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A RESOURCE-BASED PERSPECTIVE ON THE RELATIONSHIP BETWEEN SERVICE DIVERSIFICATION AND FIRM PERFORMANCE: EVIDENCE FROM ITALIAN FACILITY MANAGEMENT FIRMS

Claudio Giachetti

Department of Management, Ca' Foscari University of Venice, 873 Cannaregio, San Giobbe 30121 Venice (VE), Italy
E-mail: claudio.giachetti@unive.it

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Abstract. In this article, a theoretical framework to study the effect of service diversification on firm financial performance is demonstrated. Data on 48 Italian facility management firms from between 2000 and 2009 show a consistent inverse U-shaped relationship between service diversification and firm performance, with the slope positive at low and moderate levels of service diversification but negative at high levels of service diversification. Further, the results show that firm experience in the service industry and firm affiliation to a consortium positively moderate the relationship between service diversification and performance. The results of this study provide evidence of the importance of service diversification strategies for gaining a competitive advantage.

Keywords: service diversification, performance, resources, firm experience, consortium, facility management.

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1. Introduction

The relationship between business diversification and the firm's economic performance has become a particularly prominent issue in the strategic management literature with the development of the resource-based view of the firm. Resource-based theory argues that shared strategic assets or resources within corporate portfolios are critical to firm performance, and corporate strategy relies upon scope economies of that type among businesses (Peteraf 1993). However, possessing valuable and inimitable resources in a business portfolio is a necessary but insufficient condition to achieve a competitive advantage. Those valuable resources must also be managed effectively to increase performances (Barney, Arikan 2001; Dhaoui 2008; Sirmon *et al.* 2007).

By borrowing from the resource-based theory, authors in the strategic management literature seem to have found a general consensus about the performance implications of business diversification, where a 'business' may refer both to a product (product diversification) or a geographic area in which the firm is operative (international diversification). In particular, when examining financial performance indicators, most of empirical studies have shown that business diversification is positive for firms only up to a certain point. Past a certain level diversification seems to cause performance problems (Hitt *et al.* 1997; Palich *et al.* 2000). The reasons for this curvilinear inverted U-shape relationship can be synthesized as follows. A firm must coordinate different businesses if it is to capture economies of scale and scope and the advantages of diversification. When business diversification is limited, most firms are able to manage their resources efficiently and achieve several positive outcomes from them. However, this becomes increasingly complex when the portfolio includes many businesses. Managerial complexity increases because each product represents a unique mixture of competitive structures, customers and resources. Therefore, moderate levels of business diversification may present the optimal balance of the costs and benefits.

Although a general theoretical and empirical consensus has been found about the performance implications of product and international diversification strategies (Palich *et al.* 2000), less is understood about the performance outcomes of service-diversified organizations. In fact, on the one hand, excluding those studies focusing on international diversification, most of the other studies on the diversification–performance relationship has considered 'product' firms as unit of analysis; very few arguments have been developed around 'service' firms. On the other hand, the few studies analyzing the performance implications of service diversification have offered opposing arguments.

In the service industry, a first group of authors suggests that one possible strategic option for the firm to make efficient use of its resources and achieve a competitive advantage is to expand the service portfolio (Carman, Langeard 1980; Hitt *et al.* 2001). By enlarging its service portfolio a firm can more efficiently use its underutilized resources and capabilities and thereby benefit from scope economies (Nayyar 1993). Moreover, by expanding the total package of services offered, a firm may attract new clients or more fully serve existing clients by offering bundles of services (Hitt *et al.* 2006). But there are also authors that suggest that enlarging the line of businesses in the service industry is much more difficult that it is in manufacturing (Heskett 1986) and, therefore, service firms are unlikely to obtain competitive advantages from diversification. The main drawback of service diversification resides in the complexity of managing efficiently heterogeneous resources (Normann 2002).

In light of these divergent arguments, also empirical studies investigating the relationship between service diversification and firm financial performance have shown mixed results (Table 1). For instance, Kor and Leblebici (2005) in their analysis of professional service firms find support for a positive relationship. Channon (1978), instead, in his research of insurance companies, finds support for a negative relationship. Other authors (Hitt *et al.* 2001, 2006; Mohammed, Bart 1991; Nath *et al.* 2010) find no relationship at all.

Table 1. Service diversification and firm performance

References	Type of service firms	Measure of service diversification	Expected impact of service diversification on firm performance	Findings
Nath *et al.* (2010)	Logistics companies specialized in road transport	Number of service typologies	Negative	Not significant
Hitt *et al.* (2006)	Professional service firms (law firms)	Herfindahl index based on the number of lawyers in each legal service area	Not specified	Not significant
Kor and Leblebici (2005)	Professional service firms (law firms)	Herfindahl index based on the numbers of employees in various legal practice areas	Positive	Positive
Knudsen *et al.* (2005)	Healthcare centers	Number of outpatient levels of care available; number of specialty treatment tracks available	Not specified	In some cases, positive; in other cases, not significant
Hitt *et al.* (2001)	Professional service firms (law firms)	Herfindahl index based on the number of lawyers in each legal service area	Positive	Not significant
Nayyar (1993)	Various service firms	Entropy index based on the relative amount of sales per business	Positive	Positive
Mohammed and Bart (1991)	Service multinationals (general)	Number of SIC codes	Positive	Not significant
Channon (1978)	Insurance companies	Number of service typologies	Not specified	Negative

The reason for these mixed results, I believe, is that the relationship is more complex than has been theoretically argued and empirically tested. Although expanding the number of services can help a firm optimize the use of the available resources, the more a firm's service portfolio is diversified, the more complex will be the management and coordination of these resources and, in turn, the higher the risk of inefficiencies. The resource-based view argues that to be successful, firms must have the appropriate resources for service portfolio expansion (Sirmon *et al.* 2007), and excessive diversification can make a firm's resources inadequate for successful service portfolio management. Therefore, in this study I argue that while a firm can obtain an initial performance advantage from service diversification, excessive service diversification is likely to constrain the firm in managing efficiently the required resources. The analysis contributes to

the strategic management literature by theoretically arguing and empirically showing a curvilinear relationship between service diversification and firm financial performance, with the slope positive at low and moderate levels of service diversification but negative at high levels of service diversification. This observed inverted U-shape relationship is thus in line with findings of previous studies analyzing the diversification–performance relationship at the "product" and "geographic market" level (Palich *et al*., 2000).

Moreover, results show that a firm's experience in the service industry plays a key role in helping it to find a way to efficiently manage resources across the various lines of services. Although in highly diversified firms business units may not be as effective at responding to complex needs because they are also engaged in different service types that can be difficult to coordinate, findings show that experience in the service industry can help firms overcome such coordination complexity. In particular results show a positive moderating effect of firm experience on the relationship between service diversification and firm financial performance.

Results also show that the service firm's affiliation to a consortium positively moderates the diversification–performance relationship. In fact, in consulting affiliates about service portfolio management, the consortium provides the firm useful information about the more profitable service types towards which to orient its resources and to which clients these services should be delivered. Therefore, for firms willing to diversify their portfolios, the consortium offers financial and management resources to do it properly.

Figure 1 depicts the proposed theoretical model. I draw on the extant theory from the strategic management literature and the specific theoretical domain of the resource-based view of the firm to build the conceptual framework.

Hypotheses are tested in the specific context of the Italian facility management (FM) industry. According to the International Facility Management Association, "facility management is a profession that encompasses multiple disciplines to ensure functionality

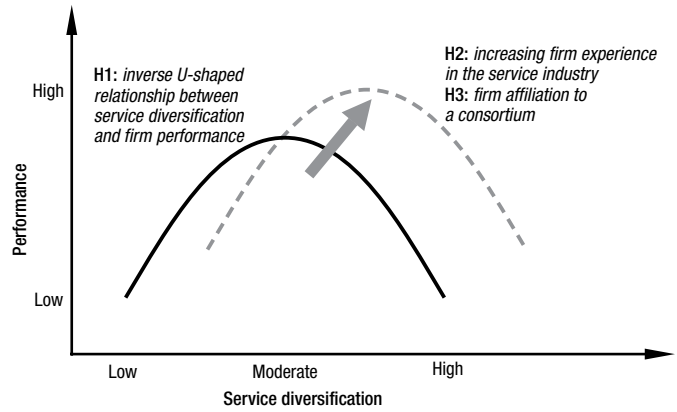

Fig. 1. Theoretical model: service diversification, firm experience, firm affiliation to a consortium, and firm performance

of the built environment by integrating people, place, process and technology. The role of facility management is to support an organization's core business by taking a strategic view of its facilities, operating them in a cost efficient manner while providing a safe and optimum working environment". The main principle behind the existence of FM is that businesses rely on a whole network of essential support services. There are many advantages to outsourcing such tasks. It not only simplifies the process but also minimizes the time and money spent on it (Cotts *et al.* 2009).

Over the past two decades, increased competitiveness in the business sector has placed considerable pressure on Italian firms to reduce expenditure to specialists on 'non-core' activities such as facility selection, maintenance and acquisition, building services, information systems, communications, safety and health, physical security, and emergency preparedness. This has encouraged buildings' owners and users to increase their expectations and requirements of facilities. Italian FM firms, both small and large, have then increasingly diversified their service portfolios to more fully serve existing clients by offering bundles of services. Corporate clients are usually attracted to diversified FM firms precisely because they do not want to engage with multiple FM firms for different service needs (Atkin, Brooks 2009). But up to which point can expanding the service portfolio lead to a higher performance? Which resources are needed to efficiently manage a diversified service portfolio? In the following section, hypotheses are developed based on these research questions.

2. Hypotheses

2.1. Service diversification and firm performance

The resource-based view suggests that firms diversify into new areas of business to more efficiently use their underutilized resources and capabilities (Penrose 1959; Ramanujam, Varadarajan 1989). Underutilized resources and capabilities often include intangible and knowledge-based resources such as the knowledge embedded in expert human resources (Nayyar 1993). For example, FM firms may develop an underutilized capacity of knowledge-based resources over time, as the managers and employees specialize and learn new knowledge and skills. Diversification into related areas of FM services enables firms to efficiently utilize their increased expert capacity. Second, diversification into new services presents opportunities to share knowledge across service areas. In fact, some service management systems share important elements in their basic success formulas, and a company that recognizes these common aspects may have found a basis for differentiation (Normann 2002). For instance, there are numerous cases of Italian cleaning firms that offer auxiliary or complementary services, such as the maintenance of grounds and lawns, in addition to their basic cleaning operations. Third, synergies between the new service and the existing services may provide even more business. For example, by expanding the total package of services offered, a firm may attract new clients or more fully serve existing clients by offering bundles of services (Atkin, Brooks 2009). In fact, there are studies providing support for a positive relationship between service diversification and firm financial performance (Kor, Leblebici 2005).

However, the design and introduction of new service offerings has been cited as one of the more difficult challenges for mangers in the service industry (Heskett 1986). First, as argued by some authors, new business introduction is more difficult and less successful in the service industry than it is in the manufacturing industry (Heskett 1986). This is because in service companies a uniquely focused culture tends to be a pervasive feature, so that a difficult process of 'unlearning' or even a 'cultural revolution' may be necessary when firms offer a new line of services (Uhl, Upah 1983). Adding to the service operations of a company in fact entails changing the service system with the risk of a consequent imbalance (Normann 2002). Normann (2002) also points out that the service delivery systems of various professional service firms that have attempted to overly broaden their service portfolios, as well as their prevailing cultures regarding skills, people, and values, became confused between the various businesses. In the end, the companies provided poor consultancy services and lowered the quality of their original businesses. Additionally, services cannot be 'produced' and stored in one year and consumed in the next (Uhl, Upah 1983). Owing to this lack of storage capability, service firms need to synchronize supply and demand (Lovelock 1984). There needs to be a greater integration of marketing and production functions throughout the service firm at all levels. This is different from a typical manufacturing firm where such integration exists only at the corporate level (Bowen *et al.* 1989; Heskett 1986). Pushed to operate on a real-time basis, service firms can lose potential income and productive capacity if less than full capacity is utilized (Rhyne 1988). What is required, in essence, is an organizational structure that allows the constant and timely flow of information as the firm increases its services offered and the market covered (Mohammed, Bart 1991). Therefore, although at low/moderate levels of diversification firms can benefit from this practice because they can easily develop standardized procedures (Sherer 1995), expansion into too many service typologies may lead to coordination complexity and unutilized capacity, and in turn negatively affect firm performance.

For example, in the FM industry diversification creates additional demands for resources and capabilities. This is because the same client usually requires a bundle of services such as the care of air conditioning, electric power, plumbing and lighting systems, cleaning, and security. Because at high levels of diversification new services tend to be less related to the original areas, the current base of employee and managerial knowledge is less transferable. As a result, increased time commitments become essential for managers learning new skills to compete in the diversified areas of the business (Cotts *et al.* 2009). With diversification, the job of communicating to clients becomes more complex as well because offering a package of services requires the firm to be articulated in multiple areas of expertise (Atkin, Brooks 2009). Essentially, as the firm tries to realize the benefits of economies of scope from the delivery of different service types, the amount of resources (and costs) to efficiently coordinate the various service lines increases (Helfat, Eisenhardt 2004; Nayyar 1993). In this scenario, few firms are likely to manage their resources efficiently (Holt *et al.* 2000; Cotts *et al.* 2009). Channon (1978) finds empirical support for this argument, showing that service diversification may be negatively related to firm performance.

The above arguments lead to the following hypothesis:

H1: The relationship between service diversification and firm performance is nonlinear, with the slope positive at low and moderate levels of service diversification but negative at high levels of service diversification.

2.2. Moderating effect of firm experience in the service industry

A firm's experience at delivering a certain service has often been regarded as an important firm resource, influencing the firm's strategy with respect to competitors, and eventually its performance (Heskett 1986; Normann 2002). Firm experience has been measured by managers' educational knowledge and skills (Hitt *et al.* 2001; Kor, Leblebici 2005) or firm age, namely the number of years a firm has been in existence (Burgel, Murray 2000; Fernhaber *et al.* 2009; Le 2009; Williamson, Verdin 1992; Zahra 1996; Zahra *et al.* 2000). The theoretical foundation of the latter measure refers to the learning/experience curve theory (Williamson, Verdin 1992); over time, firms accumulate knowledge about consumers' characteristics and expectations, reinforce their images and reputations among clients, consolidate relationships with suppliers, and accumulate a number of skills used to deliver products/services more rapidly and more efficiently. A number of authors, in fact, show that older firms typically have more resources and a greater number of network relationships to rely on (Burgel, Murray 2000; Fernhaber *et al.* 2009; Zahra *et al.* 2000). Age may also influence the firm's technological learning (Dodgson 1993), such that older firms can learn more quickly how to use innovations.

In this study, I argue that, as diversification increases, firm experience in the service industry plays a key role in influencing the success of a firm's diversification strategy. For example, a well-diversified FM firm needs to manage a complex, multi-service portfolio, often characterized by service types very different from each other, usually delivered to the same large corporate client. Large corporate clients are attracted to diversified FM firms precisely because they do not want to engage multiple FM firms for different service needs. Therefore, the specialized departments of a diversified FM firm cannot act independent of one another. Both for efficiency purposes (i.e. to exploit synergies) and to reduce the transaction costs for the client, diversified FM firms have to carefully orchestrate resources among their specialized business units (Atkin, Brooks 2009). Even though the effective coordination of diversification requires intense managerial involvement, a manager's ability to cope with the demands of diversification may depend on the firm's experience in the FM industry. Various authors suggest that the efficient use and coordination of resources may depend on the firm experience in dealing with those resources (Le 2009; Williamson, Verdin 1992). In fact, since firms with less experience in the service industry operate in conditions of relatively higher uncertainty compared with older competitors, at high levels of service diversification they may not be as effective at responding to the complex needs of diversification because they have scarce knowledge about the likely output of strategic alternatives (Carman, Langeard 1980). The high uncertainty due to a lack of experience in the service industry may obstruct young diversified-firms in orchestrating resources among the various service types. By contrast, at low levels of service diversification, young FM firms, despite their

scarce experience in the service industry, can achieve an efficient coordination of services because they can easily develop standardized procedures and performance goals (Stimpert, Duhaime 1997). In other words, although specialization makes it relatively easy to manage the service portfolio for less expert firms, when they diversify into new service typologies the complex nature of the services together with the lack of experience in the service industry make it harder to use standard procedures and controls, often leading to inefficiencies.

Following the above line of logic, I argue that greater experience in the service industry confers to firms a superior ability to manage different service types and obtain synergies among them. Therefore, because the complexity of services coordination is compounded by the diversified firm's engagement and experience in diverse areas of business, ignoring the interdependencies between service diversification strategies and firm experience in the service industry may result in the poor implementation of the diversification strategy.

Although I expect moderate levels of service diversification to be, in general, positively related to performance, I also expect firm experience in the service industry to moderate the relationship between service diversification and performance in such a way that service-diversified firms with greater experience in the service industry achieve higher performances than do service-diversified firms with less experience in the service industry. This expectation suggests that with greater firm experience the apex of the curvilinear relationship between service diversification and firm performance shifts upward and to the right. Therefore, the following hypothesis is proposed:

H2: Firm experience in the service industry positively moderates the curvilinear relationship between service diversification and firm performance.

2.3. Moderating effect of firm affiliation to a consortium

Typically, a consortium consists of a group of organizations that have a similar need and band together, though legally independent, to create a new entity to satisfy that need for all of them (Kanter 1989). The general purpose of consortia is to promote cooperation and help their members to do together those things that they cannot do alone. Affiliates to a consortium are usually firms offering similar products or services (Neal 1988). Through these associations, affiliates may engage in a variety of cooperative endeavors, including government lobbying, joint marketing, joint fundraising, joint purchasing, and the sharing of physical, technological, and human resources. Most directly relevant to this study's purposes, the consortium also promotes communication and interaction between affiliates, in such a way that it acts as a consultant for affiliates' strategic actions (Browning *et al.* 1995; Kraatz 1998). Indeed, cooperative information sharing is increasingly recognized as a consortium's single most important function (Fuller 1988; Neal 1988). Consortia facilitate communication in part by establishing personal relationships between organizational leaders and offering opportunities for regular, informal interaction. They also provide various formal mechanisms for the joint consideration of members' individual problems, including joint planning exercises, administrator development and training activities, and comparative data exchange programs (Neal 1988).

In this study, I argue that service firms affiliated to a consortium can better exploit the benefit of service diversification. As previously argued, the higher the level of service diversification, the greater the complexity in managing efficiently the various service typologies. In fact, diversified firms need more heterogeneous resources and capabilities than do specialized operators. However, I believe that if firms belong to a consortium they can manage diversification practices efficiently. First, in consulting affiliates about service portfolio management and the efficient use of resources, the consortium provides the firm useful information about the more profitable service types towards which orient its resources and to which clients these services should be delivered (Barringer, Harrison 2000; Neal 1988). In particular, the benefits enjoyed by consortium-affiliated firms are derived from the specific properties of the context in which the group-affiliated firms operate. For example, firms derive the benefits of consortium affiliation because of the presence of institutional voids, government support, or a combination of other factors such as market failure and the absence of market intermediaries (Browning *et al.* 1995; Khanna, Rivkin 2001; Kraatz 1998). In other words, the consortium reduces the market uncertainty for those affiliates willing to extend their portfolios and offers these firms information on how to efficiently use resources within their service portfolios (Fuller 1988; Neal 1988). Second, consortium-affiliated firms have broader and easier access to capital, and are able to access labor and product markets more easily than firms that are not part of any association (Kraatz 1998). Therefore, for those firms willing to diversify their portfolios, the consortium is likely to offer financial and management resources to do it properly. The argument here presented suggests that service firms belonging to a consortium, though legally independent, are then bound together by a constellation of formal and informal ties representing a key strategic resource for their diversification strategies.

Although moderate levels of service diversification are expected to be, in general, positively related to performance, the impact of such a strategy on firm performance can benefit firm affiliation to a consortium. In other words, the affiliation to a consortium is expected to moderate the relationship between service diversification and performance in such a way that service-diversified firms belonging to a consortium achieve higher performance than service-diversified firms not belonging to a consortium. The above line of logic leads to the following hypothesis:

H3: Service firm affiliation to a consortium positively moderates the curvilinear relationship between service diversification and firm performance.

3. Methods

3.1. Sample

The relationships among a firm's strategy, resources, and performance vary by industry because the critical resources for strategy implementation tend to vary too. Thus, a single industry sample in which to test the hypotheses was desirable (Dess *et al.* 1997).

The three hypotheses were tested in the Italian FM industry from 2000 to 2009. FM firms were chosen because the recent tendency in the business sector to outsource non-core activities has encouraged various FM firms to diversify their portfolios to deliver bundles

of services to corporate clients. Although the expansion of the service portfolio allows FM firms to enlarge their client bases and revenues, it also forces these firms to acquire a wider number of resources to efficiently manage the various lines of business. Service diversification for FM firms is then a potentially profitable non-trivial strategic option.

Information on the number of services delivered by 48 FM firms was collected from the firms' websites and annual reports. Revenue and performance measures of the sampled firms were collected from the Orbis dataset, compiled by Bureau Van Dijk. Service firms were selected according to two criteria: 1) firms that had available service and financial data for the period 2000–2009; and 2) firms that operated in at least two types of FM services (in order to exclude non-diversified operators). Overall, were identified 10 FM service types that resemble the common classifications proposed by the FM literature (Atkin, Brooks 2009; Cotts *et al.* 2009): facility cleaning, facility maintenance, transport of persons, transport of materials (i.e. move in / move out), technology management (e.g. information systems and communication), physical security, call center/front office, documentation/administration management, interior design, and environmental health. Information on firms' service portfolios and financial performances were also triangulated with in-depth interviews with managers from some of the sampled firms.

3.2. Measures

Dependent variable

Firm performance. Consistent with previous studies on the diversification–performance relationship in the service industry, return on assets (ROA) was used to measure firm performance, operationalized as the ratio of operative income to total assets (Hitt *et al.* 2006)[1].

Independent variables

Service diversification. Previous studies have measured the level of service diversification through the number of services delivered by the firm (Channon 1978; Nath *et al.* 2010), the number of Standard Industrial Classification (SIC) codes (Mohammed, Bart 1991; Farjoun 1994, 1998), or the Herfindahl (or Entropy) index based on the number of sales/employees per line of business (Kor, Leblebici 2005; Hitt *et al.* 2006; see Table 1 for a review). Since in this study information on the sales per service typology in the firms' portfolios were not available, service diversification were measured with the number of service types delivered by the firm.

Firm experience in the service industry. Consistent with previous studies, firm experience was measured by the total number of years since inception (Burgel, Murray 2000; Fernhaber *et al.* 2009; Le 2009; Williamson, Verdin 1992; Zahra *et al.* 2000). This measure assumes that the longer the time the firm has been operating in the market, the greater the "accumulated" resources (e.g. market knowledge, brand image, network of suppliers) in delivering services to customers. This indicator was coded 0 the year the firm was established.

[1] To give much robustness to the analysis, the proposed model was also tested using return on sales (ROS) as dependent variable. However similar findings were obtained since ROS and ROA were highly correlated.

Firm affiliation to a consortium. Affiliation to a consortium were measured by a dummy variable that took a value of 1 if the firm was affiliated to a consortium and 0 otherwise (Gaur, Kumar 2009).

Control variables

Consistent with previous studies on competitive strategies and firm performance, various control variables were included: *firm size*, measured by the natural logarithm of total sales, is used to control for economies and diseconomies of scale (Gaur, Kumar 2009; Hitt *et al.* 1997; Lu, Beamish 2004); *debt-to-equity ratio,* as a measure of financial leverage (Lu, Beamish 2004); and *time effect*, measured with dummy variables per year.

The model also controls for the effect of *competitive intensity.* Industry competitiveness, which is expected to affect a firm's strategy and profitability, is generally assessed by the number of competitors, concentration ratios, and mobility barriers that competitors are able to erect (Giachetti, Marchi 2010; Ginevicius, Cirba 2007, 2009; Porter 1980). Information about the number of firms per FM service type were available, so I assumed that the higher the number of competitors offering a certain service, the higher the competitive intensity for the delivery of that service. All the selected FM firms were operative mainly in the North of Italy, therefore, those delivering the same service typologies were regarded as competitors because competing for the same client base. Competitive intensity was measured by the average number of competitors per service type, normalized by the industry maximum value (a similar normalization procedure was set by Lu and Beamish (2004)). I then obtained an indicator of competitive intensity varying from 0 to 1. That is, the closer the normalized competitive intensity index is to 1 the higher the average number of competitors in the firm service types, whereas the closer the normalized competitive intensity index is to 0 the lower the average number of competitors in the firm service types. For firms delivering the same number of service types, the competitive intensity index increases as the number of competitors per service type grows.

Finally, the model takes into account the effect of the 2008 *economic crisis* on Italian firm performance, measured with a dummy variable coded 1 for 2008 and 2009 observations and 0 otherwise. The financial crisis exploded in the US at the end of 2007, but showed its impact on the Italian economy in 2008.

Variable descriptive statistics are shown in Table 2.

4. Statistical analysis and results

The model was estimated by a robust fixed effects regression using STATA version 10.0. Robust regression takes into account heteroscedastic robust standard errors, controlling for potential outliers. It was calculated variance inflation factors (VIFs) to determine whether there was multicollinearity in the analyses. Values of VIF lower than 2.50 suggested no serious problem of multicollinearity (Chatterjee, Hadi 2006).

Table 3 presents the results of the regression analysis.

Table 2. Descriptive statistics

	Variable	Obs.	Mean	S.D	1	2	3	4	5	6	7	8
1	ROA	336	0.085	0.075	1							
2	Service diversification	336	4.520	1.828	0.037	1						
3	Experience	336	21.675	14.405	–0.102†	0.028	1					
4	Affiliation to a consortium	336	0.431	0.496	–0.065	–0.330†	–0.012†	1				
5	Size	336	16.545	2.019	–0.078	0.302†	0.517	–0.224†	1			
6	Competitive intensity	336	0.767	0.139	0.054	–0.418†	–0.170†	0.265†	–0.325†	1		
7	Debt-to-Equity	336	21.596	71.178	–0.227†	–0.202†	–0.165†	0.076	–0.105	0.254†	1	
8	Economic crisis	336	0.247	0.431	–0.042	–0.016	–0.037	–0.025	–0.023	–0.013†	0.035†	1

Note: Significance: †$p < .10$

Table 3. Model estimation

Dependent variable: ROA		Model 1	Model 2	Model 3	Model 4	Model 5
Service diversification	H1(+)	–	0.002 (1.58)	0.038*** (3.96)	0.042*** (3.49)	0.030* (2.11)
Service diversification squared	H1(–)	–	–	–0.003*** (–3.66)	–0.004*** (–3.46)	–0.004** (–3.15)
Experience		–	–	–	–0.000** (–2.81)	–0.002*** (–4.22)
Service diversification squared × Experience	H2(+)	–	–	–	–	0.001*** (3.48)
Affiliation to a consortium		–	–	–	–0.010 (–0.84)	–0.030 (–1.58)
Service diversification squared × Affiliation to a consortium	H3(+)	–	–	–	–	0.001* (2.19)
Size		–0.003 (–0.56)	–0.003 (–0.63)	–0.002 (–0.37)	0.001 (0.21)	0.004 (0.66)
Competitive intensity		0.047* (2.00)	0.059* (2.45)	0.030 (1.27)	0.026 (1.08)	0.029 (1.14)
Debt-to-Equity		–0.000*** (–7.06)	–0.000*** (–7.05)	–0.000*** (–5.81)	–0.000*** (–6.55)	–0.000*** (–6.51)
Economic crisis		–0.007 (–0.60)	–0.007 (–0.61)	–0.009 (–0.81)	–0.012 (–1.07)	–0.013 (–1.20)
Constant		0.111 (0.109)	0.098 (0.97)	0.018 (0.16)	–0.013 (–0.10)	–0.003 (–0.02)
Time dummies (fixed effect)		*included*	*included*	*included*	*included*	*included*
No. of observations		336	336	336	336	336
R-sq		0.088	0.091	0.128	0.155	0.178
F		7.46***	7.13***	8.52***	7.59***	7.33***

Notes: Significance: ***$p < .001$; **$p < .01$; *$p < .05$; †$p < .10$; t-statistic in parenthesis

Model 1 (Table 3) is an examination of the effects of the control variables firm size, debt-to-equity ratio, economic crisis, and competitive intensity on ROA. In Models 2 and 3, I added respectively service diversification and service diversification squared as independent variables to test the inverse U-shaped relationship predicted in Hypothesis 1. In Model 4, I added the variables experience and affiliation to a consortium. In Model 5, I computed the interaction between service diversification squared and experience to test the moderating effects predicted in Hypothesis 2, and the interaction between service diversification squared and affiliation to a consortium to test the moderating effects predicted in Hypothesis 3[2].

As can be noted, in Model 2 the linear relationship between service diversification and performance is not significant ($\beta = 0.002$, $p > .1$). Instead, in Model 3 there is a statistically significant, positive relationship between service diversification and performance ($\beta = 0.038$, $p < .001$), and a negative relationship between service diversification squared and performance ($\beta = –0.003$, $p < .001$). The latter relationship suggests a curvilinear relationship, and these two relationships (in Model 3) combined denote a potential inverted U-shaped relationship between service diversification and performance. The R-sq and F-test associated with Model 3 (curvilinear model) are higher than in Model 2 (linear model), suggesting the explanatory power of the model increased significantly when the squared term of service diversification entered the equation. This indicates that the curvilinear model fits the data better than the linear model, thereby supporting Hypothesis 1. The curvilinear relationship observed in Model 3 is confirmed also in Models 4 and 5 where interaction terms were added.

Hypothesis 2 stated that firm experience in the service industry positively moderates the curvilinear relationship between service diversification and firm performance. As shown in Model 5 (Table 3), the interaction effect of firm experience and service diversification squared on ROA is positive and significant ($\beta = 0.001$, $p < .001$), offering support for Hypothesis 2.

Hypothesis 3 stated that firm affiliation to a consortium positively moderates the curvilinear relationship between service diversification and firm performance. As shown in Model 5 (Table 3), the interaction effect of firm affiliation to a consortium and service diversification squared on ROA is positive and significant ($\beta = 0.001$, $p < .05$), offering support for Hypothesis 3.

5. Discussion

Probably the most studied linkage in the strategy literature is that between diversification and financial performance. However, although a general consensus has been found about the performance implications of product and international diversification (Palich *et al.* 2000), less is understood about the performance outcomes of service-diversified organizations.

[2] For the estimation and interpretation of the interaction between a quadratic term and a moderator it was followed the procedure of Hitt *et al.* (1997).

Results of this study show that service diversification had a nonlinear relationship with performance. Low and moderate levels of service diversification are positively related to firm performance, but further service diversification is likely to produce a negative performance effect. This inverse U-shaped relationship between service diversification and performance provides a basis for resolving the inconsistency of empirical results in the literature (see Table 1).

I also investigated the moderating effect of two types of resources on the diversification–performance relationship. First, I explored the moderating effect of firm experience in the service industry, and found that experience positively moderates the effect of service diversification on performance. In other words, firms that increased their levels of service diversification performed better when they had greater experience. Therefore, service firms that increase their levels of diversification without strong experience in the service industry are likely to be at a competitive disadvantage. These findings complement existing studies on the effect of firm experience on performance outcomes (Burgel, Murray 2000; Fernhaber *et al.* 2009; Le 2009; Williamson, Verdin 1992; Zahra *et al.* 2000) by shedding light on the role of experience in influencing the effectiveness of service diversification strategies. Second, I explored the moderating effect of firm affiliation to a consortium on the relationship between service diversification and performance, and found that firm affiliation to a consortium positively moderates the effect of service diversification on performance. In other words, firms that increased their levels of service diversification performed better if they were affiliated to a consortium. Therefore, service firms that increase their levels of diversification without being part of a consortium are likely to be at a competitive disadvantage. These results complement those studies in the management literature offering support for a positive effect of the affiliation to a consortium on the firm's performance (Browning *et al.* 1995; Fuller 1988; Kraatz 1998; Neal 1988) by focusing on the specific context of diversified organizations.

Findings in this study were obtained by developing an integrative theoretical framework of the resources, risks, costs, and benefits encountered during the nascent to mature stages of service portfolio expansion. It was used a 10-year time horizon with a sample of Italian FM firms at all stages of service diversification. Given this comprehensive theoretical framework and sample, one implication of this research is that scholars investigating the service diversification–performance relationship can begin to move beyond an assessment of its nature towards an examination of its boundary conditions or further moderators. For instance, researchers could begin to explore how the configuration of service diversification strategies in terms of the sequence of service typologies chosen for expansion and the duration of each service expansion initiative moderate the factors underlying the inverse U-shaped relationship and influence its slopes and inflection point in the curves.

The most notable limitation of this study is that empirical results were derived from a sample of Italian FM firms, thereby raising the concern that the findings might be country-specific. Future studies might explore the same relationship at a cross-country level.

6. Managerial implications

This study offers practical guidance to managers in service-diversified firms. Although care should be taken in interpreting the slopes and inflection point in the curves, the findings suggest that managers need to take a long-term view of service diversification. During initial stages, there might be immediate positive returns from service line expansion. However, managers need to be conscious of the potential downside of excessive service diversification and be proactive in the design and implementation of diversification strategies to optimize the scope of service activities. In particular, when the level of service diversification is too high, both firm experience in the service industry and firm affiliation to a consortium are likely to play key roles in making the diversification strategy profitable. For example, if a firm with a relatively long service line performs decreasing performance, this might be due to a particularly high coordination complexity. In this scenario three strategic choices merit attention: 1) a reduction of the length of the service line with the aim of attenuating coordination costs, 2) the imitation of how more expert (e.g. older) firms manage resources within the service portfolio with the aim of catching their experience curve advantages, 3) the affiliation to a consortium with the aim of engaging in a variety of cooperative endeavors, potentially helping the firm to better exploit the benefits of a diversified service portfolio.

7. Conclusions

To conclude, in developing a comprehensive stage model of the relationship between service diversification and performance, this study suggests that researchers need to be cautious in attributing immediate positive/negative performance outcomes to service diversification strategies. The analysis demonstrates that the relationship between service diversification and performance varies with the phase of service diversification and that it is positively moderated by firm experience in the service industry and the firm's affiliation to a consortium.

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Claudio GIACHETTI is Assistant Professor of Strategy at the Department of Management, Ca' Foscari University of Venice. He received a Ph.D. in Business Economics at Ca' Foscari University of Venice (2010). He was visiting research fellow at the University of Zaragoza (2010), visiting Ph.D. student at Cass Business School in London (2008) and received a master degree in International Management from the Università di Modena e Reggio Emilia in Italy (2005). His research interests include corporate strategy, product innovation and international management. Claudio's papers have been published in various journals, including Strategic Organization, Technovation and Business History.