yet, an emerging academic debate is questioning whether trust-based relational governance can complement or substitute contract-based formal governance (Herz, Hutzinger, Seferagic, & Windsperger, 2016). Some authors view these two governance mechanisms as complementary, with each one compensating for the limitations of the other (Cavusgil, Deligonul, & Zhang, 2004; Liu, Luo, & Liu, 2009; Luo, 2002; Poppo &

Zenger, 2002). Other researchers, however, view these two mechanisms as substitutes for one another (Adler, 2001; Bradach & Eccles, 1989; Dyer & Singh, 1998; Gulati, 1995; Granovetter, 1985; Uzzi, 1997; Wang, Yeung, & Zhang, 2011).

In franchising, the contract is the basic mechanism used to govern the franchisor-franchisee relationship (Hussain & Windsperger, 2013; Mumdziev & Windsperger, 2011; Windsperger, 2004). In addition to the contract, trust is also used as a governance mechanism (Griessmair, Hussain, & Windsperger, 2014; Gorovaia & Windsperger, 2013) Although these two governance mechanisms are used alongside one another, there is little research into how contracts and trust affect each other (Hendrikse, Hippmann, & Windsperger, 2015) and how they jointly influence franchisor performance (Herz et al., 2016). Hendrikse et al. (2015) state the

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general trust of the franchisor reduce the franchisor's perception of relational risk and hence the necessity to control the network relationships by more complete contract planning, and knowledge-based trust increases information sharing between the partners and hence the knowledge base for specifying more detailed contracts. Herz et al. (2016) state the trust is a facilitator of decentralization in franchise networks, thereby increasing the positive performance effect of decision rights delegation. It therefore remains unclear how the exchange structure (i.e., the contract) and the process (i.e., trust) relate to one other and how this relationship affects franchising performance. In order to contribute theoretically to the debate discussed in the previous paragraph, this paper focuses on how contract and trust jointly influence franchisor performance into one franchise network with different sub-networks.

Franchises, interpreted as organizational networks, organize their franchisees into networks. Regardless of whether a franchise has dual distribution, the franchise network may be divided into different sub-networks (referred to in this paper as *franchisee networks*). Single-unit franchising (SUF), multi-unit franchising (MUF), cross-franchising, and franchising by franchisee-investors who hand over the running of their outlets to other franchisees are the franchisee networks considered in this research. The mechanisms governing these networks are contracts and trust. Contracts govern SUF networks, while contracts and trust govern MUF, cross-franchising, and franchisee-investor networks.

The prediction of company failure is one of the main concerns that the manager of every company must address. In the case of a franchisor, its financial performance depends on the solvency of its franchisee networks. The franchisor can also affect the financial performance and sustainability of its franchisees through the governance mechanisms that control the relationship between franchisor and franchisee. Accordingly, this paper analyzes the impact of formal (contracts) and relational (trust) governance mechanisms on franchisor performance. In order to achieve this aim, an empirical analysis of quantitative data for 113 franchised outlets of a Spanish service sector franchise between 2008 and 2015 has been carried out. A neural network algorithm yielded findings that advance the theory relating to the aforementioned

debate. The findings confirm some of the key proposals of the relational versus formal governance debate. These proposals are corroborated for different franchise network structures. First, in cross-franchising, trust-based relational governance positively affects franchisor performance. Second, in MUF networks, relational governance negatively affects franchisor performance. Third, when the contractual clauses fail to adjust to franchisees' circumstances in SUF networks, formal governance through contracts negatively affects franchisor performance. The findings also contradict other theories such as agency theory, which advocates subjecting franchisees to governance mechanisms to stop opportunistic behavior from harming franchisor performance.

The value of this work is to simultaneously analyze the contract and trust in a franchise chain where its franchisees are organized in different networks such as SUF, MUF, and cross-franchising, and how these mechanisms affect the financial performance of the franchisor. The findings of this study can help franchisors decide on the right combination of governance mechanisms to expand their brands within the home market while achieving optimal performance. Improving franchised outlets' governance contributes to consolidating the franchise as a source of entrepreneurship and creator of employment. Moreover, franchisors could assess the financial situation of its franchisees in an easy and visual way, summarizing a high amount of information in a single visual representation.

The remainder of the paper is organized as follows. Section 2 develops the theoretical framework. Section 3 describes the sample and variables and explains the methodology: the self-organizing maps approach (SOM). Section 4 presents and discusses the results of the SOM analysis. Finally, Section 5 sets forth the conclusions, managerial implications, and limitations.

The franchise: A modern organizational network

The franchise, understood as a hybrid organizational form (Williamson, 1991), can be thought of as an organizational network. This interpretation illustrates and captures the dynamic nature of new corporate forms in the context of today's global economy (Weick, Sutcliffe, & Obstfeld, 2005). Franchising provides a useful labo-

ratory for testing business ideas and complex organizational network processes within which these ideas and processes are embedded (Shane, 1996).

Franchises must have ways of controlling their franchisees, a difficult task given that the franchisor must choose between several ownership strategies within the franchise (Griessmair et al., 2014). Franchisors can exploit the same retail markets using the same business concepts by opening both franchised and company-owned outlets, or by opening franchised outlets only.

Company-owned outlets may be pilot outlets or formerly franchised outlets that the franchisor has since bought. Pilot outlets are used during the franchise's early years while the franchisor tests the business idea. Once the franchise matures, the franchisor purchases the profitable franchised outlets, converting them into company-owned outlets. Franchisors may decide to build different types of networks with their franchisees: single-unit franchising (SUF), multi-unit franchising (MUF), and cross-franchising networks. SUF refers to the "one franchisee, one outlet" format, whereas MUF refers the format whereby franchisors assign multiple outlets to each of their franchisees (Jindal, 2011). Cross-franchising refers to situations whereby franchisees operate two or more outlets with at least one of these outlets belonging to a different franchise brand. While franchisors often require franchisees to sell their products exclusively (i.e., SUF), many franchisors allow their franchisees to sell competing brand lines in their stores (i.e., cross-franchising) (Rajab, Kraus, & Wieseke, 2013). With cross-franchising, the franchisor strives to get franchisees and retailers to promote his or her brand to customers. According to Grünhagen and Mittelstaedt (2005), franchisors may opt for MUF when 1) they need franchisees to work developing markets and these franchisees enter a market because they view the franchise as an investment rather than an entrepreneurship opportunity and 2) franchisees run several outlets belonging to the same chain as an opportunity for personal development and entrepreneurship. Finally, a franchisor may have some franchisees who are investors with establishments run by other franchisees.

Franchisors use only formal mechanisms to govern SUF networks, whereas with MUF, cross-franchising, and franchisee-investor networks, they use both formal and informal governance mechanisms. The franchisor chooses the most efficient governance mechanism based on the franchise network's performance.

Trust and contracts are viewed as two important mechanisms to safeguard against opportunistic behavior and maintain cooperation (Jap & Ganesan, 2000), although other governance mechanisms exist (Rajab et al., 2013, p. 446). Trust and contracts tend to reduce goal incongruence and preference divergences among business partners, and they are widely acknowledged as essential to inter-firm collaboration (Geringer & Hebert, 1989).

Formal governance mechanism: The franchise agreement

Contracts are legal agreements between two or more business partners. They establish the legal and institutional framework and specify the rights, duties, and responsibilities of each party in a relationship (Luo, 2002). An effective contract prescribes suitable behavior by partners in the relationship, as well as protocols for distributing outcomes and penalties for violating the terms of the agreement.

Well-written contracts indicate how to handle any situation that may arise (Lusch & Brown, 1996). They reduce uncertainty regarding potential outcomes and the behavior of the parties and establish formal rules and procedures to govern the relationship. Contracts thereby limit the domain and severity of risk to which the parties of an exchange expose themselves to, while encouraging ongoing cooperation (Poppo & Zenger, 2002).

Contracts are a mechanism for resolving conflicts arising during knowledge transfer. When a dispute arises, the pertinent clause in the contract determines the legal obligations of the parties (Ring & Van de Ven, 1994). Contracts thus reduce costs and risks associated with knowledge exchange and collaboration during the relationship.

Contracts positively affect relationship performance, but the effect over the course of the collaborative process is nonlinear (Wang et al., 2011). When a contract is excessively detailed, it becomes rigid and inflexible, causing monitoring costs to rise. Furthermore, an excessively detailed contract may hinder the exchange of information between the parties of the contract in a limited area because the contract

explicitly states what is and is not permitted. Using highly detailed contracts in a relationship may impede knowledge transfer (particularly tacit knowledge), prevent collaboration between parties, and may even send out signals of mistrust (Ghoshal & Moran, 1996). An overly detailed contract is therefore just as harmful as a contract that lacks detail (Wang et al., 2011). After a certain point, any additional detail in the contract may be detrimental to the relationship between the parties.

The same principles apply to the franchise agreement, which governs the franchisor-franchisee relationship. In SUF networks, the contract is in fact the only governance mechanism. An effective franchise contract prevents opportunistic behavior by both parties through clearly expressed clauses and enables the transfer of explicit knowledge (know-how) from franchisor to franchisee and the flow of tacit knowledge (market knowledge) from franchisee to franchisor. Consequently, the contract improves the performance of the franchise outlet and the franchisor.

In MUF and cross-franchising networks, the contract plays an important role in governing these networks, but trust also acts as a governance mechanism. In all cases, franchisors demonstrate a certain degree of trust in their franchisees. In MUF networks, franchisors show faith in their franchisees by letting them open new outlets. Similarly, in cross-franchising networks, franchisors show faith in their franchisees by letting them work concurrently with other franchise brands, thereby exposing themselves to the risk that these franchisees spend more of their time and effort on competing brands. Finally, franchisors also place their trust in franchisee-investors by letting them hand over the running of their outlets to other franchisees.

Relational governance mechanism: Franchisors' trust in franchisees

Trust can be studied from both sides of the franchisor-franchisee relationship—from the perspective of the franchisee's trust in the franchisor (Grace, Frazer, Weaven, & Dant, 2016) and from the perspective of the franchisor's trust in the franchisee. In this research, trust is considered from the perspective of the franchisor's trust in the franchisee. From this perspective, trust is an important informal governance mechanism that leads to higher relational rents owing to savings in transaction costs and/or an increase in transaction

value (Griessmair et al., 2014). Trust represents the extent to which a firm believes that its exchange partner is honest and/or benevolent (Geysken, Steenkamp, & Kumar, 1998).

A positive experience with a franchisee during the contractual relationship signals high credibility and fairness, thereby increasing the franchisee's reputation and hence the franchisor's trust in each franchisee network. When franchisors have positive experiences with franchisees, they have a high level of trust in their partners and are more likely to select them to become multi-unit franchisees. In this case, the franchisor uses the offer of MUF as a reward strategy to screen franchisees based on their credibility and fairness in prior interactions. Therefore, the franchisee's reputation provides information for the franchisor's selection of new MUF franchisees (Gillis, McEwan, Crook, & Michael, 2011). According to Griessmair et al. (2014) this form of trust is known as knowledge-based trust.

General trust (Yamagishi & Yamagishi, 1994) can also apply to the franchisor-franchisee relationship (Griessmair et al., 2014). Under given exchange hazards, a high level of general trust means the franchisor perceives lower relational risk and hence faces lower agency and monitoring costs. These lower risks and lower costs mean that the franchisor is less likely to control the franchisees. This situation is compatible with the substitutability of formal and relational governance in inter-firm cooperation (Cavusgil et al., 2004; Gulati, 1995; Macaulay, 1963; Nooteboom, Berger, & Noorderhaven, 1997; Wang et al., 2011).

Accordingly, a franchisor with a high level of general trust and knowledge-based trust will tend to build MUF networks (Griessmair et al., 2014) and even cross-franchising networks. With cross-franchising networks, the franchisor's knowledge-based trust leads the franchisor to believe that the franchisee's positive experience with another brand can be transferred to the franchisor's brand. Furthermore, general trust leads franchisors to perceive zero or very low agency and monitoring costs related to the governance of franchisees working with another brand. Hence, with MUF networks, the franchisor's general trust coupled with the positive experience the franchisor has of managing his or her franchisees (knowledge-based trust) means that the franchisor grants franchisees licenses to run new franchise outlets. Finally, franchisors with

a high level of general trust and a low or non-existent level of knowledge-based trust will tend to build franchisee-investor networks whereby investors hand over the running of their outlets to other franchisees.

As previously discussed, the franchisor's level of general trust positively affects franchisees who open additional outlets with different franchisors. Conversely, any franchisor who uses purely contract-based governance with franchisees who work with more than one franchise brand is exposed to the risk of losing the trust of these franchisees (Quinn & Doherty, 2000). Franchisors should therefore refrain from using coercive tactics to influence franchisees because such approaches harm the franchisor-franchisee relationship (Tikoo, 2002; 2005).

Environmental uncertainty must not be overlooked in the franchisor-franchisee relationship. Under high uncertainty pressure, the effect of trust and contracts on business performance may vary (Wang et al., 2011). In a context of uncertainty, it is more difficult to predict and provide for all eventualities. Even though the contract may provide for certain outcomes in the future, these provisions alone are insufficient to ensure the contract adapts to the changing environment throughout the course of the relationship (Luo, 2002).

In a turbulent environment, therefore, trust may offer way of overcoming the disadvantages of an inflexible contract-based governance mechanism. Dyer and Singh (1998) argue that as a self-enforcing safeguard, the presence of trust between business partners based on mutual commitment and shared values is more effective and less costly than creating a contract. Trust provides the flexibility to cope with inevitable uncertainties that arise in a long-term exchange. This flexibility helps mitigate exchange hazards under uncertainty and strengthens bilateral commitment to exchange-specific investments (Luo, 2002). Just as contracts affect relationship performance, the trust between business partners directly affects relationship performance (Liu et al., 2009) and financial performance (Laaksonen, Jarimo, & Kulmala, 2009).

Method, sample and variables

Method
To achieve the aforementioned research aims, the empirical study examined the financial behavior of fran-

chisees operating outlets of a beauty industry franchise in the Spanish market between 2008 and 2015.

From an important franchisor, the empirical data from a sample of 113 franchisees were collected. By means of a Self-Organizing Map (SOM), an unsupervised training algorithm belonging to the artificial neural networks, we create a bi-dimensional map of franchisees based on the franchisees' financial statements. In this map, franchisees with the same financial situation will be placed close allowing the identification of different groups or clusters of franchisees. This first analysis can help the franchisor to identify which franchisees display financial problems or which are the most solvent. Thus, a high volume of information is summarized in a visual way. Then, once the clusters had been detected, we assessed how the different governance mechanisms applied by No+Vello are present in each of the previous established groups.

Self-organizing map (SOM)
Neural networks (NNs) represent one of the most widely used groups of models among all intelligence techniques. NNs have mathematical and algorithmic elements that mimic the biological neural networks of the human nervous system. NNs thus share similarities with the functioning of the human brain (Kohonen, 1990). NNs represent a powerful set of algorithms to find behavioral patterns (Moreno & Olmeda, 2007). Furthermore, they require no assumptions about the statistical distribution of the data, and they are not subject to the limitations of linear specifications, unlike many traditional techniques. NNs have been used extensively in business, management, marketing, production, and finance, among other fields. For example, NNs have been used to measure countries' investment risk, forecast market movements, detect failures of firms, and compute credit scores (Baesens, Gestel, Stepanova, Van den Poel, & Vanthienen, 2005; Becerra-Fernandez, Zanakis, & Walczak, 2002; Falavigna, 2012; Huang, Nakamori, & Wang, 2005). The powerful pattern classification capabilities applications of NNs made us to consider this approach in the paper where the previous applications in the franchising literature, however, are scarce.

An SOM is a kind of neural network. It is a non-supervised network that requires training. The network learns in an unsupervised way because there is
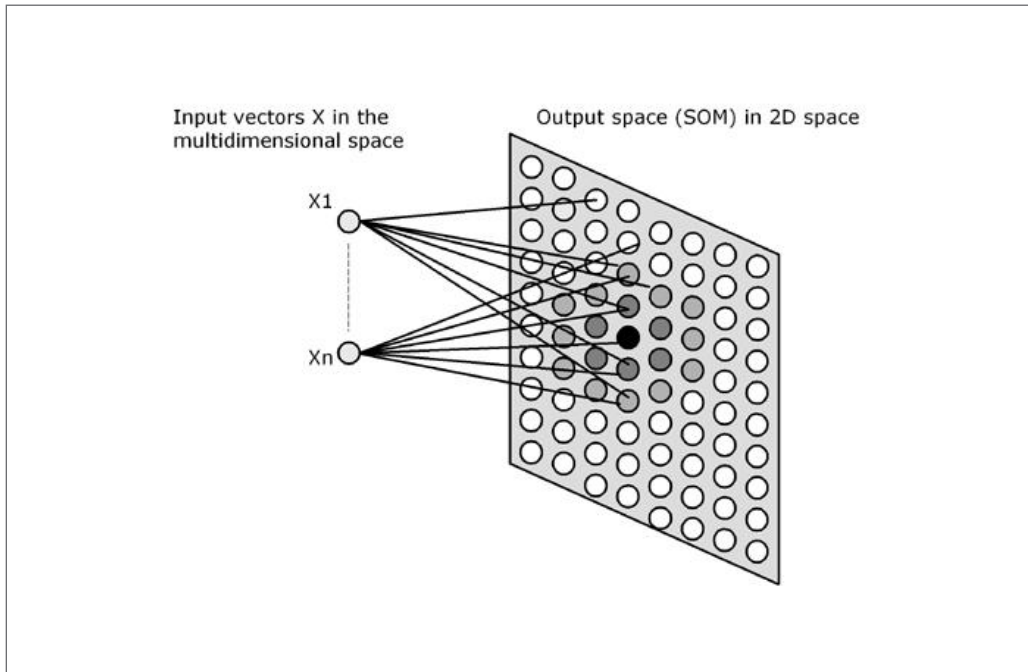
Figure 1. Graphical Representation of SOM
Source: Adapted from "The self-organizing map", by Kohonen (1990). In Procceding of the Institute of Electrical and Electronics Engineers (IEEE) Knowledge and Data Engineering Exchange, 78, 1464-1480.

no objective output. The network on its own discovers common patterns among the inputs. An SOM uses unsupervised competitive learning to form a nonlinear projection of a dataset in a reduced space while maintaining the original topology of the input space. One of the main advantages of SOMs is that they reduce the dimension of the original dataset to a bi-dimensional map in which the spatial configuration is closely linked to the statistical properties of the dataset. This means that regions that are close together in the SOM represent data that are very similar to one another in the original dataset. The converse is also true. Regions that are far apart from one another in the SOM represent data that differ greatly in the original dataset.

Figure 1 shows a graphical representation of an SOM. It can be viewed as a two-dimensional grid in which each cell in the input and output space array has a processing unit, called a neuron. Neurons of the input layer are connected to all the neurons of the output

layer through synaptic weights. Consequently, the information provided by each neuron in the input layer is transmitted to all the neurons in the output layer. All the neurons in the output layer receive the same set of inputs from the input layer.

The objective of a competitive network like an SOM is to find the neuron in the output layer with the most similar synaptic weights to the values of the input layer neurons. To do so, each neuron calculates the difference between the input pattern and the set of synaptic weights of each output neuron. The winning neuron is the one with the smallest Euclidean distance between its weights and the set of inputs. The Euclidean distance is not the only measure to calculate the distance, but it is the most metric. The Euclidean distance between the neurons of the output layer and the vector of input patterns is calculated thus:

$$d_{i,j,(t)} = \sqrt{\sum_{h=1}^{k}\left(W_{i,j,h} - X_k\right)^2}$$

where X_k is the input of the k-input neuron and $d_{i,j,(t)}$ is the Euclidean distance of the (i,j) neuron in t corresponding to the input pattern for a network with i x j neurons in the output layer and k neurons in the input layer. The winning neuron is the one with the shortest Euclidean distance.

After determining the winning neuron, all neurons in the network receive an output equal to 0, except the winning neuron, which receives an output equal to 1. The weights of the winning neuron are later adjusted with a learning rule to proxy these weights to the input pattern that made the neuron win. The neuron whose weights are closest to the input pattern is thus updated so that the weights become even closer. The winning neuron is therefore more likely to win the competition in the next data entry if the input vector is similar, yet it is less likely to win if the input vector is different. Hence, the neuron becomes specialized in this input pattern.

The following equation proxies the weights of the wining neuron and the neighborhood function neurons:

$$W_{j,i,k}(t+1) = W_{j,i,k}(t) + \propto . \left(X_k(t) - W_{j,i,k}(t) \right)$$

where α is the learning ratio, $X_k(t)$ is the input pattern in t and $W_{j,i,k}(t)$ is the synaptic weight that connects the k input with the neuron (j,i) in t. The neighborhood function makes it possible to update the weights of the winning neuron and the neighbor neurons to localize similar patterns too. The neighborhood radius decreases with the number of iterations of the model to achieve a better specialization of each neuron.

The SOM model converges according to Gladyshev's theorem (Lo, Yu, & Bavarian, 1993). At the end of the training process, the SOM makes it possible to visualize the multivariate dataset in a two-dimensional graph, helping researchers infer topological relationships in the original dataset.

The model

The SOM Toolbox for MATLAB (Vesanto, Himberg, Alhoniemi, & Parhankangas, 2000) was used to train the SOM where the input data is the financial information for each of the different franchisees. Some parameters must be defined when training an SOM. Setting the size of the map or the number of units or neurons

in the SOM is important. A common rule of thumb in the SOM Toolbox defines the number of units in the map as 5√N, where N is the number of observations in the dataset. Accordingly, the map in this study consisted of 54 units. We used a hexagonal grid sheet structure with the following default ratio for the side lengths: √(λ_1 / λ_2), where λ_1and λ_2 are the two largest eigenvalues of the autocorrelation matrix. The map units are connected to neighboring units on the grid by a Gaussian neighborhood function.

The data were normalized using logistic normalization (Pyle, 1999). Scaling the variables is especially important in SOM because the algorithm uses the Euclidean distance to measure the distances between vectors.

After it has been trained, the SOM creates a set of prototypes in a two-dimensional grid representing the original data. The SOM preserves the original topology, reducing data complexity. The aforementioned map with 54 units is then clustered into several groups of neurons with similar prototypes or low distances among the neurons. Detecting groups in the map helps assess patterns among the franchisees belonging to each group. The clustering process of the SOM can be performed quantitatively using a clustering technique taking into consideration the codebook or the final weights once the map has been trained. We used the K-means algorithm to cluster our trained map. K-means is one of the most well-known unsupervised algorithms because it is robust and easy to implement. Nevertheless, K-means requires the desired number of clusters to be established beforehand. We therefore ran the K-means algorithm nine times, setting the desired number of clusters each time to a different integer from 2 to 10. The Davies-Bouldin index (Davies & Bouldin, 1979) provided an indication of the best solution. The Davies-Bouldin index is a function of the ratio of within cluster variation to between cluster variation. The smaller the Davies-Bouldin index, the better the partition.

Sample and variables

This section provides an overview of the franchisor and the franchisee networks used in this paper. This section also describes the financial variables related to franchised outlets and the fees established in the franchise agreement.

The franchisor and franchisee networks: Data sample

The sector analyzed in this study is the Spanish beauty industry. A franchisor in this sector was chosen for three reasons. First, the franchisor uses both formal governance mechanisms (i.e., a contract) and a combination of formal and relational (i.e., trust) governance mechanisms because of the variety of franchisee networks within the franchise. Second, availability of financial data was good, with financial data available for 51.60% of the franchisees in the network. This constitutes a good sample size considering that the availability of financial data is one of the main limitations when the unit of analysis is the franchisee. Third, the chosen franchisor runs a major national and international franchise in the beauty sector. No+Vello is the world leader in intense pulsed light (IPL) treatments. The brand started in Spain in 2007 and registered as a franchise in 2008. No+Vello is now present in 13 countries and has more than 1,000 outlets. Spain has more outlets than any other country (219).

At the time of the study, the franchise had the following franchisee networks: an SUF network with 154 franchisees who ran only one outlet; an MUF network with 60 franchisees who ran more than one outlet each, 2 of whom ran outlets for other brands from the fashion and sport sector; a cross-franchising network with 5 No+Vello franchisees who concurrently ran other franchised outlets for other brands from the fashion, hospitality, sport, and beauty sectors; and, finally, 1 franchisee who handed over the running of his or her 3 outlets to another No+Vello franchisee. According to the CEO of the brand, the latter case was exceptional. The situation arose because of the trust between the franchisees in question. The franchisee who handed over the running of his or her outlets was a franchisee-investor who lacked the time to run the outlets. This franchisee therefore requested assistance from another No+Vello franchisee, whom the franchisee trusted, to run the three outlets. The franchisee-investor payed a monthly fee to the franchisee in charge of running the outlets. The franchisor had no company-owned outlets, so we were unable to analyze the effectiveness of the dual distribution.

The franchisor applies only formal governance mechanisms to the SUF network, whereas both formal and relational governance mechanisms are applied to the MUF, cross-franchising, and franchisee-investor networks. The sample comprised 113 franchisees belonging to the aforementioned franchisee networks. The sample was chosen based on the availability of financial and contractual data for the franchised outlets. The SABI database provided the financial data, while the franchisor provided the contractual data. All 113 outlets were operating in Spain under formal and relational governance mechanisms. The franchise had franchised outlets in other countries, but no such outlets were included in the sample. Therefore, in addition to applying formal governance mechanisms, the franchise may also use relational mechanisms. This is because the specific know-how of the franchisor is tacit, so the franchise contract is incomplete, forcing the franchisor to delegate decision rights to the franchisee on account of the intangibility of the franchisor's know-how.

Description of financial and contractual variables

The literature offers different methods of calculating performance (Kacker, Dant, Ermerson, & Couglan, 2016). In this study, seven financial ratios were calculated using the data available for 113 franchisees between 2008 and 2015. Although the database identification numbers were available for other No+Vello franchisees, the financial data were not. Many franchisees are self-employed, so they are not obliged to file their financial statements with the regulatory authorities. Table 1 gives a description of the most common ratios used in the literature to profile a company's finances and predict bankruptcies.

In addition to the financial data obtained from the SABI database, contractual data regarding franchisees was gathered from the franchisor (see Table 2). The additional data consisted of the following variables: initial investment, franchise fee, royalties, advertising fees, franchised outlet age, and province.

Half of the initial investment may be financed by the franchisor. The franchisee must return the amount within three years. The royalties for use of the brand, technical assistance, marketing, and training is a fixed amount that does not vary with sales. This amount has been updated regularly since 2014. Because the franchisor demands a fixed amount in royalties, he or she does not seem to safeguard against potential opportunistic behavior by franchisees. This feature suggests

Table 1. Financial Variables of Franchisees

Variable	Description
Earnings before interest and tax (EBIT) / financial expenses	Measures the franchisee's ability to make a profit. High ratios indicate greater solvency, taking into account the franchisee's debt structure.
Financial expenses / total assets	Measures the franchisee's level of debt. High values indicate high debt levels or high financing costs.
Equity / total assets	Measures the franchisee's leverage. High values indicate that most assets belong to the franchisee, not the creditors.
Cash and liquid assets / total assets	Measures the franchisee's ability to make short-term payment commitments.
Sales / current assets	Measures the franchisee's ability to generate sales revenues.
Return on total assets (%) (ROA).	Measures the ability of the assets of the franchisee's business to generate income for themselves.
Return on equity (%) (ROE).	Measures the return on the franchisee's own funds or the ability of the franchisee's business to repay the franchisee for any investment made.

Table 2. Contractual Variables of No+Vello's Franchisees

Variable	Definition
Initial investment	Initial amount paid by the franchisee to the franchisor to open a franchised outlet.
Franchise fee	The fixed up-front fee paid by the franchisee to the franchisor.
Royalties	The revenues paid in royalties by the franchisee to the franchisor.
Advertising fees	% paid for advertising campaigns led by the franchisor.
Franchised outlet age	Difference between the year of the financial statements and the date the outlet was opened.
Province	The Spanish province where the franchisee operates.

that the franchisor has general trust in the franchisees and that the contract is in some sense inflexible. The year that each outlet opened provides an indication of how old the outlet is and how well established in the marketplace it is. Table 3 presents the results of a preliminary descriptive analysis of the financial ratios for the sample to identify any anomalies in the data.

Discussion of results

Figure 2 shows the SOM and the clusters resulting from the K-means cluster analysis. As per the values for the Davies-Bouldin index, the optimal number of franchisee groups was three. These groups were labelled from 1 to 3 according to the financial profile of the franchisees in each group. Group 1 comprised the

Table 3. Descriptive Analysis

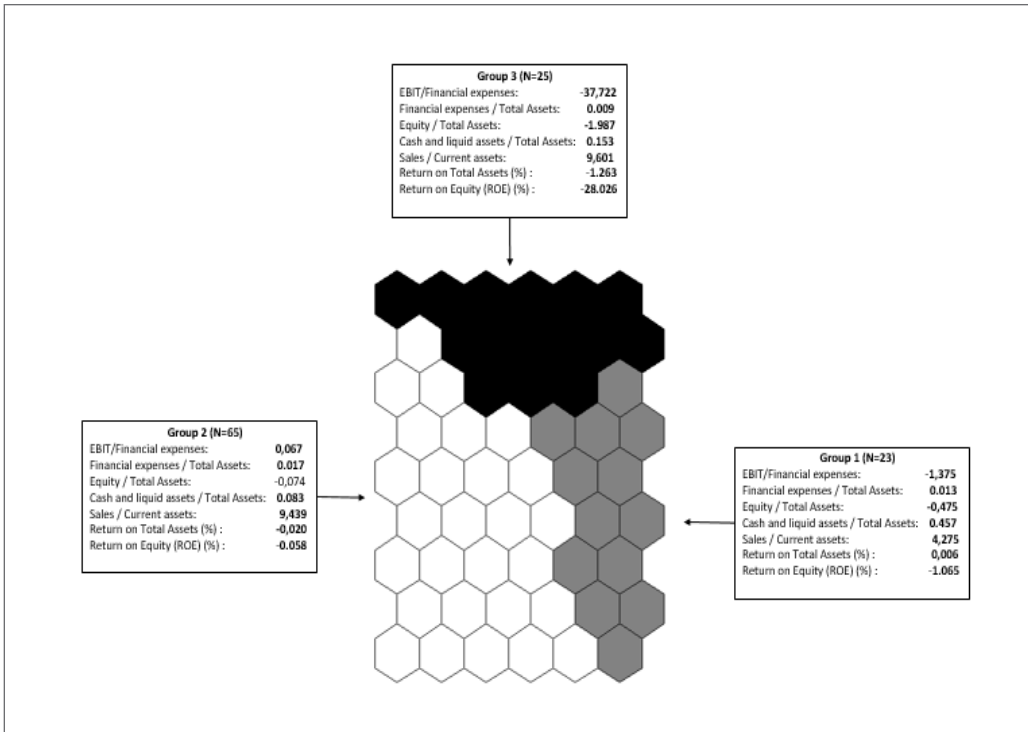| Financial Ratio	Mean	Std. Dev.	Min.	Max.	5th Pctl.	Lower Qtl.	Median	Upper Qtl.	95th Pctl.
EBIT / Financial expenses	-7.94	20.07	-109.82	25.01	-52.91	-8.46	-0.78	1.54	9.28
Financial expenses / Total assets	0.02	0.02	0.00	0.17	0.00	0.00	0.01	0.02	0.05
Equity / Total assets	-0.55	2.77	-18.14	0.96	-2.34	-0.30	0.05	0.27	0.54
Cash and liquid assets / Total assets	0.18	0.19	0.00	0.86	0.01	0.05	0.10	0.26	0.59
Sales / Current assets	8.33	9.17	0.26	55.75	0.62	3.15	4.63	10.45	28.08
Return on total assets (%) (ROA)	-0.27	102	-7.92	1.73	-1.05	-0.20	-0.02	0.02	0.15
Return on equity (ROE) (%)	-6.27	15.49	-109.90	8.89	-40.03	-5.32	-0.07	0.15	2.08

Figure 2. Franchisor SOM

Table 4. Average Values in Ratios and ANOVA Analysis by Group

Variables	Group 1	Group 2	Group 3	F-Stat	P-value
EBIT / Financial expenses	-1.38	0.07	-37.72	72.52	0.00
Financial expenses / Total assets	0.01	0.02	0.01	1.25	0.29
Equity / Total assets	-0.48	-0.07	-1.99	4.30	0.02
Cash + liquid assets / Total assets	0.46	0.08	0.15	99.33	0.00
Sales / Current assets	4.28	9.44	9.60	3.27	0.04
Return on total assets (%) (ROA)	0.01	-0.02	-1.26	17.88	0.00
Return on equity (%) (ROE)	-1.07	-0.58	-28.03	56.89	0.00

most solvent franchisees, whereas Group 3 comprised the franchisees in the weakest economic situation. This classification was based on the average values of the ratios for the franchisees in each group.

Table 4 shows the same mean values as in Figure 2. Table 4 also presents the results of the ANOVA, which was conducted to identify differences between clusters in terms of the mean values of the financial ratios. All ratios, except financial expenses/total assets (p-value > 0.05), were significantly different across groups for alpha = 0.05.

To better describe the characteristics of each group, Figure 3 shows the component planes (or heat maps). These maps show the values of one variable in each map unit. Blue colors represent low values, and red colors represent high values of the ratios. These maps visually represent the main characteristics of the groups. Moreover, by comparing the pattern of shaded map cells in each map, it is possible to analyze the relationships between variables.

Comparing the cells representing Group 1 in Figure 2 (i.e., the right-hand cells of the map) with the cells in the component planes yielded information regarding the characteristics of franchisees in Group 1. For instance, franchisees in Group 1 had high values for the ratios EBIT to financial expenses, equity to total assets, ROA, and ROE. This group of franchisees had the most profitable businesses. This group of franchisees also had good liquidity in terms of the ratio of cash and liquid assets to total assets. This group comprised 22.13% of the franchisees in the sample.

The cells representing Group 2 (i.e., the left-hand cells of the map) had lower values than the cells representing Group 1 for the aforementioned ratios in Table 4. One of the main differences among the three groups in Table 4 can be found in the financial expenses to total assets ratio. Franchisees in Group 2 had high levels of debt, which consumes a considerable amount of their businesses' total revenue. This group comprised 57.52% of the sample.

Finally, the franchisees in Group 3 had solvency problems. Some franchisees in Group 3 had negative net profits, high levels of debt, and poor liquidity. Despite these problems, franchisees in Group 3 had high sales to current assets ratios. This ratio measures the efficiency with which the franchisees use their assets to generate sales revenue. Businesses with low profit margins often have high values for this ratio usually because of strong price competition. This group comprised 20.35% of the sample.

As it can be seen, SOM provides a useful tool for a franchisor in order to assess in the solvency or the performance of its franchisees in a visual way. After analyzing the financial behavior of the franchisees, we analyzed whether the patterns we observed were linked to any one of the franchise networks described in the method section. Table 5 shows that most SUF franchisees were in Group 2. High debt was the main characteristic of these franchisees. Franchisees in the MUF network, however, were in the worst financial situation (Group 3). Franchisees in the cross-franchising network had the best financial profile (Group 1).
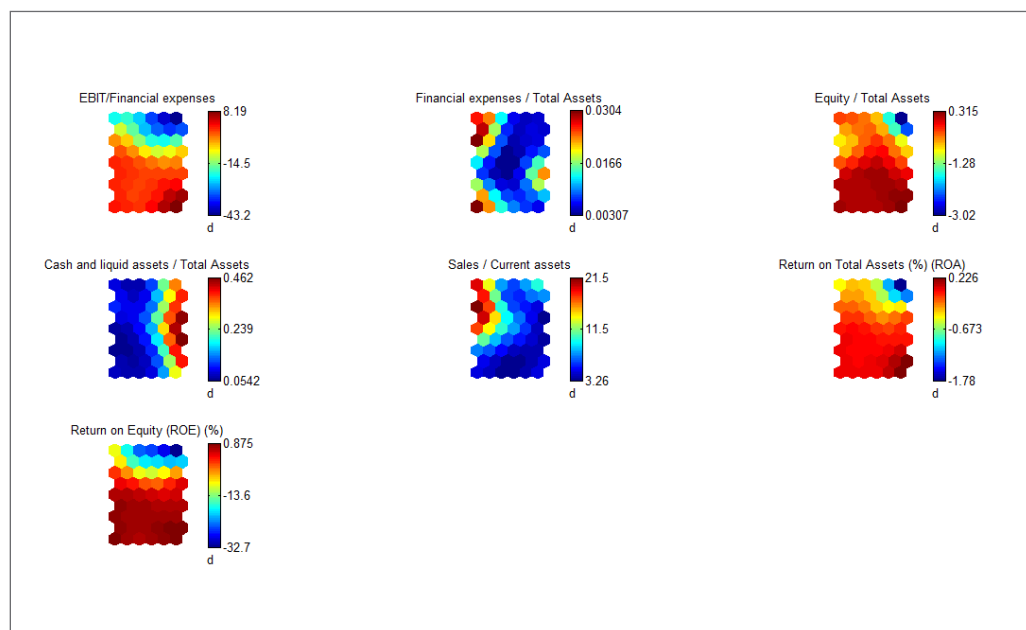
Figure 3. SOM by Variables

To analyze the effect of governance mechanisms on franchisees' financial performance, we calculated the means of each contractual variable for each group of franchisees (see Table 6) and for each type of network (see Table 7). According to the data in Table 6, the age of the franchised outlet seems to determine which group each franchisee belongs to. The longer franchisees had been operating franchised outlets, the healthier their financial profile.

Table 7 shows that the age of the franchised outlet also determines which network the franchisee belongs to. Franchisees in the SUF network had the franchised outlets that had been operating for longest. The SUF network is the most traditional and most common type of franchise network. The franchisor started with this franchisee network before building other franchisee networks governed by relational governance mechanisms. SUF franchisees had, on average, made the greatest initial investment and paid the highest advertising fees. The contractual differences between the SUF and MUF networks were small, the only difference being in terms of royalties, which were higher in the MUF network.

The greatest differences were observed for the cross-franchising network. The franchisor seems to impose less rigorous contract demands than those imposed upon franchisees in the other two franchisee networks. The fixed up-front fee was omitted from Table 7 because, unlike the other fees, it did not change between 2008 and 2015.

The time frame of the study (2008–2015) spanned the period during which the effects of the global economic downturn were causing widespread uncertainty in markets around the world (see Tables 8 and 9). Between 2008 and 2009, most franchisees fell into Group 2. Franchisees in Group 2 (SUF) had large debt levels. At that time, these franchisees had not yet been able to recover the large investments demanded by the franchisor because the franchise had only just been established. Only 14.29% of the franchisees were in the weakest group. Over the next four years, however, the effects of the economic crisis in Spain saw many franchisees move from Group 1 (mainly cross franchising) to Group 2 in 2010 and 2011. The economic situation for the franchisees worsened in 2012 and 2013, with the proportion of franchisees in Group 3 reaching its

Table 5. Franchisees' Financial Profile by Franchise Network

Network	Group 1	Group 2	Group 3
SUF	19.12%	70.59%	10.29%
MUF	22.86%	34.29%	42.86%
CROSS-FRANCHISING	40.00%	50.00%	10.00%

Table 6. Contractual Variables by Franchisee Group

Group	Initial investment (€)	Royalties (€)	Franchise fee (€)	Franchisee outlet age (years)
1	12715.38	330.00	1907.32	5.40
2	9600.00	343.86	1931.84	3.20
3	10304.35	342.16	2208.17	2.52

Table 7. Contractual Data by Type of Franchise Network

Network	Initial Investment (€)	Royalties (€)	Advertising fee (€)	Franchisee outlet age (years)
SUF	12617.65	330.67	2013.76	5.28
MUF	10757.14	346.13	2001.26	3.00
CROSS-FRANCHISING	6900.00	331.58	1608.00	2.50

Table 8. Evolution of Franchisees' Financial Profile (2008–2015)

Group/Period	2008–2009	2010–2011	2012–2013	2014–2015
Group 1	35.71%	17.24%	18.92%	26.67%
Group 2	50.00%	72.41%	54.05%	46.67%
Group 3	14.29%	10.34%	27.03%	26.67%

Table 9. Matrix of Migration between Groups

Group T \ Group T+1	Group 1	Group 2	Group 3
Group 1	73.68%	21.05%	5.26%
Group 2	2.04%	89.80%	8.16%
Group 3	12.50%	25.00%	62.50%

Table 10. Geographical Distribution of Franchisees by Group

Province	Group 1	Group 2	Group 3
Almeria	4	0	0
Badajoz	0	4	1
Barcelona	5	0	5
Cadiz	0	1	5
Ciudad Real	0	6	0
Girona	3	10	1
Gipuzkoa	3	0	0
Huelva	0	2	1
Balearic Islands	0	12	0
Las Palmas	0	0	1
Madrid	3	16	7
Malaga	0	0	2
Tenerife	5	0	0
Seville	2	9	0
Zaragoza	0	5	0
Total	25	65	23

peak (27.03%). Between 2014 and 2015, the economic situation improved, and the number of franchisees in Groups 1 and 2 rose accordingly. At this time, the franchisor updated some of the financial clauses applicable to the franchisees.

Table 9 shows the results of a complementary analysis. The table provides a matrix of migration among groups. This table indicates one-year group migration probabilities based upon available data. For example, a franchisee in Group 1 had a 21.05% chance of moving to Group 2 after one year, whereas 73.69% of the franchisees in Group 1 remained in the same group the next year. Group 2 was the most stable group, with 89.80% of franchisees remaining in that group. The percentage of franchisees remaining in Group 3 was 62.50%.

We also analyzed whether competition between franchisees located in the same province could have affected the franchisees' financial profile (see Table 10).

Madrid accounted for almost a quarter of No+Vello's franchised outlets. The next most populous provinces in terms of number of No+Vello franchised outlets were Gerona, the Balearic Islands, Seville, and Barcelona, although all of these provinces had considerably fewer outlets than Madrid. Girona had the highest proportion of profitable outlets, and Madrid had the lowest. In some provinces such as Almeria, Gipuzkoa, and Tenerife, all outlets were profitable. In contrast, all outlets were financially weak in Malaga, Cadiz, and Las Palmas. Nevertheless, the location of the franchisees did not appear to determine their financial profile.

Each of the sampled franchisees had one of three financial profiles, summarized below.

1. The franchisees with greatest solvency, profitability, and liquidity mostly belonged to the crossfranchising network, although some belonged to the SUF network. The analysis revealed that these

franchisees were efficient because they had the lowest employee cost as a percentage of operating revenues. Franchisees from the cross-franchising network were the newest members of the franchise and those who paid the smallest initial investment, royalties, and advertising fees. Although the small number of franchisees in Group 1 with just one outlet (SUF) paid more in initial investment, royalties, and advertising fees, by the time the study took place, they had had enough time to recover their investment and thus establish their businesses in the marketplace. They were located mainly in coastal provinces.

2. The franchisees with the highest debt levels were mostly in the SUF network. These franchise holders had been with the franchise less time than the other franchisees and had been required to pay the highest amounts in initial investment and advertising fees without recovering the investment. Franchisees in Group 2 were located in both inland and coastal provinces. This profile became more prevalent between 2010 and 2011 among franchisees who had previously run profitable operations. Franchisees in this group were the least likely to improve or worsen financially.

3. The franchisees with the lowest levels of solvency, profitability, and liquidity belonged to the MUF network. Large provinces had a high proportion of outlets in such a situation. The main differentiating characteristic of the franchisees with this profile was a high degree of efficiency in the use of assets to generate sales revenues. This efficiency is common among retail businesses because of heavy price competition, which leads to high volume and low margins. These were the most likely franchisees to improve their financial situation.

Conclusions, practical implications, and limitations of the study

The right application of contract-based governance mechanisms and/or trust-based governance mechanisms affects franchisee performance and consequently franchisor performance. A self-organizing map (SOM) visually classified franchisees into three groups. This classification is potentially highly useful for franchisors. Having many franchisees in the financially weakest group may damage the franchisor's solvency and future profitability. The franchisor can use this information to establish a governance policy with each franchisee to guarantee steady growth for both franchisor and franchisee.

The main conclusions are as follows. Franchisees in the MUF network were the least profitable. The financial behavior of these franchise holders negatively affected franchisor performance. Opening a second outlet soon after the first gave the franchisee insufficient time to become familiar with the brand and market, acquire experience, and establish the business. The franchisor had an excess of knowledge-based trust in MUF franchisees. When deciding whether to let a franchisee open a new outlet, the franchisor based his or her decision on knowledge acquired at the time the franchisee was originally selected. The franchisor failed to continue gathering knowledge about the franchisee as the relationship developed. Consistent with Gillis et al.'s (2011) findings, franchisees' reputations provide basic information to help franchisors assign new outlets to franchisees. These findings may counteract franchisors' tendency toward MUF based solely on the positive influence of knowledge-based trust in franchisees (Griessmair et al., 2014).

Franchise holders in the cross-franchising network had the best financial behavior, exerting a positive influence on franchisor performance. The franchisor's trust as an informal governance mechanism led to this financial behavior by franchise holders in the cross-franchising network. These franchisees were the least controlled by formal mechanisms (i.e., contracts) because the franchise agreement demanded a smaller investment than that required of other franchisees. Among these franchisees, general trust had a greater weight than knowledge-based trust because they had been operating franchised outlets for the shortest time, yet they had been allowed to open outlets with another brand despite the moral hazard involved.

Finally, most SUF franchisees ran financially inefficient outlets, thereby negatively affecting franchisor performance. The use of a contract as the only mechanism of formal governance applied by the franchisor to govern the relationship led to this financial behavior by SUF franchisees. The franchisor failed to make the financial clauses of the SUF agreement flexible enough and did not update the clauses when the economic context changed. The franchisor seems not

to have modified the contract in accordance with the franchisees' environment despite the recent period of economic uncertainty in Spain. Using the contract as the only governance mechanism does not positively affect the franchisees' performance—and consequently franchisor performance—unless the contract is tailored to each franchisee's situation. Hence, a contract alone is insufficient to make franchised outlets in an SUF network profitable. An SUF network would be profitable, however, if some relational governance mechanism were applied to foster the relationship and were tailored to the situation of each franchisee. Finally, environmental uncertainty affected the financial behavior of the franchisees and thus of the franchisor; the location of the outlets, their size, and the local weather did not.

These conclusions have general implications for franchisors with franchisees spread across several franchisee networks. The SOM method trained a model that allows the franchisor to predict the financial behavior of potential franchisees based on the profiles described in this paper, thereby minimizing the scope for error when selecting franchisees. Franchisors can visually analyze the financial status of their franchisees and make the contract more flexible, modifying clauses to adapt to each franchisee's situation. Franchisors can thus choose whether to use contracts or trust (or a combination) as the governance mechanism depending on any potential franchisee's profile. The main practical implications of the study are as follows. The franchisor should prevent franchisees in the MUF network from opening new outlets in the same city and competing for the existing outlet's customers. Because the same franchisee operates both outlets, he or she has no incentive to act aggressively and gain market share. In addition, the franchisor should not let MUF franchisees open new outlets simply because their existing outlets are profitable. It is also advisable to have a good knowledge of other personal characteristics of the franchisee.

This study has limitations. The first limitation concerns the data source used to gather the financial data on the franchisees, who are organized into several different franchisee networks. For instance, we encountered difficulties in gathering financial data for franchisee-investors who do not operate their own outlets. Furthermore, many franchisees were self-employed,

so they were not required to file their financial statements with the regulatory authorities. Second, the study examined only one franchisor's relationship with franchisees. The study could be enriched by considering another franchisor-franchisee relationship in a different sector. This limitation nonetheless presents an opportunity for further research.

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