The impact of franchisor signaling on entrepreneurship in emerging markets

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Abstract:

This article contributes to the body of knowledge on emerging economy entrepreneurship in terms of franchisor entry and expansion. The study shows that franchisors in Brazil use strategic signaling to attract potential franchisees and expand their network, in contrast with previous results regarding developed countries. Strategic signaling is associated with the context of rapid evolution, uncertainty, and institutional voids characterizing emerging economies, thus resulting in exacerbated information asymmetries. Rather than the network organizational form, Brazilian franchisors should use the contract design, more precisely the royalty rate, as a signaling device.

Keywords: new business development | emerging market economies | franchising | signaling | Brazil

Article:

1. Introduction

This empirical research addresses information asymmetries in the field of strategic entrepreneurship. In particular, we focus on franchising in Brazil. Strategic entrepreneurship research has examined firms' decision making and how their entrepreneurial behaviors influence performance (Sapienza, Autio, George, & Zahra, 2006). Scholars have called for further research on entrepreneurship in emerging economies, arguing that entrepreneurship may take different paths in these countries to enhance performance through the growth process (Bruton et al., 2008, Bruton et al., 2013, Chacar and Vissa, 2005, Lévesque and Shepherd, 2004, Yamakawa et al., 2008). Kiss, Danis, and Cavusgil (2012) identify Latin America as an under-researched area in entrepreneurship.

Studies have focused on start-ups and established firms in the growth process as well as institutional characteristics (e.g., Bjørnskov and Foss, 2013, Manolova et al., 2008). However, research has mostly overlooked franchising as a driver for growth in emerging market economies (Alon and Welsh, 2001, Bitti et al., 2019, Fadairo and Lanchimba, 2017, Lafontaine and Oxley, 2004, Michael, 2014, Welsh and Alon, 2001). Yet emerging markets offer the most dynamic potential for long-term growth to businesses, in general, and to franchisors, in particular (Baena & Cerviño, 2015).

Given its structure and intrinsic strategic entrepreneurial behavioral aspects, franchising represents a rich context for investigation (e.g., Combs et al., 2011, González-Díaz and Solis-Rodriguez, 2012). Franchising comprises two legally distinct parties regulated by the franchise agreement: the franchisor, as the holder of both brand and business management knowledge as a corporation, and franchisees, as economic agents. The literature well establishes that franchisees and franchisors are the two types of entrepreneurs necessary to make the franchise successful and significantly contribute to entrepreneurial growth (Barthélemy, 2011, Cochet et al., 2007, Combs et al., 2011, Dant, 2008, Gillis et al., 2020, Welsh, 2002). Franchisors offer a business opportunity that they have taken from idea, to opportunity, to action to establish the franchise. Franchisees are also entrepreneurs who purchase the rights to replicate the business opportunity from the franchisor in a new market or territory. A small number of studies have focused on franchisees from the entrepreneur perspective (e.g., Dickey, 2003, Frazer and Winzar, 2005, Grünhagen and Dorsch, 2003, Grünhagen and Mittelstaedt, 2005, Hoy et al., 2000, Sardy and Alon, 2007, Weaven and Frazer, 2003, Weaven et al., 2009); however, most studies have focused on the franchisor.

Franchisors often select franchisees with strong profiles (e.g., Watson, Dada, Grünhagen, & Wollan, 2016), while future franchisees aim to identify franchisors with a profitable brand and business concept. Critical to prospective franchisees is survival, profit, and growth. In emerging markets with home-grown franchises, reputation as a type of resource or intangible asset (Sieger, Zellweger, Nason, & Clinton, 2011) might be a less important factor for future franchisees in selection decisions. We focus on this specific aspect of franchise profitability disclosure still under-explored in the literature because it represents the most significant challenge for potential franchisees under conditions of unknown brands and business systems.

Indeed, the impact of the franchisor's failure on its franchisees can be catastrophic. Financial performance representations might be a solution because they allow a franchisor to provide information to potential franchisees about its actual and anticipated financial performance. Yet, as Buchan (2010) discusses, these representations are often not reliable information, and they are not part of the franchise agreement; in other words, they are not obligatory. Moreover, many franchisors may be instructed by their advisers not to give projections, especially for a new site, because of potential risk. For this reason, financial performance is often not written down, and during the verbal negotiation stage, franchisors may discuss figures that can mislead franchisees.

Potential franchisees' search for a good business concept is, to some extent, like any other entrepreneurial search for a business idea. However, franchising represents a special case because entrepreneurs seek franchises as a known concept rather than pursuing their own ideas. This specific context raises the issue of strategic signaling.

To the best of our knowledge, our research is the first to examine franchisor strategic signaling in an emerging market economy. We assume that such economies are characterized by rapid evolution and that emergence involves exacerbated information asymmetries. For this reason, despite little evidence in developed markets, we defend the idea and provide evidence that signaling theory is particularly appropriate for emerging economy entrepreneurship. This argument is consistent with that of Michael (2014), who discusses the main differences between franchising in developed countries and franchising in Latin America.

Thus, with regard to strategic information in franchising decisions, we address two research questions: Do franchisors in emerging markets develop signaling strategies? and If so, in what form do they do so? To answer these questions, we organize the rest of the article as follows: we begin by establishing the analytical framework and hypotheses. Then, we present the Brazilian context and empirical specifications, after which we highlight the estimation strategy and provide the results. Finally, we discuss the limitations and implications of this research for entrepreneurship and conclude.

2. Theory and hypotheses

Literature has long identified information asymmetry as a central feature of the franchisor–franchisee relationship. Indeed, theories, especially agency moral-hazard theory (e.g., Jensen and Meckling, 1976, Sashi and Karuppur, 2002, Shane, 1996), have emphasized this information asymmetry when franchisor and franchisee interests are either not properly aligned or simply divergent. Transaction cost economics also focuses on information asymmetry (e.g., Arrow, 1962, Sashi and Karuppur, 2002) and coordination problems. In this research, as our focus is on the initial attraction of franchisees to a business idea, signaling theory provides a relevant analytical context to assess the contractual and organizational choices of new franchisors to attract franchisees.

Introduced by Spence (1973), signaling theory deals with situations of asymmetry with hidden information (adverse selection vs. moral hazard). In his classic article, he examines the labor market, specifically when employers do not know the productivity level of potential employees to be hired. Thus, employers face a problem of asymmetric information about the quality of future employees. The level of education acts as a signal for such quality; however, potential workers with a high education level but a low productivity level are costly.

According to Connelly, Certo, Ireland, and Reutzel (2011), three conditions are required to obtain an effective signaling mechanism: (1) receivers know what information must be searched for (the signal); (2) the signal is clear, costless, and easily observable; and (3) for other parties, using a signaling device is costly, especially for low-quality parties. Thus, signalers are only high-quality parties. The result is a separating equilibrium based on these differentiated behaviors. Therefore, under asymmetric information, a signal is a pertinent piece of information about signalers that allows receivers to distinguish “high-quality parties” from the others, before deciding.

Applied to entrepreneurship, and more precisely to franchising, the framework is as follows: entrepreneurs (i.e., potential franchisees) search for information related to their decision to invest and their choice of a franchise system. In the case of a new brand and business concept, the franchisor is the informed party that has more information than potential franchisees about the quality/profitability of its franchise system. In other words, even new franchisors with no established reputation hold private information about the value of their brand and business concept. Indeed, they can better predict the profitability of their concept than potential franchisees. Success measured in terms of expansion of the franchise network depends on the capacity to attract new franchisees, which is related to the profitability of the concept. In this

context, franchisors with a profitable concept, which we call “P-type franchisors,” can afford to signal their type to attract new franchisees more efficiently and to develop their network. Conversely, franchisors with an unprofitable concept, which we call “U-type franchisors,” cannot afford to send a signal because doing so is too costly.[1] On this basis, potential franchisees can distinguish P-type from U-type franchisors.

Few studies have addressed adverse selection (hidden information) and related signaling as a strategic entrepreneurship behavior. The model Gallini and Lutz (1992) propose is the theoretical reference to assess signaling in franchising. This model demonstrates that contractual and organizational devices can act as signal mechanisms sent to potential franchisees. A wealth of empirical literature based on this theoretical model has dealt with signaling in franchising. For example, using Tobit regressions, Lafontaine (1993) estimates the royalty rate, the up-front fee, and the proportion of company-owned outlets as signaling devices. The main regressor is the franchisor's type, proxied by the growth rate of the number of outlets in the network for five years. The empirical results suggest that, compared with incentives theory, signaling theory does not provide adequate explanations for strategic choices in franchising. In a similar vein, examining the changes in ownership patterns of franchise networks as they mature, Dant and Kaufmann (2003) show that the predictions from signaling theory are not consistent with their U.S. panel data from the fast-food industry. They compare three alternative theories and provide evidence for both resource acquisition theory and tapered integration theory, while their empirical results reject the explanation derived from signaling theory. However, Sadeh and Kacker (2018) find empirical support for the signaling argument. They estimate a logit model for the financial performance representations of the franchisor, using a multi-industry U.S. panel dataset, and find results consistent with previous studies (e.g., Kacker et al., 2016, Lucia-Palacios et al., 2014, Michael, 2009, Shane et al., 2006). Thus, prior studies are inconclusive about strategic signaling in franchising; yet they have only investigated developed countries. Our research supports arguments that contextual characteristics should be considered in distinct settings (i.e., emerging economies) (Bruton et al., 2008, Johns, 2006, Reuber and Fisher, 2005, Xu and Meyers, 2013, Zahra, 2007).

Building on this background literature, we depict the timeline of events in Fig. 1. In period 1, the franchisor learns about its type, that is, about the profitability of its business concept. This assumption means that business concept profitability is exogenous to our analysis, which begins with the allocation of the franchisor type. Information is asymmetric, as the franchisor knows about its type (P-type vs. U-type) but not the potential franchisee. In period 2, the P-type franchisor sends a signal to the prospective franchisee, transmitting information about its type through contractual terms or network organizational forms. The franchise contract is a “take-it” or “leave-it” agreement. This assumption means that the contract and the network organizational form are exclusively designed by the franchisor (i.e., we assume that there is no interaction with the potential franchisee during the design process). The only choice of the franchisee is whether it will accept the contract and enter the network. Finally, in period 2, the franchisor's type is common knowledge, characterizing a mature franchise system. Our study focuses on period 1.

[1] In other words, the signaling strategy leads to a separating equilibrium with two behaviors distinguishing P-type from U-type franchisors.

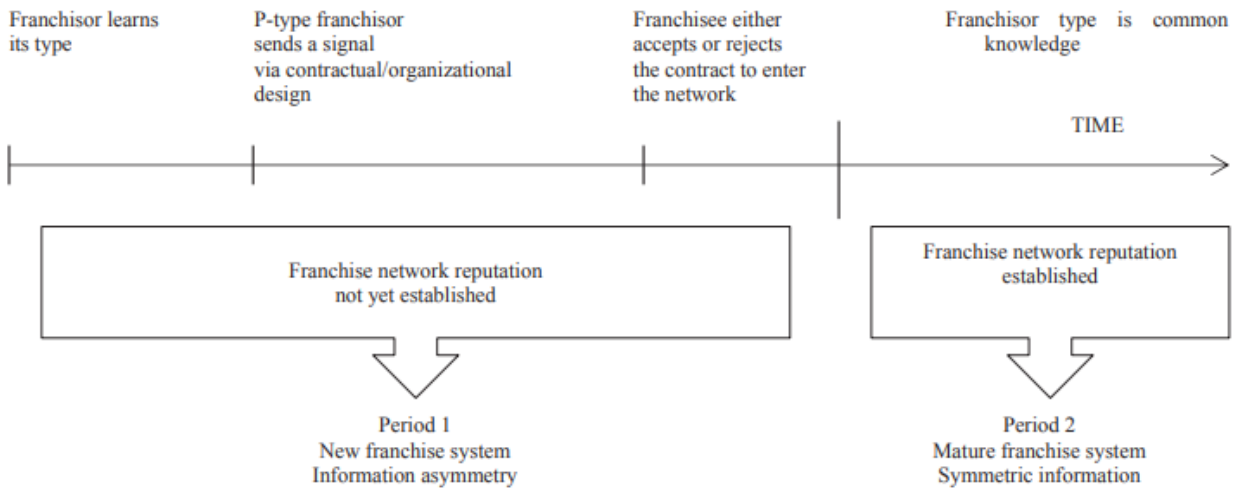

Fig. 1. Overview of the analytical framework: Standard signaling timeline of events adapted to the case of an emerging domestic franchise system.

The nature of franchising allows for a variety of contractual and organizational forms, some of which can be specifically designed by the franchisor to mitigate information asymmetry. Therefore, through signaling, potential franchisees may perceive lower risk, and the chances of choosing a franchisor will increase. Indeed, in their model, Gallini and Lutz (1992) show that the royalty rate can act as a signal. Unlike the franchise fee, the royalty rate is an ongoing payment variable usually expressed as a percentage of the franchisee's turnover. This contractual provision links the franchisor revenue to the franchisee outcome, which depends on the profitability of the business concept. Thus, having a high royalty rate in the franchise network can be a way for the P-type franchisor to indicate that it truly believes in its concept. This signal is observable and costly enough for the U-type franchisor to obtain a separating equilibrium. Formally defining the separating equilibrium under asymmetric information, Gallini and Lutz (1992) model demonstrates that, at a separating equilibrium, a positive royalty rate is always used. The model also predicts that as information about the franchisor's product becomes more widely known, the royalty rate drops. Therefore, we formulate the following hypothesis:

H1. In emerging franchise markets, franchisors use the royalty rate as a signaling device. Thus, the level of the royalty rate in the franchise contract is positively related to the value of the business concept.

Gallini and Lutz (1992) also highlight the role of dual distribution as a signaling device. Dual distribution, also called “plural form” in the literature, refers to franchising networks that have both franchised and company-owned outlets. Most of the empirical works on dual distribution in franchising are developed in line with Bradach (1998) model (e.g., Cliquet and Pénard, 2012, Dant et al., 2008). In his work, Bradach defends the idea that franchise systems use dual distribution to foster synergies between the two types of outlets (franchised and company-owned). In their model, Gallini and Lutz (1992) emphasize the positivity of dual distribution for the franchisor in a different way. They show that including a proportion of company-owned outlets in the franchised network is another option for the franchisor to commit to the exploitation of the business concept. This combination serves as a signal for the P-type. Thus, at equilibrium, signaling devices are complementary organizational and contractual forms that

make the franchisor's revenue highly dependent on the performance of the business concept. Therefore, we put forth the following hypothesis:

H2. In emerging franchise markets, franchisors use dual distribution as a signaling device. Thus, the proportion of company-owned outlets in the franchised network is positively related to the value of the business concept.

3. Brazilian context, data, and measurements

Brazil, a country where new franchise networks are forming quickly and dynamically, with a low domestic saturation rate, is a suitable context to examine new market development (see Peng, 2003). Indeed, Brazil has many new franchising options that have not been tested and therefore are lacking in reputation and credibility, such that asymmetries of information characterizing the franchise relationship are increased. In this context, strategic signaling can be a suitable entrepreneurial choice.

3.1. Emerging Brazilian franchising and institutional context

Despite the ongoing economic crisis that has been in place since the middle of 2014, the central role of Brazil in the economy of Latin America is well known. Brazil is the most robust economy in the zone, with several developed sectors, such as agriculture, mining, manufacturing, and services. This country is a member of BRIC, grouped with Russia, India, and China. These emerging economies have several common features, including a large population, a vast territory with a continental strategic dimension, a large number of natural resources, and remarkable growth in gross domestic product (GDP) in the last 10 years. Of all the Latin American countries, Brazil is the largest country in size and the fifth-largest country in population (World Population Review, 2018). Brazil implemented four major reforms to ease the process of doing business, the most of any Latin American country in the last 16 years (World Bank, 2018).

Brazil is also considered an emerging market with growing potential for franchising. Dant, Grünhagen, and Windsperger (2011) note that, together with India and China, Brazil has the highest potential for the future development of franchising. As Fig. 2 shows, Brazil plays a significant role in Latin American franchising, with the highest number of franchised brands in the zone. It is even more important than Spain, where franchising is well established. As Fig. 3 illustrates, the Brazilian franchise sector is dominated by domestic brands (93%), in common with developed countries and contrary to the position held by smaller economies in the zone (e.g., Ecuador, Guatemala, Uruguay).

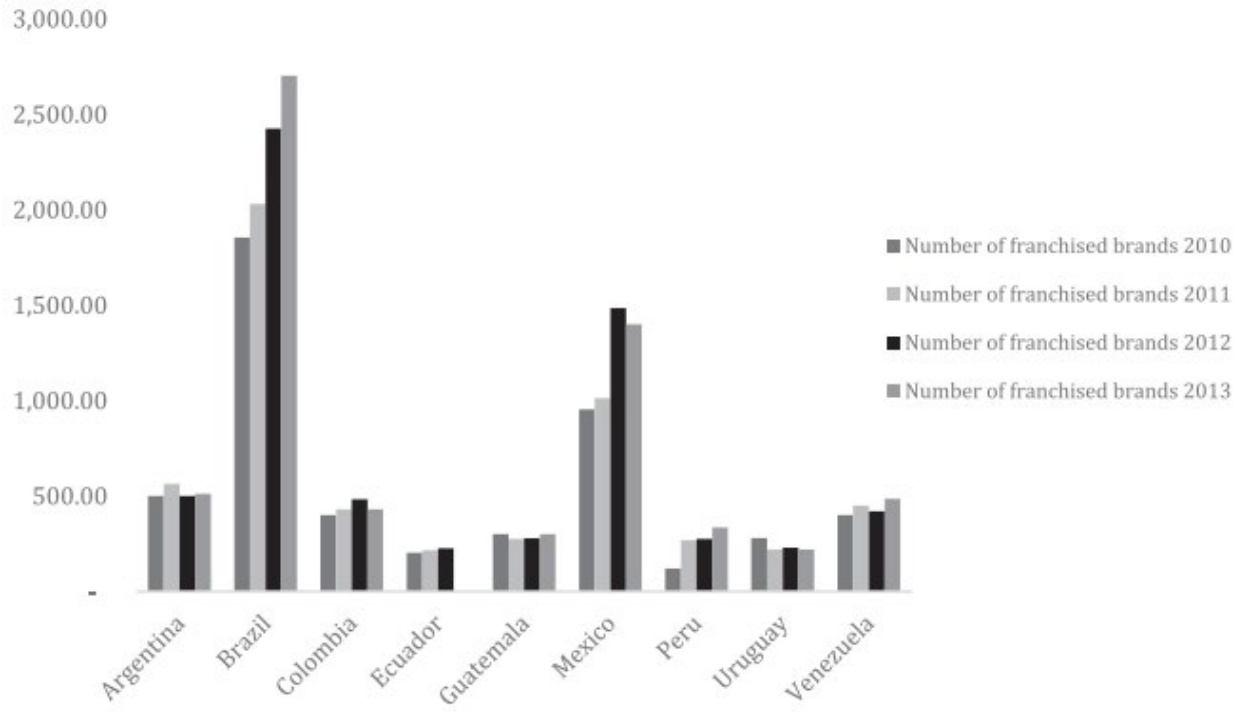

Fig. 2. The main role of Brazil in Ibero-American franchising. Source: Generated from Federación Iberoamericana de Franquicias (2015).

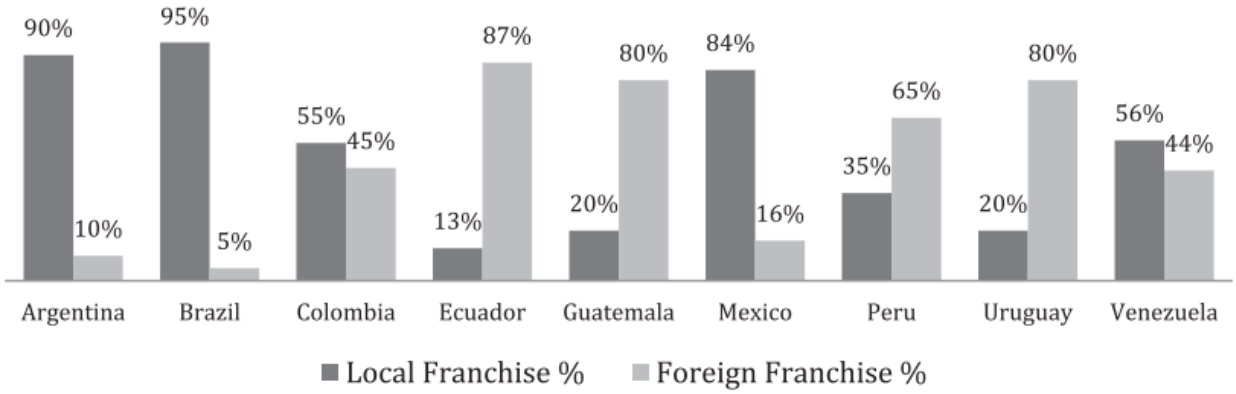

Fig. 3. A Brazilian franchising system based on domestic brands. Source: Generated from Federación Iberoamericana de Franquicias (2011).

However, in contrast with the situation in developed countries, the Brazilian franchise sector, which presents statistics per capita for the number of brands and franchised outlets for several countries, is still small in comparison with the size of the population, as Fig. 4 highlights. This small size suggests that the franchise sector is not yet mature and indeed emerging. Moreover, compared with developed countries, the Brazilian franchise sector is characterized by its dynamism and rapid changes, as Table 1 shows.

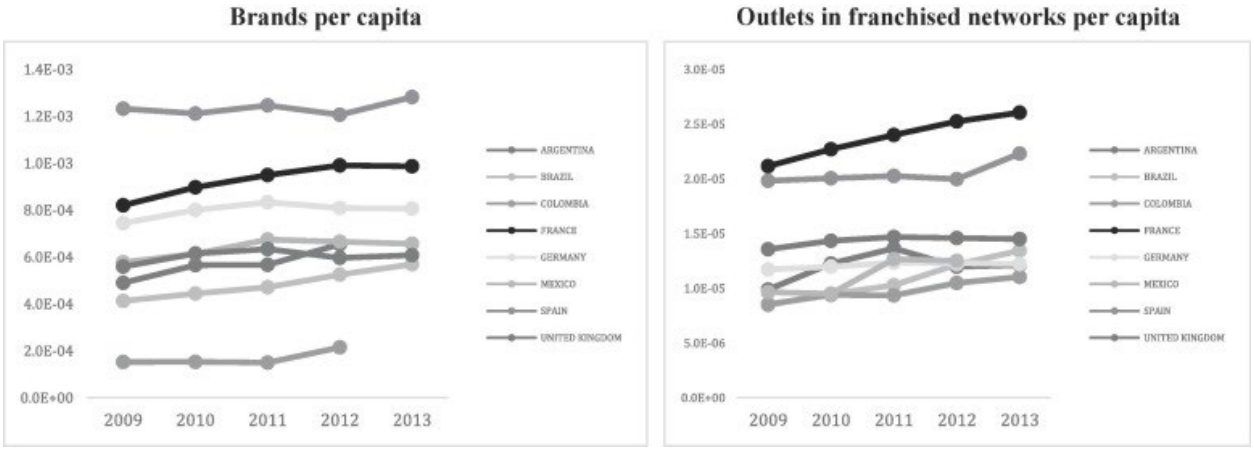

Fig. 4. Emerging Brazilian franchise sector. Source: Generated from the Federación Iberoamericana de Franquicias, the European Franchise Federation and the World Bank (2015).

Table 1. The dynamism of Brazilian franchising.

	Growth of the number of brands per capita (%)		Growth of the number of outlets per capita (%)		Growth of employment in the franchise sector per capita (%)	
Countries	**2010–2011**	**2011–2012**	**2010–2011**	**2011–2012**	**2010–2011**	**2011–2012**
Brazil	8.45%	18.33%	6.66%	11.36%	5.99%	11.24%
France	5.72%	5.16%	−5.80%	3.76%	5.81%	4.36%
Germany	2.91%	−0.19%	9.13%	−0.19%	4.05%	−2.93%
Spain	1.03%	−1.44%	3.56%	−3.85%	2.88%	−3.21%
United Kingdom	2.42%	–	13.12%	−7.55%	3.08%	–
United States	−0.74%	−0.74%	−12.01%	21.68%	−1.25%	2.09%

Source: Generated from European Franchise Federation, xxxx, World Bank, 2014, and PricewaterhouseCoopers, (2011).

We assume that the rapidity of these changes involves a context of instability and information asymmetries. In addition, the emergence of the Brazilian franchise sector is occurring in a still unclear legal environment, even though Brazil is one of only two Latin American countries that have a specific law about franchising—Mexico being the other one.

The Brazilian law regarding franchising was established in 1994. By contrast, in Europe, the Treaty and Commission Regulation was introduced in 1967, and in the United States, the franchising rules passed by Congress and enforced by the Federal Trade Commission date back to 1978. Azevedo and Silva (2005) find jurisdictional uncertainty in Brazil after comparing 21 cases in Brazil and France on franchisor organizational strategies. Regarding financial information provided by franchisors to potential franchisees, the Brazilian franchise law only requires the disclosure of actual franchisor financial reports: balance sheets from the last two years must be included in the Circular de Oferta de Franquia.[2] It does not require information regarding profitability, potential sales, or income, though franchisors can voluntarily include this information. Moreover, the law does not enforce or establish penalties in the event of falsifying the required information. Therefore, information asymmetries in Brazil between new franchisors and potential franchisees are a crucial issue.

[2] http://www.planalto.gov.br/cciviL_03/LEIS/L8955.htm.

3.2. Data and measurement

3.2.1. Data collection and sample

Our original dataset is based on information provided by the Brazilian Franchise Association (ABF). We added additional information from two sources: the Brazilian website Franquia Agora, on which franchisors communicate about their system for potential franchisees, and the official website of each network. Researchers have found that data reported by founders are reliable and accurate in emerging businesses (Chandler & Hanks, 1993). We included only local franchise networks in our sample. Thus, the sample consists of 174 Brazilian systems in 2012 and 2013, in a wide range of retail and service sectors. We deal with the few missing values using the multiple imputation method.[3]

3.2.2. Dependent variables

Network growth is the dependent variable in the Bayesian model averaging (BMA) estimations. We construct this variable as the percentage of new franchised units in the network in 2013 compared with 2012.[4] For robustness checks, we consider two growth rates, reasoning at the network level *i*:

$$f1i = \frac{\text{franchised units in 2013} - \text{franchised units in 2012}}{\text{franchised units in 2013}}. \quad (1)$$

$$f2i = \frac{\text{franchised units in 2013} - \text{franchised units in 2012}}{\text{franchised units in 2013} + \text{company} - \text{owned units in 2013} + \text{units abroad in 2013}}. \quad (2)$$

In the final regressions, the dependent variables are the potential signaling devices highlighted by theory (Gallini & Lutz, 1992) and related to our hypotheses: the contractual design, or, more precisely, the royalty rate, and the organizational design, or, more precisely, the proportion of company-owned units.

First, we define the *royalty rate* as the percentage of downstream sales accruing to the franchisor in 2012 (t-1). This contractual device makes the franchisor's revenue dependent on the profitability of the business concept and therefore can serve as a signaling device. According to Gallini and Lutz (1992) prediction, the royalty rate is substitutable with another monetary provision, the *up-front fee*, defined as a fixed amount paid once by the franchisee when entering the network. Thus, while we expect a positive relationship between the profitability of a business

[3] The multiple imputation method replaces missing values at random and does not generate bias in the allocation of imputed values. This method, initially proposed by Rubin (1996), uses Monte Carlo simulations to replace the missing data, from a number (m > 1) of simulations. In each simulation, the complete data matrix is analyzed with conventional statistical methods. Last, the results are combined to generate robust estimators, their standard error, and their confidence intervals.

[4] Considering the dynamism of the Brazilian franchise sector, it makes sense to measure the network growth between the two years. For a mature franchise system, Lafontaine (1993) used a network growth of five years.

concept, unobservable to potential franchisees, and the royalty rate, we posit a negative relationship to the up-front fee.

Second, we measure the *proportion of company-owned units* as the number of company-owned units divided by the total number of outlets in the network. This ownership form also makes the franchisor's revenue dependent on the profitability of the business concept and therefore can serve as a signaling device. Considering this variable in relation to the network age is relevant. One empirical strategy would thus be to use the multiplicative variable (proportion of company-owned units × network age). As we are dealing with signal issues, we want to control systematically for the influence of network age (i.e., in all the cases, not only for this specific variable). Therefore, we choose an alternative method and divide the data into sub-samples based on age, as presented in Section 4.1.

3.2.3. Independent variable

The franchisor type (ft_i) is the core independent variable in the regressions. We construct this variable with a two-step cluster analysis[5] based on three variables: the net present value (NPV), the franchisor's experience, and market saturation in terms of outlets.

The NPV is a financial indicator that allows us to estimate the present value of future cash flows resulting from an investment, as follows:

$$NPV_i = I - \frac{t}{(1+d)r}, \quad (3)$$

where I indicates the total investment made by the franchisee. This variable aggregates the required initial capital, the up-front fee, and the working capital. The parameter d represents the deposit interest rate paid to the bank for demand, time, or savings deposits. We choose to use the interest rate of the World Bank. Moreover, because information on contract duration was not available, we include return on investment (ROI), r. Finally, t represents the average turnover.

The NPV is related to the franchisor type, as it reflects the average present value of the investment that the franchisee agrees to make when it believes that the franchisor belongs to the P-type category. Thus, the P-type franchisor has a positive NPV, which means that the franchisor ensures that the franchisee will at least recoup its investment. However, the NPV can be biased, as the information regarding I, t, and r is provided by the franchisor. For this reason, we make choices to complete the allocation of the franchisors into two types with a two-step cluster analysis.[6]

[5] The two-step cluster analysis is a multivariate statistical technique. This method aims to achieve the maximum intra-group homogeneity and the greatest inter-group heterogeneity. In the first stage, individuals are distributed into pre-clusters, which become single individuals in the second stage. This second stage involves applying a hierarchical algorithm to the pre-clusters. The advantage of this method over others is that categorical and continuous variables can be included. The number of clusters is automatically selected.

[6] All the detailed results are available on request.

Given the statistical analysis for each cluster, the cluster re-grouping the P-type franchisors is distinguishable. Indeed, the networks classified in this cluster have the highest NPV, more experience in business, and greater market saturation. Also in this cluster, the statistics show higher means of the following variables: network growth in terms of downstream units between 2012 and 2013; average growth, measured as the ratio of *network size* to *network age*; *internationalization rate*, measured as the ratio of downstream outlets abroad to *network size*; and *market share*, defined as the ratio of *average network turnover* to *sector turnover*.

3.2.4. Control variables

We consider multiple control variables related to the value of the franchisor's business concept. First, the *franchisor's experience in business* indicates the time the franchisor spent developing the business concept. Previously used by Kalnins, 2005, Hoffman and Preble, 2003, and Kosová and Lafontaine (2010), this variable is often a proxy of the brand-name value. Second, we measure the *age* of the network as the number of years since the establishment of the first franchised unit. Third, information on the *ROI* (*r*), as provided by the franchisor, is the estimated average recovery time of the investment. Fourth, *required initial capital*, which the franchisor also provides, is an estimation of the capital necessary for the franchisee to set up the franchised outlet. Fifth, *required working capital* (Dant et al., 2008) represents the estimated average amount that the franchisee needs to run the business. Sixth, *average turnover* (*t*) refers to the average monthly downstream turnover estimated by the franchisor. Seventh, *market saturation* is the proportion of downstream units in the network (franchised and company-owned) to the total outlets of the sector. Eighth, we measure the *internationalization rate*, for each network, as the ratio of the number of outlets abroad to the total number of outlets in the network. Ninth, *market share* is the proportion of the average franchisee turnover to the overall sector turnover. Tenth, previously used in research on franchise data as a dependent variable (e.g., Vazquez, 2005) or an independent variable (e.g., Kosová & Lafontaine, 2010), *advertising rate* captures the proportion of the income from the downstream sales dedicated to the promotion of the network.

Eleventh, the *franchisor quality label* refers to a Brazilian distinction resulting from an evaluation of franchised networks by the ABF. This annual evaluation accounts for the franchisees' satisfaction and is paid for by the franchisor. We construct a dummy variable that equals 1 if the franchisor has obtained the quality label once within the last five years and 0 otherwise.

Twelfth, the *franchisor's location* is a dummy variable that distinguishes the franchisors located in São Paulo, where most are headquartered (119), from those in other places. More precisely, our dataset shows that most of the Brazilian franchisors are headquartered in the southwest region. The other franchisors are primarily located in areas close to São Paulo, such as Rio de Janeiro and Minas Gerais. According to the Brazilian Institute of Geography and Statistics (2011), these states accounted for 53.1% of the Brazilian GDP in 2011. São Paulo accounted for 32.6% of the Brazilian GDP and has a population of approximately 41 million inhabitants. This state has the largest financial center in Brazil, and the Brazilian Stock Exchange in São Paulo is the most important in Latin America. The Brazilian headquarters of the international and local banks are located here. Finally, we control for the influence of the *sector.* This dummy variable, which is often used in franchise data analysis (e.g., Dant et al., 2008), controls for the influence

of operating in the retail versus services sectors. We also control for the total investment made by the franchisee.

4. Methodology

4.1. Main and control sub-samples

To test the hypotheses, we construct a sub-sample to re-group the newest Brazilian franchisors. As noted previously, signaling theory specifies that franchisors need to signal their type to potential franchisees because their reputation is not yet established. We divide the sample into percentiles based on the age of the franchise networks (see Table 2). The first quartile (Q1) corresponds to the youngest franchisors; these franchisors are our main sub-sample. Q2, Q3, and Q4 serve as controls to observe the likely change of results with age.

Table 2. Quartiles based on the sample network ages in 2012.

	Quartiles			
	Q1	**Q2**	**Q3**	**Q4**
	25	50	75	100
Mean network age	4.311	10.302	18.489	38.140
Min network age	1	9	15	25
Max network age	8	14	25	105
SD	1.917	1.846	3.165	15.044
Number of networks	54	43	40	37

4.2. The BMA procedure

The BMA procedure is the first step in our estimations, with the aim to select the regressors that best fit the data. We test 15 relevant variables. In this first step, network growth is the dependent variable.

We perform regressions for all possible combinations of variables. The BMA method is based on Bayes' theorem. The BMA method allows creating a weighted average of the posterior distributions of the outcome for each likely model. In other words, BMA provides the posterior inclusion probability of a candidate regressor, which is the probability of the importance of the variable, and is calculated as the sum of the ulterior model probabilities across the models, including the relevant variables (Brown et al., 2002, Eicher et al., 2011). In our case, we estimate $k = 2^{15}$ combinations of variables (i.e., regressions).[7]

Given the network growth variable (f_i, where i = 174 franchisors) and the potentially relevant signals and control variables (X_{ij} = 1,……, 15), the main objective here is to determine the most effective subset of regressors(m_1,⋯, m_p *with* p = 15). We can express the model as follows:

$$f_i = \alpha_i + \sum_{k=1}^{p} \beta_k^p X_{ki}^p + \varepsilon_i \quad (4)$$

[7] Number 15 refers to the potential signals and the control variables (except the sector dummies).

where $X_{ki}^{p} \in X_{ij}$ and β_k^p are the coefficients to be estimated and ε_i is the error term with $\varepsilon\ N(0, \sigma^2)$. We replace the parameters $(\propto, \beta_k^p, \sigma)$ by π_p:

$$pr(C|m_p) = \int pr(C|\pi_p, m_p) pr(\pi_p|m_p)\, d\pi_p \tag{5}$$

where $pr(C|\pi_p, m_p)$ is the likelihood of m_p, which contains the information about π_p of data *C*. According to Eicher et al. (2011), the integrated likelihood is the probability density of the data, conditional on model m_p, which equals the likelihood times the prior density, $pr(\pi_p|m_p)$:

$$pr(m_p|C) = \frac{(C|m_p) pr(m_p)}{\sum_{s=1}^{k} (C|M_s) pr(M_s)} \tag{6}$$

If m_p is the correct model, $pr(m_p)$ is its prior probability. According to Bayes' theorem, BMA weights the average form of the posterior model probability, as presented in Eq. (6). Thus, with BMA, we obtain the value of several models; the best have the lowest Bayesian information criterion (BIC) and the highest probability.

This method requires the error terms in the equations to be normally distributed. As the quartiles are small, the normality of the sub-samples must be guaranteed. More generally, we must be careful about all the underlying assumptions of the linear model. Therefore, we run ordinary least squares (OLS) estimations considering all possible combinations of variables. We test for heteroskedasticity using the White method. We check for multicollinearity with variance inflation factors and normality with a skewness and kurtosis test.[8] We also analyze the standardized residuals to detect potential outliers. The results reveal the presence of outliers in all the sub-samples. After we remove the outliers from the data, the error terms become normally distributed and homoskedastic. Finally, we test for endogeneity. Suitable instrumental variables are not available here. Therefore, we use a version of the Hausman specification test. The variables raising a problem of endogeneity are removed from the regressions.[9]

4.3. The final regressions

The econometric models include the potential signals as the dependent variable, given the results of the BMA estimations. The main regressor is the dummy variable denoting the franchisor type, constructed with cluster analysis. We estimate each sub-sample following Eq. (7). In addition, with the control variables highlighted as relevant by the BMA procedure, the econometric model includes sector dummies:

$$X_i = \pi + ft_i + z_i + \varepsilon_i \tag{7}$$

[8] This test combines the skewness test and the kurtosis test into an overall test statistic.
[9] Fadairo and Lanchimba (2014) also document the processing of endogeneity by employing the Hausman test.

where X_i is the signal, π is the constant term, ft_i is the franchisor's type (1 = P-type franchisor, 0 = otherwise), z_i is the set of control variables, and ε_i is the error term. Here again, we check for multicollinearity, heteroskedasticity, and endogeneity. For robustness checks, we also estimate the same model without the control variables.

5. Empirical results

5.1. BMA results

BMA enables us to obtain for each sub-sample (Q1–Q4) relevant regressors related to the network growth in terms of franchised units between 2012 and 2013. Table 3 summarizes these estimation results. For each quartile, we present the combination of variables that better fit the data. These combinations have the lowest BIC and the highest probability. The results are robust regarding the dependent variable (f1 vs. f2) and reveal that the variables explaining network growth differ by sub-sample.

Table 3. Summary of the results from BMA.

	Q1		**Q2**		**Q3**		**Q4**	
	f1	**f2**	**f1**	**f2**	**f1**	**f2**	**f1**	**f2**
Constant	2.579e−01	7.767e−02	7.524e−02	3.153e−02	1.197e−01	1.113e−01	8.760e−03	−7.949e−03
Location	.	.	.	.	−1.699e−01	−1.583e−01	X	X
ABF label	.	.	.	.	.	.	X	X
Average turnover	.	.	.	1.206e−06	X	X	.	.
Experience	−3.679e−02	.	.	.	.	.	−1.071e−02	−1.002e−02
Age	X	X	X	X	.	.	.	.
Owned outlets	4.443e−01	3.724e−01	3.689e−01	.	−1.849e−01	−1.785e−01	.	.
International rate	_	_	.	.	.	.	X	X
Market share	.	.	.	.	.	.	.	.
Market saturation	.	.	.	.	.	.	.	.
ROI	X	X	X	X	.	.	1.665e−02	1.611e−02
Advertising rate	.	.	.	.	.	.	X	X
Royalty rate	6.321e−02	6.185e−02		02 3.064e−02	3.510e−02	.	.	.
Up-front fee	.	.	.	.	3.821e−06	3.549e−06	−7.31e−06	−6.817e−06
Working capital	.	X	.	X	.	.	.	.
Total investment	−7.193e−07	−4.471e−07	.	.	.	.	.	.
nVar	3	3	2	2	3	3	3	3
R^2	0.517	0.346	0.286	0.145	0.400	0.411	0.478	0.363
BIC	−2.59e + 01	−1.026e + 01	−5.228e + 00	−2.185e + 00	−8.509e + 00	−9.179e + 00	−5.510e + 00	−5.469e + 00
post prob	0.161	0.176	0.120	0.085	0.166	0.172	0.173	1.141

X: data removed because of potential endogeneity.
-: data removed because of potential multicollinearity.

From the broad set of initial potentially relevant variables, the BMA procedure enables us to extract a tight selection. It also shows that the royalty rate (potential signal) is relevant in Q1 and Q2, the up-front fee in Q3 and Q4, and the proportion of company-owned units (possible signal) in Q1–Q3.

Although this first set of results is compelling, it does not allow us to firmly conclude that the P-type franchisors use signaling devices. Therefore, we complete this empirical analysis with final regressions related to the relevant potential signals, as highlighted by the BMA, to the franchisor type.

5.2. Regressions results

Table 4 reports the OLS estimation results for the four quartiles. For each sub-sample, the table presents the potential signals as dependent variables and highlights their relationship to the franchisor type and the control variables resulting from the BMA. Fisher's tests and R-square emphasize the global significance of this final set of estimations. The results are robust, as underscored by the estimates deleting the control variables.

Table 4. Final regressions results (OLS estimator).

	Royalty rate		**Proportion of company-owned outlets**			**Up-front fee**	
	Q1	**Q2**	**Q1**	**Q2**	**Q3**	**Q3**	**Q4**
Franchisor type	1.627***	3.277**	−0.056	−0.175*	−0.191**	−11847.99	−15320.33***
	(0.557)	(1.439)	(0.085)	(0.093)	(0.075)	(10434.91)	(3657.84)
Total investment	−3.05e−07	9.23e−06					
	(8.64e−07)	(1.3e−5)					
Average turnover				1.18e−06			
				(9.61e−07)			
ROI							1046,78***
							(250.02)
Sector dummies	0.373	0.991	−0.076	−0.189	−0.237	2841.51	−177.83
	(0.431)	(0.626)	(0.111)	(0.118)	(0.136)	(10602.08)	(3567.7)
Experience	−0.0492		−0.034**				−461.04***
	(0.157)		(0.019)				(153.89)
Constant	0.804	−1.05	0.424	0.315**	0.456	40134.8	
	(0.524)	(0.981)	(0.14)	(0.118)	(0.128)	(5331.24)	
R^2 (%)	17.98	39.76	8.6	17.28	37.26	6.46	37.3
F	2.16**	3.45**	1.26	3.43**	6.94***	1.26	21.26***
Processing of endogeneity							
Total investment	0.35		8.87***				
Average turnover		0.66		2.52			
ROI							2.46
Robustness checks†							
Franchisor type	1.671***	3.96***		−0.20**	−0.297***		−24073.95***
	(0.568)	(1.39)		(0.087)	(0.085)		(4230.38)
Constant	0.105**	0.069***		0.312***	0.338***		45748.95***
	(0.046)	(0.007)		(0.076)	(0.084)		(2907.05)
R^2 (%)	16.77	35.34		7.3	27.31		48.78
F	8.66***	8.09***		5.28**	12.23**		32.38***

Note: * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level. Standard errors are in parentheses.
† OLS estimation results without the control variables for robustness checks (see Eq. (7)).

Our hypothesis (H1) regarding the royalty rate as a signaling device receives strong empirical support. Indeed, the BMA results show that this payment mechanism can only be relevant as a

signaling device in the case of young networks (Q1–Q2), a finding consistent with the theory. As H1 predicts, OLS estimates show a significant, positive impact of the franchisor type on the royalty rate level. H2, which pertains to the proportion of company-owned units, is not supported, which underscores the critical role of the royalty rate. However, the results regarding the proportion of company-owned units are economically coherent. Thus, while the franchisor type has no significant effect on the proportion of company-owned outlets in the first stage (Q1), the impact is negative in the case of mature networks with a good business concept (Q2–Q3). This result suggests that franchisors with reputedly profitable concepts easily find franchisees and do not need to operate a large proportion of downstream units directly. This explanation is consistent with the results regarding the franchisor's experience, highlighting a significantly negative impact of experience on the network proportion of company-owned units in the first quartile (see Table 4).

The significant and negative impact of the franchisor type on the up-front fee in the last quartile (Q4) suggests that well-established franchisors with a strong reputation do not require a high fee level. This evidence is opposite the theory's prediction. Indeed, Gallini and Lutz (1992) model predicts that as information about the franchisor type is revealed, the fee increases, and the need to signal fades. This result calls into question the assumed negative relationship between the two fees (royalty rate and up-front fee) and the definition of the up-front fee as a rent-extracting mechanism. In the Brazilian case, the choice of the up-front fee is not related to the value of the franchisor business concept, as also suggested by the negative sign of the variable experience in the equation for the fee estimated in the last quartile.

Several control variables, including total investment, average turnover, and sector dummies, have no significant impact on the estimations. Finally, ROI significantly and positively affects the up-front fee in the Q4 sub-sample; this is economically coherent.

6. Discussion

6.1. Theoretical implications

While Gallini and Lutz (1992) demonstrate that signaling theory is a relevant framework to assess franchisors' organizational and contractual choices, few studies on franchise data are based on this theory and none in emerging economies. Previous empirical studies using U.S. data do not provide clear support for the signaling argument. Our empirical contribution tests signaling theory in an emerging market economy. We argue that while the signaling framework may not fit the case of developed countries, as suggested by previous empirical evidence, it is relevant in emerging countries such as Brazil. The argument is motivated by the results of extant empirical work (i.e., Fadairo & Lanchimba, 2017) dealing with franchising in Latin America that highlight key differences from the case of developed countries. Moreover, in this article, we provide statistics consistent with the idea that strong information asymmetries characterize the emerging franchise system in Brazil, thus distinguishing it from the case of developed countries. This context justifies the development of specific behaviors and strategies by Brazilian franchisors.

A test of signaling theory needs to present a clear link between a signal and an outcome suggesting that the signal has been received, while controlling for the many other reasons the two variables might be related. This article tests this with four steps. First, we use cluster analysis to distinguish the franchisor type. Second, the BMA procedure allows us to select the relevant empirical variables related to the network growth between *t* (the reference year of the analysis) and *t* + 1. Third, we divide our data into four sub-samples based on the age of the network to isolate the new local franchisors potentially interested in using the signaling strategy. In the fourth step, our regressions relate the relevant potential signals to the franchisor type.

The estimations show that signaling motivates the contractual choices in the emerging Brazilian franchise sector. More precisely, we provide evidence that signaling motivations related to the franchisor's type (i.e., the profitability of the business concept) affect the level of the chosen royalty rate. New Brazilian franchisors use the contractual design (high royalty rate) rather than the property structure of the network (dual distribution) to signal the value of their business concept to potential franchisees.

The Brazilian case suggests that, in line with strategic signaling, the contractual choices of domestic franchisors in emerging markets differ from what has been observed so far regarding franchising in developed countries. This main finding provides a better understanding of the limits to existing theory on signaling and the influence of a context (developed vs. emerging countries) characterized by high levels of information asymmetries.

6.2. Practical implications

This research emphasizes the informational power of contracts and the relevance to a specific context. The contractual design appears to be adapted more for Brazilian franchisors than the property structure of the network or additional information, such as the franchisor's geographic location. The contractual design appears to overcome information asymmetries in the market.

These results are essential for entrepreneurs that want to invest in franchises, become franchisees, choose between a franchise, start an independent business, or buy an existing business. Welsh, Davis, Desplaces, and Falbe (2012) find that purchasing an existing business can be most profitable in the short run while buying a franchise is more profitable in the long term. More precisely, evidence that new Brazilian franchisors with a profitable business concept develop strategies to signal their type through the contractual design is vital for future franchisors, both local and international, as well as for franchisees. Indeed, prospective local franchisors need to learn the business context. The existence of signaling strategies means that to be "part of the game," new Brazilian franchisors with a valuable business concept also need to signal their type. Doing so may act as a barrier to entry, given that signaling partly solves the problem of asymmetric information but is nevertheless a costly strategy. Thus, such a context characterized by the need to signal the type may be dissuasive and also adds complexity for potential P-type local franchisors wishing to enter the market.

For foreign franchisors, our research is instructive as well, especially with regard to contractual design. Whereas research has observed homogeneity of contractual forms within the same network, including internationally (e.g., Lafontaine and Oxley's (2004) work on the

customization of contracts in North America and Mexico), we stress that the Brazilian context differs from developed countries. Our results suggest that homogeneity is not the best strategy, as behaviors differ with signaling choices in the Brazilian case, which is not the case in developed countries. Thus, foreign franchisors with a profitable but an unknown business concept in Brazil should adapt the contractual form to the local market, with royalty rates in franchise contracts proposed to potential Brazilian franchisees higher than the rates fixed in their origin country.

Finally, this research provides relevant results for future franchises contemplating the Brazilian market. The dynamism of Brazilian franchising is characterized by many local brands and an impressive brand growth rate compared with developed countries or other Latin American countries, except Mexico, which is in a quite similar situation. We show that new P-type Brazilian franchisors (i.e., with a profitable business concept) develop signaling strategies toward future franchisees. The proposed contractual form, more precisely the level of the royalty rate, indicates the franchisor's type. When deciding among several networks to enter, future Brazilian franchisees should pay particular attention to the level of the royalty rates. Rather than being dissuasive, a high royalty rate reveals that the new franchisor believes in the profitability of its business concept and will commit itself to the revenues generated by the franchisees.

6.3. Limitations and further research

This study has several limitations. First, the study does not explain why signaling in the Brazilian franchise system is based on the contractual design rather than dual distribution or other informational devices. Second, we provide evidence that in this context, signaling motivations do not explain the level of the up-front fee. Thus, we show not only that signaling theory is useful to understand the contractual design of franchised networks in the Brazilian context but also that complementary explanations are required. The determination of this second central monetary provision and its link to the royalty rate remains unclear. This finding is consistent with previous empirical results highlighting a negative relationship between the two fees, but also, in a different context, a positive or non-significant relationship (Sadeh & Kacker, 2017). Additional empirical studies and theoretical results are required to understand the role and the determining factors of the up-front fee. Third, our research considers one year of data. Future studies should examine the phenomena with longitudinal data gathered within countries and make comparisons across emerging markets. In addition, while we use secondary data and quantitative methods, case studies and interviews with experts could complement our approach.

Although the results regarding the location of franchisors as a signaling device are not as expected, they still provide an original and interesting focus. More generally, further research is required to determine the influence of geographic location on entrepreneurial choices in franchising. A recent study on franchising (Bitti et al., 2019) considers the spatial dimension within the analytical background of moral hazard and monitoring costs. In this case, the distance between the headquarters and the retail outlets serves as an indicator. However, an assessment of franchisors' geographic location as a signaling strategy is absent from the literature. The non-significant results regarding location herein may be due to the use of a dummy variable (location in São Paulo vs. other Brazilian cities), and a more elaborate definition of the location may produce more insights. The Brazilian case serves as a rich context to investigate entrepreneurial strategies in franchising, which answers the call for more research-based studies. However,

future studies could test signaling theory in the context of other emerging countries with local brands.

In addition, further research could investigate a wide variety of formats that may influence the selection and success probability for entrepreneurs. For example, research could examine the various hybrid forms of franchising, including home-based franchises and family business franchises, to determine whether and how they affect success. Chirico, Welsh, Ireland, and Sieger (2020) found that family business franchisors train their franchisees more and are more successful in the long run. Moreover, understanding the entrepreneurship eco-system in emerging markets is vital for both franchisees and franchisors. What assistance is available for potential franchisees to understand franchising with its potential hazards and benefits? Are the skills the same for franchisees in developed and emerging markets? What mentors are available, or do franchisees rely solely on the franchisor for assistance? Do the skills for a successful franchisee vary from a successful entrepreneur?

Finally, in their survey, Sadeh and Kacker (2018) highlight two debates in extant literature on signaling in franchising. The first is about whether signaling theory is adequate to study franchising. Our work provides support for a positive answer in this debate. The second debate pertains to the design of the signaling mechanism and whether signaling devices are competing or complementary. Our empirical results lend support to the idea of competing devices; franchisors use the royalty rate as an exclusive signaling mechanism in the Brazilian context. Indeed, prior research on the framework of the moral hazard argument establishes that the royalty rate is a central incentive mechanism in the franchisor–franchisee relationship (e.g., Lanchimba, Windsperger, & Fadairo, 2018). This result underscores a conflict of targets, as the setting of the royalty rate cannot serve two goals (incentives and signaling). Further research is required to explore this dilemma.

7. Conclusion

This research contributes to the body of knowledge on strategic information in entrepreneurship, new ventures in emerging economies, and franchising as a marketing channel (DeClercq et al., 2012, Jones et al., 2011, Yamakawa et al., 2013) in three inter-related ways. First, we provide evidence that franchisors in Brazil use strategic signaling to attract potential franchisees and expand their network, a finding in contrast with previous results regarding developed countries (Lafontaine, 1993). Testing signaling theory is methodologically challenging. Using a new and unique dataset, we develop an empirical strategy with several steps. We perform BMA to select the relevant empirical variables to introduce in the final regression models. Second, strategic signaling is associated with the context of rapid evolution, uncertainty, and institutional voids (Khanna & Palepu, 1999) characterizing emerging economies and resulting in exacerbated information asymmetries. We found this to be the case in the Brazilian market during the period studied (2012–2013). Third, while the theory identifies two channels for strategic signaling—contractual devices and organizational form of the network—we show that franchisors give priority to the contract design, more precisely to the central monetary provision (i.e., the royalty rate).

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