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Offshore Outsourcing and Firm Performance: Moderating Effects of Size, Growth and Slack Resources

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Abstract

This study explores the impact of foreign technology and professional services from outsourcing on firm financial performance. To this aim, we use a sample of 1,710 Indian firms over a time period of 13 years, from 2001 to 2013. The empirical evidence obtained shows that the positive effects of technological knowledge and professional services on performance are moderated by firm size, business growth and slack resources. In particular, the benefits of outsourcing in terms of higher profitability are more pronounced for small than for large firms, especially when small firms have higher growth rates and financial slack. The work contributes to the resource based view and the internalization theory of the firm. Our results suggest that firms from an emerging country such as India may have alternative motives for offshore outsourcing different from the reasons of firms from advanced economies. Several managerial implications are also derived from our findings.

Keywords: Offshore Outsourcing, Performance, Firm Size, Business Growth, Slack Resources.

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1. Introduction

Organizations are increasingly becoming leaner and more focused via outsourcing; i.e., locating certain specialized activities outside their boundaries. It helps the firm to become agile and in turn enhance its competitiveness (Quinn, 1999; Gilley & Rasheed, 2000). Anecdotal evidence highlights the prominent use of outsourcing by business organizations due to its positive impact on firm performance. For instance, an article published in Forbes reports that Apple corporation adds at least US$14 billion to its profit every year by outsourcing production into China (Chen, 2012). However, empirical research in this field is still evolving. Thus far, scholars have provided mixed results suggesting positive, negative or no relationship between outsourcing and performance. It seems that previous studies have not systematically captured the impact of outsourcing on firm performance and further investigation is warranted to bring some coherence (for details, see Ketokivi, 2016 and Lahiri, 2016).

Moreover, prior work has mainly focused on the outsourcing models of large Western multinational enterprises, which seek efficiency gains by relocating production to emerging economies, where the cost of production is lower (e.g., Guillén & García-Canal, 2009; Kang, Wu, Hong, & Park, 2012; Musteen, 2016). Meanwhile, less attention has been paid to outsourcing patterns of firms from emerging economies. Firms from such economies have higher needs and motivations for outsourcing because they are more likely to lack necessary resources compared to large Western multinational enterprises (Westhead, Wright, & Ucbasaran, 2001; Ramamurti, 2012; Buckley, Munjal, Enderwick, & Forsans, 2016a; Ciravegna, Lopez, & Kundu, 2016; Thite, Wilkinson, Budhwar, & Mathews, 2016). Moreover, as a result of their continued expansion, the needs of emerging market firms for seeking specialized resources outside their boundaries are rapidly growing.

Previous studies (e.g., Luo & Tung, 2007; Rabbiosi, Elia, & Bertoni, 2012; Munjal, 2014a; Chittoor, Aulakh, & Ray, 2015; Buckley & Munjal, 2017) relate this growing need for specialized foreign resources with the increase in cross-border acquisitions. This strategy gives emerging market firms access to specialized resources tied with other firms. However, cross-

border acquisitions are a complex and expensive mode of getting valuable foreign resources. In addition, it may not always be a viable alternative for the firm. In this context, we argue that firms can gain access to certain strategic resources through outsourcing. In particular, we focus on technological resources and professional services, such as marketing and managerial skills, because these are the typical resources and capabilities lacked by emerging market firms (Luo & Tung, 2007; Dunning, Kim, & Park, 2008; Ramamurti & Singh, 2010; Munjal, 2014b).

We draw on the resource based view (RBV) (Wernerfelt, 1984, 1995; Barney, 1996) and internalization theory (Buckley & Casson, 1976) to provide theoretical support for the relationships investigated in the study. The RBV is particularly apposite as it explains performance differences driven by heterogeneity in resources owned and controlled by the firm. Moreover, the modern perspective of the RBV suggests that ownership of resources is not a necessary requirement. By contrast, services of resources (for instance, through outsourcing, as postulated in our work) is a sufficient condition to generate differences in firm performance (Lavie, 2006). The use of the internalization theory, at the same time, offers the transaction cost rationale for a firm's decision to outsource abroad.

For the empirical analyses, we use a sample of 1,710 firms (13,875 firm-year observations) from India for a time span of 13 years, from 2001 to 2013. Our results show that outsourcing of technology and professional services from abroad has a positive direct impact on firm performance and that such positive impact is stronger in small firms. We also find that sales growth and slack resources positively moderate the outsourcing–performance relationship. The moderating effects of these two firm characteristics are also stronger for small enterprises.

Our research framework enables us to contribute to the RBV and internalization theory by bridging the gap between these two dominant theoretical explanations in the international business and strategy domains. We show that the relevance and implications of internalization differ among firms. Specifically, a firm's country of origin and its size matter in its outsourcing decision. In particular, large multinational enterprises from Western countries face the risk of losing control of valuable resources, such as technological knowledge, when adopting an offshore outsourcing strategy. By contrast, small firms from emerging economies, given their lack of advanced specialized resources, do not face that challenge.

The rest of the study is organized as follows. The next section, Section 2, provides a succinct review of the related literature and develops the testable hypotheses. This is followed by

a description of the data, empirical specifications and methods in Section 3. Next, Section 4 explains the results from the descriptive and regression analyses, and provides a discussion. Finally, Section 5 concludes by detailing the theoretical contributions of the work and offering managerial implications that can be derived from our findings.

2. Literature Review and Hypothesis Development

Outsourcing means locating an activity outside the boundaries of the firm. This implies that the firm buys intermediate goods and services in the external market rather than internalizing such tasks within its own hierarchy. It is important to note that outsourcing is not limited to those activities that were previously conducted within the firm and are later shifted to external suppliers. As Gilley and Rasheed (2000) suggest in their seminal work, outsourcing can be of two types: (i) substitution-based outsourcing and (ii) abstention-based outsourcing. The former type includes "something that a firm has been doing but decides not to do anymore and let other entities do it" (p. 765). In contrast, abstention-based outsourcing arises when "a firm purchases goods or services from outside organizations even when those goods or services have not been completed in-house in the past" (p. 765). In both cases, outsourcing implies the key decision of rejecting the internalization of an activity.

Prior research suggests that firms undertake outsourcing as a way to attain efficiency because, in general, outsourcing allows the firm to lower transaction costs that arise from undertaking production internally (Ang & Straub, 1998; Buckley, 2011a). Buckley and Casson (1976) stress that firms constantly reallocate activities inside (or outside) their boundaries to continue enhancing their performance. These authors also indicate that the decision to internalize an activity depends on several factors, including the scale of production and the resources available to the firm. In line with its principles, the internalization theory suggests that managers should constantly compare internal agency costs with external transaction costs, and endeavor to reduce internal agency costs to increase the boundaries of the firm. This line of reasoning implies that managers are compelled to check firm resources, especially slack resources, all the time to make sure that they are put to work to improve firm performance.

While scholarly attention on the internalization theory has primarily focused on the analysis of current costs and revenues, we argue that its true application also warrants managerial consideration for the future prospects of the business. This rationale means that the analysis

made by firms that operate in growing environments or that face growth opportunities should also include the possibility of expansion when they decide whether tasks should be internalized or outsourced.

The decision to internalize also depends on the location where activities are performed (Buckley, 2011a). Multinational enterprises in industrially advanced economies outsource certain activities to developing countries, such as manufacturing to China and software services to India, because this allows them to become more efficient by exploiting lower labor costs in these countries (e.g., Saxenian, 2002). However, outsourcing of specialized services and knowledge intensive activities, such as research and development (R&D), are also gaining increasing importance (Duysters, Jacob, Lemmens, & Jintian, 2009; Stanko & Olleros, 2013; Buckley, Munjal, Enderwick, & Forsans, 2017). Getting access to specialized services and knowledge intensive activities through outsourcing allows the firm to tap into knowledge and resources tied with other firms (Quinn, 1999). Very often such outsourcing is undertaken outside the home country because specialized knowledge required by the firm to achieve competitive advantages is spread across the globe (Papanastassiou & Pearce, 2009).

It can be argued that outsourcing may have a negative effect on the firm as it simultaneously leads to loss of control, leakages and spillovers of knowledge and resources to other firms (Bettis, Bradley, & Hamel, 1992; Stanko & Olleros, 2013). Moreover, outsourcing entails transaction costs derived from managing the relationship with an external partner, which are likely to be higher than the costs of organizing and controlling activities internally (Geis, 2007; Parida, Wincent, & Oghazi, 2016). The negative externalities of outsourcing are likely to be higher in the case of large and technology intensive firms from advanced economies. Firms originating from developing countries are less prone to such disadvantages as these firms often lack specialized knowledge and resources. A strand of research that suggests that firms from emerging economies seek access to specialized services and knowledge-based resources abroad is growing in the international business literature (e.g., Buckley et al., 2016a). Accessing strategic resources through outsourcing can be seen as a strategy for catching up with global peers (Duysters et al., 2009) and leap forging stages for building competitive advantages (Luo & Tung, 2007), which are required to improve firm performance.

Moreover, the drawbacks of outsourcing related with knowledge leakages, spillovers and managing costs are likely to be lower for smaller firms. These firms are more flexible, dynamic

and entrepreneurial (Núñez-Pomar, Prado-Gascó, Añó Sanz, Crespo Hervás, & Calabuig Moreno, 2016). It is likely that some specialized activities are lacking since inception and therefore small firms do not have any choice but to buy specialized services and rely on the knowledge obtained from other firms to conduct their key operations.

From a resource-based perspective, outsourcing means accessing specialized resources and capabilities from a vendor who caters to the firm. This strategy allows the firm to utilize the capabilities and resources of a specialized provider without having to own them (Mudambi & Tallman, 2010). This interpretation aligns with the modern perspective of the RBV, which suggests that the firm does not need to own resources because it is services themselves that matters and not the ownership of resources as such (Lavie, 2006). Outsourcing of activities to third parties allows the firm to gain access to more specialized services, given that the vendor firm is an expert in that function, while at the same time allowing the firm to concentrate on its core activities. As a result, the core competencies of the firm are enhanced and its performance improves (Quinn, 1992).

Although previous literature presents different rationales to justify the positive implications of outsourcing, the fact that its effect on firm performance could be contingent on firm attributes has not received due consideration (Federico, 2010). In the following sections, which are devoted to the development of our testable hypotheses, we highlight and argue for the differential impact of outsourcing on performance depending on firm characteristics.

2.1. Outsourcing–Performance Relationship and Business Growth Rate

The effect of outsourcing on firm performance is likely to differ across firms. Firms experiencing a higher growth rate are likely to benefit more from outsourcing than their slow growing or not growing counterparts. Several motives support this line of reasoning. The first argument is related with the rising need for resources faced by rapidly growing firms. In the scenario of a high growth rate, the firm needs more resources to support the ongoing growth. For instance, firms whose products or services experience a high demand need a higher stock of goods, and they should be able to manage rising sales volume and the associated logistics, including distribution channels, to take advantage of the rising demand. An argument can be made that in the long run growing firms may benefit more from internally developing technological and professional services than from outsourcing because buying services from

abroad is generally more expensive than the cost of developing them internally. However, firms may have difficulties to quickly develop professional expertise in-house to cope with the rising demand, at least immediately or in the short run. Thus, firms that outsource professional services are likely to convert rising growth rates into better financial performance more easily compared to firms that do not resort to outsourcing of professional services.

Moreover, a rapidly growing firm experiences time compression diseconomies, which means squeezing more things in a given time frame. In other words, a fast growing firm needs to develop technological and professional expertise more rapidly than a slow growing firm (Dierickx & Cool, 1989). Jiang, Beamish, and Makino (2014) suggest that time compression diseconomies affect resource and capability development negatively. In comparison, a slow growing firm faces less time pressure, which means that on average it has more time to adjust and develop the capabilities and expertise needed to meet its slow moving market demand.

Additionally, firms that grow more rapidly are likely to have more financial resources, which are necessary to buy services from abroad. Availability of financial resources enables the firm to buy the technology and professional services it needs to support its growth. It should be noted that financial resources become more critical when referring to offshore outsourcing because resources imported from other countries are frequently more expensive than the resources that can be acquired in the home country.

In light of the above arguments, we expect that firms that grow faster will experience higher firm performance due to outsourcing of technological and professional services and propose the following hypothesis:

H1a: The positive effect of foreign technology and professional services from outsourcing on firm profitability is stronger for firms that grow at a faster rate.

We further argue that the positive moderating effect of business growth on the outsourcing–performance relationship is stronger in the case of smaller firms. Our argument is based on the fact that generally small firms face more resource scarcity than large firms (Barber, Metcalfe, & Porteous, 2016). In other words, resource deficiency–i.e. the difference between existing resources and resources needed to support growth–is frequently larger in small firms.

This implies that the needs for resources of a small firm that is growing rapidly are likely to be more severe than the needs of a larger and more established firm (Westhead et al., 2001).

Moreover, small firms do not have the ability to shift resources internally and therefore their demand for additional resources is very inelastic (Greene, Brush, & Brown, 2015). Thus, meeting resource deficiency by the way of outsourcing is likely to generate higher positive marginal effects on the financial performance of rapidly growing small firms.

The recent work by Lin and Wu (2014) suggests that a firm's capabilities positively moderate the impact of resources on firm performance. This implies that firms with the skills necessary to adjust to environmental changes (for instance, those that attain growth in a competitive market) exhibit better performance by exploiting their resources. Considering that small firms are on average more entrepreneurial and dynamic, we expect that:

H1b: The positive effect of foreign technology and professional services from outsourcing on firm profitability is stronger for firms that grow at a faster rate and the positive effect intensifies in the case of small firms.

2.2. Outsourcing–Performance Relationship and Firm Slack Resources

To examine the idea that combining internal financial resources with resources obtained from outside the firm can explain better performance, we now focus on the availability of financial resources, referred to as slack resources (Bourgeois, 1981; Chakravarthy, 1986), as an additional moderating factor in the outsourcing–performance relationship. Prior research that investigates the impact of slack resources on performance is inconclusive (for details, see Daniel, Lohrke, Fornaciari, & Turner, 2004) and posits that "various relationships between a firm's slack resources and performance" exist (p. 565). As a consequence, further efforts to untangle how performance is affected by firm slack funds are warranted.

One of the key arguments in the organizational studies literature is that slack resources are likely to result into enhanced firm performance if they are tied up with good management (Waddock & Graves, 1997). However, availability of slack resources alone is not sufficient to achieve better performance. In fact, the existence of excess unused resources within the organization may signal lack of managerial ability to effectively utilize them. It should also be noted that slack resources entail an opportunity cost given that devoting them to a productive

activity rather than keeping them inside the firm could translate into higher profitability. Therefore, accumulating too much slack resources could be detrimental to firm performance (for a detailed account on slack resources and performance, see Daniel et al., 2004).

Moreover, scholars (e.g., Buckley & Prashantham, 2015) suggest that an organization's ability to outsource is a fair indication of good management. Managers need to fine-slice activities that are being outsourced (Contractor, Kumar, Kundu, & Pedersen, 2010; Buckley, 2011b). This implies close internal control over the supply chain within the firm hierarchy and managerial ability to control and coordinate with third parties. Kedia and Mukherjee (2009) argue that outsourcing decisions are made by managers to realize the advantages associated with disintegration and externalization.

We argue that availability of financial slack provides buying power to the firm given that these resources are readily available for spending (Ito & Rose, 2002). Moreover, it offers the firm the ability to negotiate with the vendor that provides the professional and technological services. Firms with slack resources can buy the complementary resources needed to enhance performance (Cassiman & Veugelers, 2006). With the help of financial slack, the firm can also secure better quality resources from abroad (Buckley, Munjal, Enderwick, & Forsans, 2016c, b; Buckley et al., 2016a). In addition, organizations with financial slack may be able to get professional and technological services customized to their real needs. All of these arguments point to the idea that combining slack financial resources with external knowledge and services could have a positive influence on firm performance. Therefore, we expect that firms with higher financial slack can enhance their performance more than firms with lower financial slack. Hence, we hypothesize that:

H2a: The positive effect of foreign technology and professional services from outsourcing on firm profitability is stronger in firms with more slack resources.

However, the beneficial effect of having slack resources when firms adopt an offshore outsourcing strategy could differ across firms depending on their size. In particular, we contend that the moderating effect of financial slack on the outsourcing–performance relationship is stronger in the case of smaller firms. Our argument is based on the fact that small firms are more entrepreneurial than large firms, thus implying that they have better ability to combine the

factors of production (Deakins & Freel, 1999; Wiklund & Shepherd, 2003). Managers of small firms are also able to achieve an optimal configuration of strategic R&D decisions, which is likely to have implications for firm financial performance (Teirlinck, 2017).

Moreover, given that they are used to facing resource scarcity, small firms are often more cautious and judicious in the use of available resources (Davidsson, 1989). The extant literature on small firms suggests that small firms are more dynamic, adaptable and flexible (Núñez-Pomar et al., 2016). In addition, managing a small firm is often less complex than the management of a large firm. Furthermore, they have low work force and a simple supply chain (Rainnie, 2016). These characteristics enable small firms to better exploit opportunities available in the market. Therefore, a small firm that has financial slack can be expected to make an effective utilization of available financial resources to enhance its financial performance. As a consequence, we propose the following hypothesis:

H2b: The positive effect of foreign technology and professional services from outsourcing on firm profitability is stronger in firms with more slack resources and the positive effect intensifies in the case of small firms.

3. Data, Empirical Specification and Method

3.1. Data

The main source of information is the Prowess database, which provides annual reports and other financial information on Indian firms. This is a popular database that has been used in many previous studies on Indian businesses (Elango & Pattnaik, 2007, 2011, 2013; Munjal, 2014a; Chittoor et al., 2015; Ramaswamy, Purkayastha, & Petitt, 2017). Prowess is a well-established database on the corporate sector in India and provides extensive details about the financial situation and background of publicly listed Indian firms, richer than the famous widely used Worldscope database (Oura, Hume, Papi, Saxegaard, Petia, Peiris, & Simone, 2009; Buckley et al., 2016b, a, c; Elango, Pattnaik, & Wieland, 2016).

From Prowess we obtain the information necessary to define the variables of interest. From the initial sample, we delete those observations for which the needed data are not available and we remove possible outliers. In addition, our estimation method, the difference generalized

method of moments (GMM), is based on the assumption of absence of second-order serial correlation in the first difference residuals. Consequently, we require at least five consecutive years of data for each firm to test for this assumption. After considering these filters, we obtain an unbalanced panel that comprises 1,710 firms (13,875 firm-year observations) for which at least five consecutive years of data are available between 2001 and 2013. The use of an unbalanced panel is the best alternative to alleviate the survivorship bias while controlling for unobserved heterogeneity (Carpenter & Petersen, 2002).

3.2. Empirical Specification

The baseline empirical specification to test the hypotheses previously developed is as follows:

$$\text{Performance}_{it} = \beta_1\text{Performance}_{i,t-1} + \beta_2\text{Foreign technology}_{i,t-1} + \beta_3\text{Foreign professional services}_{i,t-1} + \beta_4\text{Leverage}_{i,t-1} + \beta_5\text{Sales growth}_{i,t-1} + \beta_6\text{Financial slack}_{i,t-1} + \beta_7\text{Age}_{i,t-1} + \beta_8\text{Size}_{i,t-1} + d_t + \eta_i + v_{it}, \quad (1)$$

where the dependent variable is firm financial performance, as captured by return on total assets. Equation (1) is a dynamic model in that the lag of the dependent variable is included in its right-hand side. We lag all other explanatory variables by one year because any change in these variables is most likely to be reflected in financial performance the following year. The two firm characteristics of interest are foreign technology and foreign professional services. As detailed in the Prowess database, outsourced technological services include royalties and license fees paid for technical know-how and technical services. Meanwhile, outsourced professional services include consultancy fees paid to: (i) finance professionals for audit, taxation and work related to corporate law compliance; (ii) non-finance professionals (e.g., management consultants and lawyers); (iii) IT professionals; and (iv) others. Consistent with the hypotheses developed in the previous section, we expect that these two outsourcing variables affect firm performance positively.

The model also includes a set of control variables: leverage, sales growth, financial slack, age and firm size. These are standard control variables commonly included in financial performance models. Table 1 presents the definitions of all variables.[1] The use of debt affects firm financial performance because it is associated with the payment of interests and it can create agency conflicts between owners and creditors (Silva Serrasqueiro & Maçãs Nunes, 2008). Accordingly and considering empirical findings from recent works (Lozano, Martínez, & Pindado, 2016; Martínez & Requejo, 2017), we expect a negative effect of leverage on profitability. Firms with more growth opportunities, as captured by growth in sales (Isakov & Weisskopf, 2014), should exhibit better performance; thus, suggesting a positive relationship between both variables (Liu, Miletkov, Wei, & Yang, 2015). Higher financial slack should provide firms with more room for maneuver and more resources to innovate. In line with prior research, we expect that financial slack affects performance positively (Buckley & Tian, 2017). Uncertainty is likely to be higher in younger firms. Moreover, in the early stages of a firm life cycle, it might be complicated to achieve high returns given the constraints to get external financing at reasonable cost. As a consequence, firm age is expected to affect financial performance positively, consistent with previous empirical evidence (George, 2005; Kirca et al., 2016). Finally, given the higher dynamism and entrepreneurial profile of smaller firms, as well as their lower coordination costs (Buckley & Tian, 2017), we expect them to perform better. Hence and taking into account prior empirical research (Silva, Majluf, & Paredes, 2006; Singal & Singal, 2011; Waelchli & Zeller, 2013; Lozano et al., 2016), we anticipate a negative relationship between firm size and financial performance.

[Table 1 about here]

The summary statistics (i.e., mean, standard deviation, minimum, median and maximum) of all variables considered in the regression analyses and the correlations between each other are

[1] Consistent with previous recent research (e.g., Buckley & Tian, 2017; Martínez & Requejo, 2017; among others), firm age is defined as the natural logarithm of the time period since the date of incorporation of the business. However, other studies do not use a logarithmic transformation for this variable (e.g., Kirca, Douglas Fernandez, & Kundu, 2016). Therefore, we re-estimate the empirical models measuring firm age just as its years of existence, without logarithmic transformation. The regression results obtained using this alternative firm age definition, which are not reported in the study to save space but are available from the authors upon request, confirm the empirical findings presented in the article.

presented in Table 2 (Panels A and B). Interestingly, the variables that capture offshore outsourcing of technology and professional services are positively correlated with financial profitability, consistent with our line of reasoning. However, the two outsourcing variables are not correlated with each other.

[Table 2 about here]

The model also includes time dummies to control for the effect of macroeconomic factors on financial performance. The error term is split in two components: the individual effect and the random disturbance. The individual effect captures unobserved heterogeneity, including industry-specific effects. It is important to control for unobserved heterogeneity because financial performance is likely to depend on the style of the management team. Although managerial preferences cannot be observed, they are likely to remain constant over time and, as a consequence, they are controlled for by the individual effect. Similarly, the possible influence of belonging to a particular industry on performance, which is a firm characteristic that remains constant over time (i.e., a firm belongs to the same sector throughout the study period), is also accounted for by the individual effect in the models. The use of the difference GMM enables us to remove unobserved heterogeneity in the estimation process. Controlling for the individual effect also alleviates the omitted variable bias (Chi, 2005; Mura, 2007).

We extend the baseline specification presented in Equation (1) to test the hypotheses of the study. The extension in the empirical model consists in including interaction terms between the two variables of interest (i.e., foreign technology and foreign professional services) and dummy variables that enable us to split the sample in different categories. As a result, the extended specification is as follows:

$$\text{Performance}_{it} = \beta_1\text{Performance}_{i,t-1} + \beta_2\text{Foreign technology}_{i,t-1} + \gamma_2\text{Dummy}_{i,t-1} * \text{Foreign technology}_{i,t-1} + \beta_3\text{Foreign professional services}_{i,t-1} + \gamma_3\text{Dummy}_{i,t-1} * \text{Foreign professional services}_{i,t-1} + \beta_4\text{Leverage}_{i,t-1} + \beta_5\text{Sales growth}_{i,t-1} + \beta_6\text{Financial slack}_{i,t-1} + \beta_7\text{Age}_{i,t-1} + \beta_8\text{Size}_{i,t-1} + \beta_9\text{Dummy}_{i,t-1} + d_t + \eta_i + v_{it}. \quad (2)$$

The dummy variable is defined differently depending on the hypothesis to be tested. To test Hypotheses 1a and 1b, we create a high growth dummy that equals 1 for firm-year observations with a value in sales growth that is in the upper quartile of the sample, and zero otherwise. Meanwhile, we define a high slack dummy variable to test Hypotheses 2a and 2b. This dummy equals 1 when the financial slack, as captured by the cash and bank balance of the firm scaled by total assets, is in the upper quartile of the sample, and zero otherwise.

To test Hypotheses 1b and 2b, which propose that the effect of foreign technological and professional services on performance might also depend on firm size, Equation (2) is extended by including 3-way interaction terms between the outsourcing variables, the corresponding dummy of interest (i.e., high growth dummy or high slack dummy) and a small dummy variable. This dummy equals 1 for firms whose size is in the lower quartile of the sample, and zero otherwise.

In addition to controlling for unobserved heterogeneity, as explained above, it is necessary to account for endogeneity. For instance, regarding endogeneity due to reverse causality, although we expect that outsourcing of technological and professional services impacts on firm performance, one could also argue that businesses that perform better are able to acquire more resources from abroad. Therefore, causality could run in both directions. To control for endogeneity, the empirical models are estimated with the difference GMM, developed by (Arellano & Bond, 1991). The GMM is an instrumental variables method that embeds all other instrumental variables estimators as special cases (Ogaki, 1993). GMM estimators rely on a set of internal instruments contained within the panel itself, as highlighted by Wintoki, Linck, and Netter (2012). More precisely, the instruments that we use in the estimation process are lags from t–2 to t–5 of all explanatory variables. In a recent article, Abdallah, Goergen, and O'Sullivan (2015) contend that using the GMM is an adequate solution to address endogeneity concerns.

Given the use of the difference GMM, we need to conduct several specification tests. First, we calculate the Hansen J statistic of over identifying restrictions to check for the lack of correlation between the instruments and the error term, and find that the instruments used are valid in all models. Second, the m_2 statistic is computed to test for the lack of second order serial correlation in the first difference residuals and find no such problem. Finally, to check the

goodness-of-fit of the model, we use two Wald tests of the joint significance of the reported coefficients (z_1) and the time dummy variables (z_2).

Figure 1 shows the conceptual model and details the relationships investigated between dependent, explanatory and moderating variables. The figure also associates the effects that are tested with the hypotheses developed in the paper. The next section reports descriptive and regression results, and provides detailed explanations of the empirical evidence obtained.

[Figure 1 about here]

4. Findings and Discussion

4.1. Descriptive Analyses

We conduct several univariate tests to check whether there are any differences between firms that outsource either R&D-based knowledge or professional services and firms that do not acquire these types of resources abroad. The results of the difference-of-means tests are presented in Table 2 (Panel C). Regarding financial performance, we confirm that enterprises that rely on foreign technology and foreign professional services outperform firms that do not use foreign resources. These results are in line with expectations and suggest that acquiring specialized resources from abroad can help to improve profitability. We also find that firms that adopt an offshore outsourcing strategy tend to use less debt as a source of financing. A possible explanation could be that firms that acquire technology and services from foreign countries have higher internally generated funds, which enables them to be less dependent on external financing such as debt.

In terms of sales growth, firms that outsource knowledge intensive activities exhibit lower growth in sales. The acquisition of resources abroad could be a way to increase sales in the future. By contrast, firms that rely on foreign professional services experience higher sales growth rates. This type of resources could help them to manage their growth opportunities more efficiently. In terms of financial slack, we find that firms with access to specialized professional services have higher slack. The better managerial skills obtained from hiring foreign professionals explain that they can generate more slack resources. Older and larger enterprises tend to acquire more resources from abroad, be it technology or specialized professional

services. A possible reason could be the higher ability of these firms to access foreign markets. Therefore, although small firms are expected to benefit more from outsourcing of non-core activities, such as technological knowledge or specialized services that they cannot develop internally, it seems that they do not resort so often to offshore outsourcing due to difficulties implementing such strategy.

Overall, the results of the difference-of-means tests are consistent with expectations, but we must be very cautious when interpreting them because we are not controlling for other factors that could explain the findings. Indeed, the statistically significant differences across categories (i.e., outsourcing versus non-outsourcing firms) in the firm characteristics considered reinforce the need to control for such variables in the regression analyses.

4.2. Regression Results and Discussion

Prior research is inconclusive as to whether outsourcing is beneficial, detrimental or not relevant for the firm (Lahiri, 2016). Consequently, before empirically testing the hypotheses developed in Sections 2.1 and 2.2, we need to check if offshore outsourcing of specialized services and knowledge intensive activities has any positive effect on firm financial performance. Table 3 (column 1) shows that Indian firms benefit from the acquisition of foreign technological ($\beta_2 = 0.4757$, $p < 0.01$) and professional services ($\beta_3 = 0.1119$, $p < 0.01$). This result shows that specialized resources acquired abroad add value to firms from emerging markets such as India. These resources, in addition to filling certain gaps in knowledge and skills required for enhancing firm performance, may also complement the resources generated internally by emerging market firms (Buckley et al., 2016b, c).

[Table 3 about here]

Our findings provide new insights and explanations to the evolving literature on emerging economies, which suggests that emerging market firms undertake cross-border acquisitions for seeking strategic assets (e.g., Buckley, Forsans, & Munjal, 2012; Buckley et al., 2016a; Buckley, Yu, Liu, Munjal, & Tao, 2016d). Unlike previous related works, drawing on the RBV, we suggest that firms can gain access to certain strategic resources through outsourcing. In fact, outsourcing may be regarded as the initial step that firms take to access new resources. If the

required resources cannot be obtained through outsourcing, then the firm may pursue an acquisition strategy to buy the business in which the required resources are embedded. Thus, our paper extends the literature on the internationalization strategy and performance of firms from emerging markets by providing alternative and complementary explanations.

Most studies in the field focus on outsourcing of labor-intensive activities by firms from developed countries to emerging economies (Stanko & Olleros, 2013). Meanwhile, our first results provide support to the evolving literature on outsourcing of knowledge intensive activities. This strand of research highlights that outsourcing and offshoring firms may indirectly achieve higher financial performance; for instance, by improving the innovation performance of the firm (Varadarajan, 2009).

Next, we examine whether small firms are the ones that benefit most from outsourcing of technology and professional services. Our results confirm that this is indeed the case. Empirical evidence presented in Table 3 (column 2) highlights that the positive effect of foreign technology ($\gamma_2 = 0.8236$, $p < 0.01$) and professional services ($\gamma_3 = 0.1326$, $p < 0.01$) is stronger in smaller firms. We argue that this is primarily because small firms often lack capital, which severely restricts their ability to commit investment required in projects for developing technology and specialized knowledge. Moreover, small firms have limited capacity to manage development projects and to address the risk of failure or unforeseen events. Therefore, the relevance and potential benefits of buying specialized services and knowledge intensive activities from third parties are more remarkable for small firms.

Having confirmed that financial performance of Indian firms is higher when they buy knowledge and expertise from abroad, we check whether such beneficial effect is more pronounced in firms with a specific profile. In line with Hypothesis 1a, regression results presented in Table 4 (column 1) show that the positive effects of outsourcing of technological ($\alpha_2 = 0.6683$, $p < 0.01$) and professional services ($\alpha_3 = 0.0767$, $p < 0.01$) on profitability are stronger when firms grow at a faster rate. These findings highlight insights from the internalization theory (Buckley & Casson, 1976) in the sense that firms face challenges and need to find a trade-off when internalizing activities that can also be outsourced. In the case of high growth firms, difficulties arise to internally generate the specialized resources they need to take advantage of their growth opportunities. We argue that this is primarily because it takes a long time to generate specialized resources, like technology assets and professional knowledge, internally.

Firms facing growth opportunities are unlikely to have sufficient time to invest in developing such resources within the business given that they are focused on seeking and exploiting new and existing market opportunities. As a consequence, they benefit most from outsourcing activities and knowledge that do not constitute their core business.

[Table 4 about here]

Next, as proposed in Hypothesis 1b, we investigate if the differential positive effect of offshore outsourcing in firms with a high growth profile is even more pronounced in the case of small firms. Regression results presented in Table 4 (column 2) confirm our expectations. That is, rapidly growing small firms, given their limited resources, on top of increasing needs for specialized resources that they cannot generate internally in the given time for meeting increasing demand, benefit most from the acquisition of both technological ($\lambda_2 = 0.7556$, $p < 0.01$) and professional services ($\lambda_3 = 0.0358$, $p < 0.01$) from foreign countries in terms of financial performance.

It is important to highlight that the time frame covered in the present study encompasses the recent global financial crisis as well as the growth phases in the pre- and post-crisis periods. In this respect, prior research (Wu, 2010; Lin & Wu, 2014; Huang, Dyerson, Wu, & Harindranath, 2015) suggests that firms facing a dynamic environment, such as a financial crisis and growing market share, need more resources and capabilities to sustain and keep up their performance level. To some extent, the empirical evidence that we obtain seems to confirm this line of thinking.

Our next argument for the stronger positive effect of foreign resources secured through outsourcing on financial performance in businesses that grow faster can be associated with their higher ability to generate internal funds for the acquisition of such resources. Accordingly, we are compelled to investigate the moderating role of slack resources in the outsourcing–firm performance relationship. Empirical evidence presented in Table 4 (column 3) provides support for Hypothesis 2a. That is, the acquisition of foreign knowledge ($\delta_2 = 0.8162$, $p < 0.01$) and professional services ($\delta_3 = 0.0396$, $p < 0.01$) has a stronger positive effect on profitability in firms with more slack resources.

Financial slack allows the firm to buy foreign technology and professional services that can be relevant to enhance firm profitability. The decision to buy foreign resources reflects the willingness of managers as well as their ability to effectively utilize such foreign resources. Moreover, it is reasonable to expect that firms which have extra financial funds along with foreign technological and professional knowledge will be able to effectively combine these resources with the aim of attaining higher performance. According to Das and Teng (2000), such combination of financial and specialized knowledge reflects the accumulation of complementary resources, which is likely to result in enhanced performance. In terms of the RBV and internalization theory, firms use slack financial resources to access specialized knowledge from the market (through outsourcing rather than internalization) and this creates a bundle of valuable resources that the firm requires to seek higher performance.

We also check the possible advantage of small firms in exploiting financial slack. The estimated coefficients presented in Table 4 (column 4) confirm that the positive impact of both foreign technology ($\gamma_2 = 0.2660$, $p < 0.05$) and professional services ($\gamma_3 = 0.1081$, $p < 0.01$) on performance is stronger in the case of small firms. These findings, which are in line with Hypothesis 2b, support the entrepreneurial ability of small firms in utilizing extra financial resources and in purchasing specialized technological and professional knowledge to enhance firm financial performance. Although small firms are resource constrained, they are more careful when spending them. Recent research (Bengtsson & Johansson, 2014; Parida, Patel, Wincent, & Kohtamäki, 2016) suggests that small firms are more open to collaborations with third parties as network ties and diversity of resources held by other businesses are likely to have beneficial effects for them. This is also indicative of their entrepreneurial orientation to gain resources from the external network.

5. Conclusions

The objective of this work is to empirically examine the relationship between offshore outsourcing and performance. We provide theoretical reasons and find support for the idea that international outsourcing of specialized services and knowledge intensive activities boosts firm performance. However, we argue that the outsourcing–performance relationship is contingent on the firm ability to grow faster and the availability of slack resources. It is also proposed that the

positive impact of outsourcing on financial performance is stronger in small firms, and that the moderating effects of growth rates and slack resources intensify when firms are smaller.

This study makes a significant theoretical contribution by bringing the RBV and internalization theory together. It stresses that the firm can revamp its bundle of existing resources by internalizing (or outsourcing) certain activities. Indeed, firms face several challenges and trade-offs when making internalization decisions, which ultimately determine what needs to be (or can be) internalized and what should be outsourced. A growing firm may want to concentrate on maximizing market share and, therefore, is likely to outsource intermediary resources it requires for production. The reason is that the internalization of intermediary resources (especially if these are knowledge-based specialized resources, such as technology) could take its efforts away from the exploitation of prevailing market opportunities. In a nut shell, our work emphasizes that, despite the adequacy of the RBV and internalization theory to independently explain firm growth and strategy, a joint application of these two frameworks helps us to gain better understanding of how firms maximize their performance. The two frameworks complement each other as firms harmoniously apply their principles in formulating a resource restructuring strategy to achieve higher performance.

The findings obtained in the study also enable us to make several additional contributions to previous outsourcing and international business literature: first, we show that the purchase of resources from abroad is an alternative strategy for firms from emerging markets to improve their performance (maybe the first step before undertaking more expensive internationalization modes such as cross-border acquisitions). Second, our results highlight the importance of the outsourcing strategy for small firms from emerging economies that seek specialized and knowledge intensive services abroad. Therefore, our point of view is exactly contrary to the orthodox academic perspective on outsourcing, which has traditionally focused on how Western multinational enterprises relocate non-core activities to emerging countries in search of efficiency gains. We confirm that organizations are moving away from the traditional cost saving motives for outsourcing to reasons related with the access to new skills and talent. Hence, scholars' efforts to identify new terms such as 'best sourcing', which can distinguish two different forms of sourcing practices (Pingali, Rovenpor, & Shah, 2017). Third, the present study extends the internalization theory by arguing that reasons for internalizing differ between small and large firms, and between emerging market enterprises and firms from advanced economies.

Finally, the empirical evidence obtained emphasizes the importance of integrating the RBV with the firm's internalization decision.

Several managerial implications can be derived from our study. Managers should take into account that firm financial performance depends on the bundle of resources available within the business and outsourcing decisions can help the firm to create a desired bundle. More precisely, we highlight that enterprises do not need to expend resources on developing specialized functions within the firm's hierarchy if such services can be obtained from external parties. This implies that managers can in advance avoid the challenge of internally developing resources by not owning the process of internal development. Indeed, managers face a trade-off when making decisions between internalization and outsourcing. But if the firm has financial slack, then it can be easily converted into desired resources by outsourcing them from vendors rather than developing them internally. Buying may be more expensive, but it can save time and effort, which may be vital for firms operating in high growth market such as the Indian economy. Thus, it is important that managers recognize that one possible strategy to improve the future prospects and to support the growth of the business is to buy specialized resources, including resources from foreign organizations. We also highlight that small firms are the ones that benefit most from offshore outsourcing of specialized services. Hence, managers of this type of firm and entrepreneurs in general should be more open to the use of outsourcing.

As any empirical research, our work is not without limitations. Like previous related studies, our findings are based on a sample of firms from one particular emerging country, India, where technological factors and professional service may have a positive influence given that India is a knowledge driven economy. Future research can examine the relationships tested in the present work using samples from other emerging countries. Although our measures of outsourcing are relatively new and represent a contribution to the international business literature, especially the variable related with foreign professional services, the amount spent on resources acquired through outsourcing may not capture the use given to such resources and the degree of utility that they provide. We call for future research to examine the relationships tested in the present work using qualitative research methods, such as interviews with managers of outsourcing firm. Qualitative and case studies might offer further explanations as to why outsourcing of specialized resources enhances firm performance. In particular, it would be

interesting to provide additional insights on how and why business growth rate, slack resources and size moderate the outsourcing–performance relationship.

In addition, further efforts to disentangle which types of firms benefit most from outsourcing are warranted. In particular, international business researchers could examine whether small firms from emerging markets that are willing to embark upon exporting initiatives achieve higher performance when they outsource specialized resources. New studies on the impact of outsourcing on exporting initiatives and on the role of exporting activities as mediator or moderator in the outsourcing–performance relationship could provide new insight into the circumstances under which outsourcing is most beneficial to the firm. This strand of research, which is beyond the scope of the present study, would complement and extend previous works that explore the relationship between exporting and performance (Yang & Mallick, 2010; Haidar, 2012; Mallick & Yang, 2013; Yang & Mallick, 2014). We encourage scholars to analyze the interactions between export activity, outsourcing of specialized resources and firm performance because new findings in this field could represent an important contribution to the international business literature.

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Figure 1

Conceptual model of the outsourcing–performance relationship and testable hypotheses.

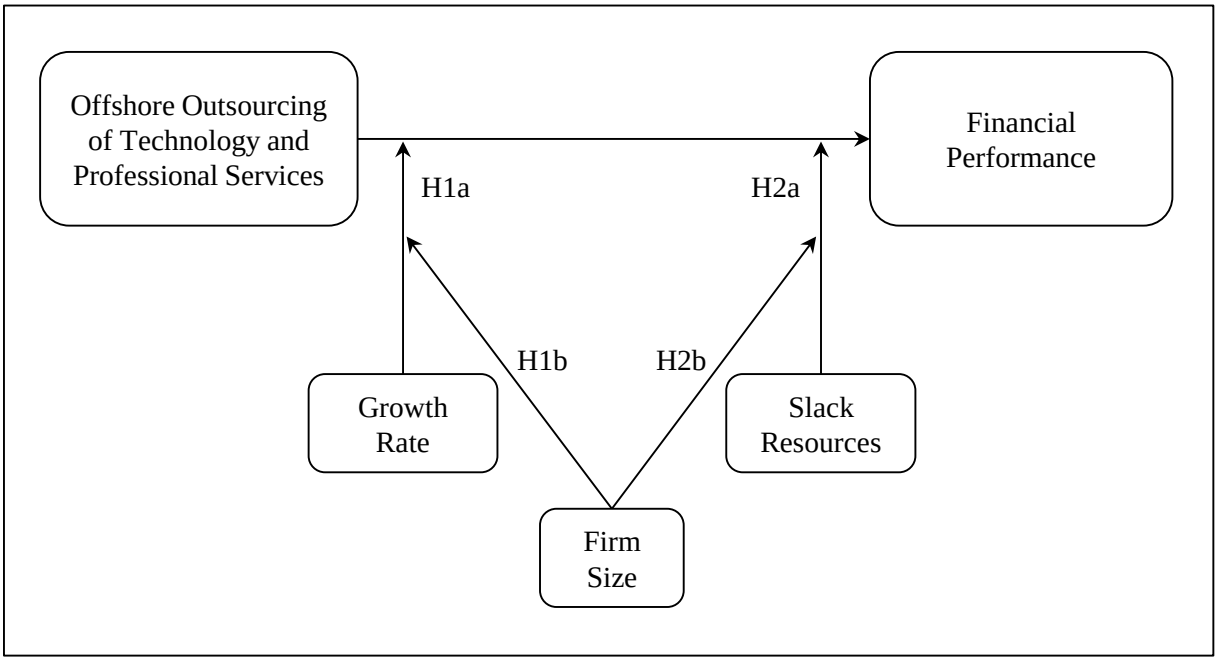

Table 1

Definition of variables.

Variable	Definition
Panel A: Dependent variable	
Performance	Firm financial performance is measured as the ratio of profit after taxes divided by total assets.
Panel B: Outsourcing variables	
Foreign technology	Technological knowledge is the ratio of royalties paid to acquire foreign technology scaled by total assets.
Foreign professional services	Specialized professional services are the ratio of expenses in imports of foreign services scaled by total assets.
Panel C: Control variables	
Leverage	A firm's capital structure is measured as the ratio of total debt divided by total assets.
Sales growth	Growth in sales as a measure of investment opportunities is computed as sales in t minus sales in t–1 divided by sales in t–1.
Financial slack	Financial slack are liquid resources that are at the disposal of the firm; hence, it is measured as the cash and bank balance of the firm scaled by total assets.
Age	Firm age is the natural logarithm of the difference between the corresponding year and the date of incorporation of the business.
Size	Firm size is the natural logarithm of firm total sales.

Table 2

Summary statistics, correlations and difference-of-means tests.

Panel A: Summary statistics

Variable	Mean	Standard deviation	Minimum	Median	Maximum
Performance	0.0313	0.1087	-1.8946	0.0336	1.3346
Foreign technology	0.0011	0.0057	0.0000	0.0000	0.2349
Foreign prof. services	0.0151	0.0580	0.0000	0.0011	0.9973
Leverage	0.3017	0.1989	0.0000	0.2910	0.9988
Sales growth	0.1778	0.4170	-0.9998	0.1252	4.6549
Financial slack	0.0527	0.0741	0.0000	0.0266	0.9189
Age	3.1124	0.7063	0.6931	3.0910	5.0173
Size	7.4862	2.1145	0.1823	7.5141	15.4319

Panel B: Correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Performance	(1)	1.0000							
Fgn. tech.	(2)	0.0593***	1.0000						
Fgn prof. serv.	(3)	0.0536***	-0.0070	1.0000					
Leverage	(4)	-0.3453***	-0.0821***	-0.0735***	1.0000				
Sales growth	(5)	0.1470***	0.0009	0.0573***	-0.0060	1.0000			
Financial slack	(6)	0.1534***	0.0174**	0.0692***	-0.2268***	0.0580***	1.0000		
Age	(7)	0.1148***	0.0312***	-0.0432***	-0.0890***	-0.1248***	-0.0182**	1.0000	
Size	(8)	0.2061***	0.0999***	0.0972***	0.0215**	0.0547***	0.0445***	0.2552***	1.0000

Panel C: Difference-of-means tests

	Firms acquiring foreign technological knowledge			Firms acquiring foreign specialized professional services		
	Yes	No	Difference	Yes	No	Difference
Performance	0.0581	0.0271	0.0310***	0.0425	0.0092	0.0333***
Leverage	0.2433	0.3110	-0.0677***	0.2941	0.3168	-0.0227***
Sales growth	0.1547	0.1815	-0.0268***	0.1831	0.1672	0.0159**
Financial slack	0.0542	0.0525	0.0017	0.0552	0.0479	0.0073***
Age	3.3849	3.0689	0.3160***	3.1961	2.9461	0.2500***
Size	8.9600	7.2507	1.7094***	8.2009	6.0652	2.1357***

This table provides the means, standard deviations, minimums, medians and maximums of the variables used in the study as well as the correlations between them. The table also shows the difference-of-means tests between outsourcing and non-outsourcing firms in their financial characteristics. The ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 3

Effect of offshore outsourcing of technological knowledge and specialized professional services on firm performance.

Dependent variable: Firm performance	(1)	(2)
Lagged dependent variable		
β_1Performance$_{i,t-1}$	0.1840***	0.1788***
	(0.0169)	(0.0082)
Explanatory variables of interest		
β_2Foreign technology$_{i,t-1}$	0.4757***	0.4047***
	(0.0845)	(0.0781)
γ_2Small firm dummy$_{i,t-1}$ *		0.8236***
Foreign technology$_{i,t-1}$		(0.1590)
β_3Foreign professional services$_{i,t-1}$	0.1119***	0.0859***
	(0.0181)	(0.0135)
γ_3Small firm dummy$_{i,t-1}$ *		0.1326***
Foreign professional services$_{i,t-1}$		(0.0161)
Control variables		
β_4Leverage$_{i,t-1}$	-0.0544***	-0.0495***
	(0.0145)	(0.0105)
β_5Sales growth$_{i,t-1}$	0.0016	0.0028***
	(0.0014)	(0.0009)
β_6Financial slack$_{i,t-1}$	0.0493***	0.0320***
	(0.0139)	(0.0110)
β_7Age$_{i,t-1}$	0.0103	0.0125
	(0.0095)	(0.0079)
β_8Size$_{i,t-1}$	-0.0242***	-0.0285***
	(0.0054)	(0.0030)
β_9Small firm dummy$_{i,t-1}$		-0.0070***
		(0.0026)
z_1	35.99 (8)	139.89 (11)
z_2	40.98 (11)	64.14 (11)
m_2	0.56	0.51
Hansen	249.59 (251)	373.25 (365)

This table presents the difference GMM regression results of the performance models. The rest of the information needed to read this table is: (i) heteroskedasticity consistent asymptotic standard errors are in parentheses; (ii) the ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively; (iii) z_1 is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; (iv) z_2 is a Wald test of the joint significance of the time dummies, asymptotically distributed as χ^2 under the null of no relationship, degrees of freedom in parentheses; (v) m_2 is a serial correlation test of second order using residuals in first differences, asymptotically distributed as N(0,1) under the null of no serial correlation; and (vi) Hansen is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null of no correlation between the instruments and the error term, degrees of freedom in parentheses.

Table 4

Moderating effect of growth status, financial slack and size on the relationship between offshore outsourcing of resources and performance.

Dependent variable: Firm performance	(1)	(2)	(3)	(4)
Lagged dependent variable				
β_1Performance$_{i,t-1}$	0.1184***	0.1013***	0.1544***	0.1628***
	(0.0117)	(0.0036)	(0.0113)	(0.0050)
Explanatory variables of interest				
β_2Foreign technology$_{i,t-1}$	0.3003***	0.2958***	0.2682***	0.2139***
	(0.0302)	(0.0259)	(0.0294)	(0.0277)
α_2High growth dummy$_{i,t-1}$ *	0.6683***	0.5125***		
Foreign technology$_{i,t-1}$	(0.0722)	(0.0641)		
λ_2High growth dummy$_{i,t-1}$ * Small firm		0.7556***		
dummy$_{i,t-1}$ * Foreign technology$_{i,t-1}$		(0.0598)		
δ_2High slack dummy$_{i,t-1}$ *			0.8162***	0.9451***
Foreign technology$_{i,t-1}$			(0.0998)	(0.1070)
γ_2High slack dummy$_{i,t-1}$ * Small firm				0.2660**
dummy$_{i,t-1}$ * Foreign technology$_{i,t-1}$				(0.1139)
β_3Foreign professional services$_{i,t-1}$	0.0741***	0.0364***	0.0972***	0.1026***
	(0.0122)	(0.0052)	(0.0097)	(0.0066)
α_3High growth dummy$_{i,t-1}$ *	0.0767***	0.0849***		
Foreign professional services$_{i,t-1}$	(0.0073)	(0.0050)		
λ_3High growth dummy$_{i,t-1}$ * Small firm		0.0358***		
dummy$_{i,t-1}$ * Foreign professional services$_{i,t-1}$		(0.0059)		
δ_3High slack dummy$_{i,t-1}$ *			0.0396***	0.0303***
Foreign professional services$_{i,t-1}$			(0.0089)	(0.0069)
γ_3High slack dummy$_{i,t-1}$ * Small firm				0.1081***
dummy$_{i,t-1}$ * Foreign professional services$_{i,t-1}$				(0.0079)
Control variables				
β_4Leverage$_{i,t-1}$	-0.0729***	-0.0663***	-0.0564***	-0.0423***
	(0.0100)	(0.0044)	(0.0100)	(0.0068)
β_5Sales growth$_{i,t-1}$	0.0079***	0.0084***	0.0007	0.0029***
	(0.0018)	(0.0011)	(0.0012)	(0.0006)
β_6Financial slack$_{i,t-1}$	0.0351***	0.0227***	0.1229***	0.1577***
	(0.0123)	(0.0086)	(0.0148)	(0.0071)
β_7Age$_{i,t-1}$	0.0175*	0.0112*	0.0099	0.0305***
	(0.0091)	(0.0063)	(0.0089)	(0.0068)
β_8Size$_{i,t-1}$	-0.0536***	-0.0494***	-0.0289***	-0.0317***
	(0.0031)	(0.0016)	(0.0028)	(0.0017)
β_9High growth dummy$_{i,t-1}$	-0.0109***	-0.0109***		
	(0.0025)	(0.0015)		
β_{10}High slack dummy$_{i,t-1}$			-0.0217***	-0.0305***
			(0.0029)	(0.0014)
β_{11}Small firm dummy$_{i,t-1}$		-0.0170***		-0.0101***
		(0.0018)		(0.0017)
z_1	110.91 (11)	307.39 (14)	71.68 (11)	473.29 (14)
z_2	77.46 (11)	167.84 (11)	61.90 (11)	178.48 (11)
m_2	0.05	-0.14	0.29	0.38
Hansen	350.99 (325)	451.99 (441)	359.61 (325)	468.64 (435)

This table presents the difference GMM regression results of the performance models. For the rest of the information needed to read this table, see Table 3.