Business-Related Determinants of Offshoring Intensity

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ABSTRACT

Some researchers view information systems (IS) offshoring as extension of onshore IS outsourcing. However, others have the opinion that IS offshoring has its unique characteristics because of which, we cannot extend research made in onshore IS outsourcing without testing its applicability to the offshore context. This tension motivates our research to examine whether determinants of IS offshoring are indeed the same as determinants of onshore IS outsourcing? We examine the role of some firm level determinants of offshoring intensity. The four business related determinants that we analyze in this study are: business size, business cost, business financial leverage, and business performance. Results indicate a significant relationship between business size and offshoring intensity, and also between business financial leverage and offshoring intensity. Based on the results, we analyze similarities and differences between traditional onshore IS outsourcing and IS offshoring. Implications and contributions arising out of this study are also discussed.

Keywords: financial performance; offshoring; outsourcing; secondary data

INTRODUCTION

Arnett and Jones (1994) define information systems (IS) outsourcing as the transfer of IS assets, leases, and staff to outsourcing vendors. In other words, IS outsourcing can be viewed as the decision and process by which firms transfer various functional aspects of their IS to third-party vendors. IS outsourcing has been a popular phenomenon since the time Kodak signed its first outsourcing deal in 1989 (Dibbern, Goles, Hirschheim, & Jayatilaka, 2004). But during this period, most of the outsourcing phenomenon was restricted within the borders of the country. In other words, most of the IS outsourcing work was onshore outsourcing. It is for this reason existing literature on IS outsourcing primarily focuses on onshore outsourcing. IS offshoring, which is an offshoot of IS outsourcing, is a relatively new phenomenon. IS offshoring refers to the migration of all or part of the development, maintenance, and delivery of IS services to a vendor in a country different from that of the client (Hirschheim, Loebbecke, Newman, & Valor, 2005). Developments in information and communication technologies (ICTs) in
the last decade enabled effective and efficient delivery of digitized information across borders. Along with this, deregulations and removal of trade barriers spurred the development of IS offshoring. Firms now have convenient, real-time access to the skills of knowledge workers from countries across the globe.

IS outsourcing and IS offshoring can be visualized as a decision which firms make regarding their strategy to cross the firm and the country boundaries. This can be represented in a 2x2 matrix (see Figure 1). Simply speaking, the transcending of a firm’s boundary for IS functions can be described as IS outsourcing, whereas crossing the nation’s boundary for IS-enabled functions can be viewed as IS offshoring. Figure 1 illustrates that offshoring (quadrants II and III) can be both outsourcing and insourcing, bringing out the fundamental difference between definitions of onshore outsourcing and offshoring. Offshoring projects might be outsourced, or alternatively they might be insourced to a subsidiary of the parent company.

In addition to the differences in definitions of outsourcing and offshoring, the firms’ motivations for such actions might also be very divergent. Outsourcing normally enables firms to focus on their core competencies. Firms can strategically outsource those business processes which they do not intend to develop and nurture as a core competency (Slaughter & Ang, 1996). In contrast, in addition to focusing on core competencies, offshoring purports to strategically route the required services from those countries which offer comparable or better skills at a cheaper price. It makes it possible to extend enterprise boundaries to effectively access skills from distant places without physical movement of labor (Hirschheim et al., 2005; Rao, 2004). This phenomenon of taking jobs to the country of the skilled worker allows firms to tap the services of that segment of labor, which may otherwise be unwilling to move away physically, from their home country. Hence, firms not only have an incentive in terms of cost reduction but can also exercise a wider choice in terms of labor skills (Rao, 2004).

Another critical difference between onshore IS outsourcing and IS offshoring lies in the modalities for such arrangements. Unlike

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Figure 1. The boundaries of outsourcing and offshoring

<table>
<thead>
<tr>
<th></th>
<th>Inside</th>
<th>Outside</th>
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<tbody>
<tr>
<td>I</td>
<td>Onshore Outsourcing</td>
<td>II</td>
</tr>
<tr>
<td>IV</td>
<td>Onshore Insourcing</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>Inside</td>
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offshoring, it is relatively easier to monitor onshore outsourcing. There are two key reasons for this: the small physical distance, and the fact that both vendor and client are usually in the same time zones. In general, any function that does not require physical monitoring and can be easily digitized for transmission through electronic means is an offshore candidate. Thus, IS offshoring includes not only the firm’s IS functions and processes, but also its IS-supported business processes (Trampel, 2004).

Though there has been a phenomenal increase in IS offshoring (Gardner, 2006; Ribeiro 2006; Watson, 2005), scholarly deliberations on the subject are relatively sparse. Current research on IS offshoring focuses on three broad themes: offshoring relationship development and evolution (Carmel & Agarwal, 2002; Kaiser & Hawk, 2004; Khan, Currie, & Guah, 2003; Nicholson & Sahay, 2004), best practices, management and impact of offshoring (Aron, Clemons, & Reddi, 2005; Mani, Barua, & Whinston, 2005; Rottman & Lacity, 2004), and the factors affecting growth of offshoring (Dutta & Roy, 2005; Whitaker, Mithas, & Krishnan, 2005). Though there is a need for deeper understanding in all the three above mentioned areas, it is equally important to understand whether IS offshoring is just an extension of the onshore IS outsourcing phenomenon or is it fundamentally different. The research agenda is important in light of the fact that some researchers view IS offshoring as an extension of onshore IS outsourcing activity (Loh & Venkatraman, 1992; Smith, Mitra, & Narasimhan, 1998). Taking onshore IS outsourcing literature as the point of departure, we hypothesize in a similar way for IS offshoring. Past literature on determinants of IS offshoring has focused primarily on the binary decision of whether to offshore or not (Whitaker et al., 2005). In contrast to this, our study accounts for the differences in offshoring volumes across the firms.

In this article, we address two broad research questions. First, what are the important firm-level business characteristics associated with the firms’ offshoring intensity? Second, is the IS offshoring phenomenon different from onshore IS outsourcing in terms of the identified firm-level characteristics? To answer these two broad questions, we identify some of the important firm-level business characteristics from onshore IS outsourcing literature and test their applicability in the offshoring scenario.

The rest of the article is organized as follows. First, using literature on organization theory and onshore IS outsourcing, we identify business-related antecedents that explains firms’ offshoring intensity. Next, using firm-level data, we test the hypotheses that we formulated. Finally, we discuss the results and conclusions of this study.

**RESEARCH MODEL AND HYPOTHESES**

Many recent studies on offshoring have investigated the host country characteristics contributing to a firm’s decision to offshore its business processes to that nation (Lewin & Furlong, 2005; Lewin, Peacock, Peeters, Russell, & Sutton, 2005; Rao, 2004). Surprisingly, there is little empirical research exploring the firm-level determinants of offshoring. In this article, we develop a model for the firm-level business-related characteristics which determine its offshore intensity. We define offshoring intensity as the amount of production or service that has been transferred by the company from its parent country to a foreign destination.

We posit that the firm-level economic constructs prior to the offshoring event guide not only the firm’s decision to offshore, but also determine the volume of its offshored activities. Economic constructs related to IS outsourcing activity have been conceptualized in the past literature (Loh & Venkatraman, 1992; Smith, Mitra, & Narasimhan, 1998). Taking onshore IS outsourcing literature as the point of departure, we hypothesize in a similar way for IS offshoring. Past literature on determinants of IS offshoring has focused primarily on the binary decision of whether to offshore or not (Whitaker et al., 2005). In contrast to this, our study accounts for the differences in offshoring volumes across the firms.

Based on the theory of IS alignment (Henderson & Venkatraman, 1992; Teo & King, 1997), we suggest the specific constructs of the business domain that should be aligned with the decision for IS offshoring. The theory of IS
alignment suggests that the business structure of the organization should be aligned with the IS strategy for better performance (Chan, Huff, Barclay, & Copeland, 1997). Consequently, offshoring, which can be a realized IS strategy, should be aligned and dependent on the business structure of the firm. Thus, we posit that the firm’s offshore intensity is dependent on the prior structural business characteristics of the firm which include business size, business cost, business financial leverage, and business performance (return on assets, return on sales, and return on equity). The research framework for this study is depicted in Figure 2.

**Business Size**

Past research finds organizational size, defined as total assets for the company, to be a major determinant of the firm’s actions. Larger firms are more capable of taking advantage of the opportunities to enter new and promising markets than smaller firms (Damanpour, 1992; Haveman, 1993). The decision to offshore is a strategic decision for the firm. It involves a major shift in the firm’s sourcing strategy and involves a lot of risk in terms of transferring a part of its value chain to a distant land with a different political, cultural, and social environment. Increased size of the organization gives it access to a greater amount of resources, leading to its ability to better manage the risks associated with offshoring decisions (Aron et al., 2005; Swartz, 2004). Further, larger firms tend to have more experience in dealing with overseas partners than smaller firms, and consequently may have greater confidence in managing offshore contracts. Thus, we hypothesize:

**Hypothesis 1:** The larger the size of the firm, the higher will be its offshoring intensity.

**Business Cost**

Business cost is the total cost directly associated with the actual production and coordination of a firm’s product line (Loh & Venkatraman, 1992). Firms in a competitive marketplace are exploring ways to reduce their business costs to increase profitability (Porter, 1980). Firms having relatively high costs will consider the available options for bringing down their business cost. IS offshoring has been highlighted as a means to reduce the transaction costs for

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**Figure 2. Research model: Business-related determinants of offshoring intensity**
firms (Hirschheim et al., 2005; Khan et al., 2003; Pfannenstein & Tsai, 2004). Though traditional outsourcing reduces costs, offshoring purports to bring about greater reduction in costs because of significant cost arbitrage across national boundaries (Rao, 2004). For instance, cheap labor in India helps companies like American Express to reduce costs to the extent of millions of dollars (Agrawal, Farrell, & Remes, 2003). Thus, IS offshoring is one of the options which firms may exercise for reducing their business costs. This implies that firms that have relatively high business costs will be more inclined to follow this option. This argument is also supported by transaction cost theory, which suggests offshoring as an option to reduce the transaction costs (Carmel & Nicholson, 2005). Therefore, we hypothesize that a firm’s prior business cost is one of the vital determinants of its offshoring intensity:

Hypothesis 2: The higher the prior business cost of a firm, the higher will be its offshoring intensity.

Business Financial Leverage

Financial leverage describes the degree to which a firm’s business is utilizing borrowed money. Though financial leverage is not always bad, companies that are highly leveraged may risk bankruptcy if they are unable to service these debts. Financial leverage is one of the vital components describing a firm’s business governance strategy (Loh & Venkatraman, 1992). When financial leverage is high, firms are burdened with high debt. Offshoring arrangements generally include significant initial contractual arrangements and financial risks with vendors because of transactions beyond national boundaries. Firms that are already burdened with high debts may not want to risk this new offshoring strategy. Prior research shows that firms with high financial leverage do not want to take risky initiatives and are averse to new investments (Ertugrul, Sezer, & Sirmans, 2006; Gloy & Baker, 2002; Myers, 1977). Consequently, we hypothesize that firms with a high level of financial leverage will be less motivated to offshore their activities:

Hypothesis 3: The higher the prior financial leverage of a firm, the lower will be its offshoring intensity.

Business Performance

A vital component guiding the strategic decisions that firms make is their business performance. When business performance of firms does not match the desired levels, they are on the look out for ways to improve their performance. With this objective in view, the changes incorporated in the firms may not only be related to improving direct operations, but may also include changing strategic business mechanisms (Loh & Venkatraman, 1992; Smith et al., 1998). One of the changes in the business mechanisms that firms may consider is the use of IS offshoring to improve their business performance. The strategic change literature also suggests that firms having low performance will attempt a turnaround through strategic change (Barker & Duhamel, 1997; Kimberly & Quinn, 1984; Zhang, 2006). The strategic change may be in terms of a change in the arrangement of a firm’s resource allocation to different functional areas (Ginsberg, 1988). Thus, firms having a low business performance may be motivated to use offshoring as a viable option. In our study, we use three measures of business performance: return on assets (ROA), return on sales (ROS), and return on equity (ROE) (Loh & Venkatraman, 1992; Smith et al., 1998; Zhang, 2006). Hence, we hypothesize that the prior level of business performance of a firm is associated with its offshoring intensity:

Hypothesis 4: The lower the prior business performance of a firm, the higher will be its offshoring intensity.

Hypothesis 4a: The lower the prior ROA of a firm, the higher will be its offshoring intensity.

Hypothesis 4b: The lower the prior ROS of a firm, the higher will be its offshoring intensity.
Hypothesis 4c: The lower the prior ROE of a firm, the higher will be its offshoring intensity.

METHODOLOGY

Though the research questions in our study can be answered by using any of the two prevalent methodologies in IS studies, namely case study approach or questionnaire survey, we chose to use secondary data analysis for four important reasons. First, because of the political sensitivity surrounding offshoring, companies are unwilling to participate in surveys. Further, companies participating in surveys may not be willing to divulge details of their offshoring endeavors. Second, audited financial data provide a more objective evaluation of the firm’s performance and other characteristics than the perception-based data used in case studies and surveys. Third, secondary data research is easily reproducible, thereby making it easier for other researchers to extend our work. Fourth, it gives an opportunity to deal with larger samples than when using in-depth case studies, which increases the generalizability of results. However, the limitation of using secondary data for research is that we have to depend on the information available in the databases.

For our research, the dependent variable is offshoring intensity. In this article, we define offshoring intensity as the amount of production or service that has been transferred by the company from its parent country to a foreign destination. To operationalize the offshoring intensity, we use the number of jobs offshored by the company. Currently, there are relatively few secondary sources of information which provide information related to offshoring firms in the U.S. because of the political sensitivity of offshoring.

The data on the number of jobs offshored has been collected from the TechsUnite Web site database (TechsUnite, 2006). TechsUnite is a union for high-tech workers whose objective is to safeguard the interests of technical workers. The TechsUnite database tracks the number of jobs offshored by U.S. companies from the year 2000 onwards. Two researchers gathered data from this Web site database in early 2006 and the data collection took about five weeks. The data collected indicates the cumulative total number of jobs offshored by each firm from the year 2000 to the present. For testing the validity of the data collected from this Web site, we followed a two-fold analysis. First, we corroborated and checked the names of the firms listed in the Web site, whether they really offshore or not. This we checked by comparing with the list of offshoring firms available at CNN’s Web site on “Exporting America”.

Second, we explored the various newspaper reports referenced as the source of offshoring information on the TechsUnite Web site for 10% of firms in the dataset and found the information to be generally correct and updated. Following this two-step process gave us confidence about the validity of our dependent variable (offshore intensity). We included those firms in our analysis (a total of 152 firms) for which we could get the data on all the variables in our research model.

The firm-related independent variables have been taken from Compustat for the year 2000, which is taken as the pre-event year. There are two reasons for choosing the year 2000 as the pre-event base year for the firm-level variables. First, the TechsUnite database recognizes the year 2000 as the critical year for the start of widespread offshoring phenomenon and tracks the number of jobs offshored by U.S. companies from the year 2000 onwards. Further, Reingold (2004) and Hirschheim, George, and Wong (2004) have stated that the current wave of offshoring took off from the Y2K phenomenon because of which foreign vendors got a chance to show their effectiveness in the U.S. market. Hence, the year 2000 marks the start of IT-enabled offshoring. Studying firm characteristics before IS offshoring may provide us with an understanding of firm characteristics that precipitated the decision to offshore. For measuring the business size, we take the total assets of that particular firm. This measure for size has been used by previous studies such as Ang and Cummings (1997), Loh and Venkatraman (1992), and Ang and Straub (1998).
business cost structure is indicated by the cost of goods sold (e.g., Loh & Venkatraman, 1992; Smith et al., 1998), and business financial leverage is directly reported from financial reports (e.g., Loh & Venkatraman, 1992). The business performance is indicated by the three measures of return on assets, return on sales, and return on equity (e.g., Tam, 1998). In addition to the research variables, we controlled for the industry types in our analysis. To control for industry sector, we divided firms into five sectors based on the North American Industry Classification System (NAICS) and created a dummy for each sector: manufacturing and industrial, wholesale and retail trade, services, finance and real estate, and information (see Table 1). These five sectors comprehensively cover almost all the manufacturing and service industries in the U.S. Such industry controls have been used in past outsourcing/offshoring studies such as Brynjolfsson, Malone, Gurbaxani, and Kambil (1994) and Whitaker et al. (2005).

RESULTS AND ANALYSIS

The descriptives and correlations among the various independent variables in our research framework are given in Table 2.

Serious multicollinearity problems may lead to deviation in the estimation of regression statistics (Stevens, 2002; Tebachnick & Fidell, 2001). From Table 1, we see that all correlations are below 0.80, signifying no serious problem of multicollinearity in our data (Gujarati, 2003). But we also see that one of the correlations, between ROA and ROS, is rather high (> 0.70). Hence, to be confident that there is no serious problem of multicollinearity among the independent variables, we tested for multicollinearity among the independent variables by examining the Variance Inflation Factor (VIF), the results for which are given in Table 3.

VIF measures the impact of collinearity among the predictors in a regression model on the precision of estimation. In other words, it expresses the degree to which collinearity among the predictors degrades the precision of

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>NAICS 2-digit codes</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>11, 21, 22, 23, 31-33</td>
<td>Manufacturing and industrial</td>
</tr>
<tr>
<td>2</td>
<td>42, 44-45</td>
<td>Wholesale and retail trade</td>
</tr>
<tr>
<td>3</td>
<td>48-49, 54, 55, 56, 61, 62, 71, 72, 81, 92, 99</td>
<td>Services and others</td>
</tr>
<tr>
<td>4</td>
<td>51</td>
<td>Information</td>
</tr>
<tr>
<td>5</td>
<td>52, 53</td>
<td>Finance and real estate</td>
</tr>
</tbody>
</table>

Table 2. Descriptives and correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offshoring Intensity</td>
<td>2106.82</td>
<td>3683.12</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size (Assets)</td>
<td>58547.95</td>
<td>139159.41</td>
<td>0.250**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Cost</td>
<td>11647.11</td>
<td>22557.52</td>
<td>0.223**</td>
<td>0.480**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Lev.</td>
<td>4.75</td>
<td>6.14</td>
<td>-0.015</td>
<td>0.630**</td>
<td>0.211**</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>2.64</td>
<td>15.09</td>
<td>0.162</td>
<td>-0.008</td>
<td>0.058</td>
<td>-0.051</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>ROS</td>
<td>15.42</td>
<td>34.70</td>
<td>0.078</td>
<td>0.222*</td>
<td>0.074</td>
<td>0.261**</td>
<td>0.717**</td>
<td>1.000</td>
</tr>
<tr>
<td>ROE</td>
<td>13.90</td>
<td>81.00</td>
<td>0.059</td>
<td>0.019</td>
<td>0.034</td>
<td>0.123</td>
<td>0.365**</td>
<td>0.231**</td>
</tr>
</tbody>
</table>

*p < 0.05 ;"p < 0.01 (two-tailed test)
Researchers suggest that multicollinearity is not a significant problem if the value of VIF is below 10 (Allison, 1999; Belsley, Kuh, & Welsch, 1980; Stevens, 2002). In our case, the VIF values for all the independent variables are below 5 (Pedhazur, 1997), which is the conservative limit for multicollinearity. Hence, we conclude that there is no significant problem of multicollinearity among the independent variables in our study.

Table 4 presents the results of multiple hierarchical regression analysis where the dependent variable is offshoring intensity. In addition to the control variables, the independent variables were entered into the regression equation in four steps. After entering the industry dummies as controls, the business size variable (assets) was entered in the first step, the business cost variable (cost of goods sold) was entered in the second step, the business financial leverage variable was added in the third step, and business performance variables (ROA, ROS, ROE) were added in the last step.

Results in Table 4, Model 1 indicate a strong support for Hypothesis 1 ($\beta=0.370, p<0.001$). The results with size as a predic-
tor of onshore IS outsourcing were generally found to be mixed by previous researchers. In some of the previous onshore IS outsourcing studies, size was not a significant predictor of outsourcing (e.g., Loh & Venkatraman, 1992), whereas some studies found size to be significant predictor of outsourcing in the opposite direction (e.g., Ang & Straub, 1998). For IS offshoring, the results from our study indicate that the size is a positive predictor of offshoring intensity. Further, we know that offshoring is more closely related to labor and employees, as the common rationale for offshoring is to derive labor cost arbitrage. Hence, we also tested the model using ‘number of employees’ as a measure of size, in place of total assets. The model using number of employees as an indicator of size was also significant. ($\beta=0.399$, $p<0.001$), providing robustness check for our results. Past studies like Ang and Cummings (1997), Loh and Venkatraman (1992), and Ang and Straub (1998) had considered only assets or sales as a measure of size.

This aspect of IS offshoring, having firm size as a significant positive predictor of offshoring intensity, is different from onshore IS outsourcing. A plausible explanation for this difference is that larger firms have more resources and are able to better manage offshoring than smaller firms due to the larger scale of their business operations. Further, larger firms may have more experience and expertise in managing contracts with overseas firms. This international experience may influence the firms’ propensity to offshore. Also, firms with a greater number of employees may have a greater incentive to reduce their manpower through offshoring. Size has been used as a control variable in many of the previous studies (e.g., Loh & Venkatraman, 1992). Entering the ‘size’ (assets) variable in the first step of multiple hierarchical regression also serves as a control for ‘size’ or ‘total assets’, thus making the subsequent results more meaningful.

The results in Table 4, Model 2 show that there is no association between business cost and offshoring intensity ($\beta=0.071$, ns). Hence, from the results, we conclude that Hypothesis 2 is not supported. This result is different from that for onshore IS outsourcing. Previous studies have shown significant relationship between business cost and onshore IS outsourcing (Loh & Venkatraman, 1992; Smith et al., 1998). IS offshoring is a strategic decision to derive a long-term cost reduction, but in the short run it might lead to an increase in cost. Highlighting this difference in short-term costs, and long-term costs of offshoring, Rost (2006) states: “The rather high costs of establishing the offshore scenario are present only during the first few projects. Thus, later projects will not be affected by these initial costs” (p. 33). Hence, firms that have a high business cost may not be in a position to afford the initial high cost in an offshore decision. Since onshore IS outsourcing involves relatively less initial costs and immediate savings, firms that have a high business cost may resort to onshore outsourcing as found in Loh and Venkatraman (1992).

From the results in Table 4, Model 3, we see that that the third step of the hierarchical regression model is significant. This implies that business financial leverage is significantly negatively associated with offshoring intensity as hypothesized ($\beta=-0.228$, $p<0.05$). Thus, Hypothesis 3 is supported. This result is different from that for onshore IS outsourcing (Loh & Venkatraman, 1992; Smith et al., 1998). One plausible reason for this result is that firms with high financial leverage tend to be risk averse, hence they tend to avoid offshoring.

In the last step, Table 4, Model 4, we added the business performance metrics of ROA, ROS, and ROE. From the figures of $R^2$ change ($\Delta R^2 = 0.026$, ns), we see that in overall analysis, Hypothesis 4 is not supported. Hence, business performance is not a significant predictor of offshoring intensity. On analyzing the individual hypotheses for the three performance variables, we find that relationship between ROA and offshoring intensity (Hypothesis 4a) is not supported but is significant in the direction opposite to the hypothesized direction ($\beta=0.219$, $p<0.05$). For ROS, the relationship with offshoring intensity is not significant ($\beta=-0.113$, ns). For ROE, the relationship is also not
significant ($\beta=0.036$, ns). One plausible reason for ROA being positively related to offshoring intensity may be that offshoring entails the firms to undertake inherent risks in the business processes (Aron et al., 2005; Swartz, 2004), and the firm’s ability to do well in the ROA signifies efficient management of firm resources, which indirectly implies effective management of risk. Though the overall result of the relationship between business performance and offshoring intensity being not significant is similar to that for onshore IS outsourcing (Loh & Venkatraman, 1992; Smith et al., 1998), the significant relationship of ROA with offshoring intensity in the opposite direction provides interesting differences for the offshoring phenomenon. This result reiterates the importance of resource and risk management ability of firms as an important determinant for their offshoring intensity. The lack of support for Hypotheses 4b and 4c may indicate that, as business performance is affected by many internal and external variables, its relationship with offshoring intensity is rather weak. Indeed, previous literature has shown a mix of firms which decide to offshore. Even firms that are doing well may be on the constant lookout for ways to reduce their costs even further, and consequently may resort to offshoring. A summary of results from this research is given in Table 5.

Table 6 gives a comparison of the results of past studies for the determinants of onshore IS outsourcing with the results from the present study on IS offshoring. In Table 6 and from the discussion in the previous section, we observe that the determinants of onshore outsourcing and offshoring are different in a number of important aspects, thus emphasizing the point for studying IS offshoring as a phenomenon different from onshore IS outsourcing.

**LIMITATIONS**

Though this research analyzes some of the important questions related to IS offshoring, there are a few limitations that raise various issues that can be explored by future research. We do not address the role of a firm’s IS competence in determining its offshoring intensity. Future research can further broach on this subject. The current research is also limited by the fact that it only explores conditions under which firms offshore, but does not suggest whether those conditions are ameliorated after offshoring. In other words, did offshoring have the intended impact? This aspect also needs to be inves-

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**Table 5. Summary of results**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypothesis 1</strong>: The larger the size of the firm, the higher will be its offshoring intensity.</td>
<td>Strongly supported</td>
</tr>
<tr>
<td><strong>Hypothesis 2</strong>: The higher the prior business cost of a firm, the higher will be its offshoring intensity.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>Hypothesis 3</strong>: The higher the prior financial leverage of a firm, the lower will be its offshoring intensity.</td>
<td>Supported</td>
</tr>
<tr>
<td><strong>Hypothesis 4</strong>: The lower the prior business performance of a firm, the higher will be its offshoring intensity.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>Hypothesis 4a</strong>: The lower the prior ROA of a firm, the higher will be its offshoring intensity.</td>
<td>Not supported (significant in opposite direction)</td>
</tr>
<tr>
<td><strong>Hypothesis 4b</strong>: The lower the prior ROS of a firm, the higher will be its offshoring intensity.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>Hypothesis 4c</strong>: The lower the prior ROE of a firm, the higher will be its offshoring intensity.</td>
<td>Not supported</td>
</tr>
</tbody>
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tigated in future research. Further, owing to the dynamic nature of offshoring, it would be interesting to know if determinants of offshoring have evolved over time. Future research needs to be done with longitudinal data to investigate this phenomenon further.

CONTRIBUTIONS AND CONCLUSION

Despite these limitations, our research offers the following important contributions that have implications for practitioners and academics. First, our study analyzes the role of antecedent business-related variables as determinants of a firm’s decision to offshore. Past studies aiming to understand the antecedents of offshoring have used the decision to offshore as a binary variable (either a yes or a no) (Whitaker et al., 2005). We go beyond this, to understand the role of business-related variables in determining the intensity of offshoring. This is analogous to research on IS adoption where some researchers (e.g., Rai & Patnayakuni, 1996) advocate that there might be different degrees of adoption rather than just conceptualizing adoption as a dichotomous variable.

Second, we analyze the similarities and differences in the determinants of offshoring from that of the traditional onshore IS outsourcing phenomenon. Our research points out important differences between the two and emphasizes the importance of treating the two business arrangements as related, but different phenomena. This has important implications for firms resorting to onshore outsourcing as well as offshoring simultaneously. It also has important implications for researchers as it provides further avenues for research to determine the nature and reason for these differences.

Third, two of the important differences between offshoring and traditional onshore IS outsourcing emerging from this research are the importance of the firm size and return on assets in determining the decision to offshore. Larger firms generally have deeper pockets in terms of greater amount of resources (hence more risk-taking ability), and firms with a higher ROA generally have a better ability to manage risks. Thus, these two determinants for offshoring intensity (size and ROA) suggest that offshoring firms not only have a greater risk-taking ability but also a better risk management ability. Thus, risk-taking and managing ability emerge as major determinants for the offshoring decision. Future research can explore this finding in greater detail.

Fourth, the two other differences between the determinants of onshore IS outsourcing

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<tr>
<th>Outsourcing Constructs</th>
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<tr>
<td>Cost structure (+)</td>
<td>Loh and Venkatraman (1992)</td>
<td>Supported</td>
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<tr>
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<td>Supported</td>
<td>Supported</td>
<td>Financial performance (+)</td>
</tr>
<tr>
<td>Financial performance (-)</td>
<td>Loh and Venkatraman (1992)</td>
<td>Not supported</td>
<td>Financial performance (-)</td>
<td>Not supported</td>
</tr>
<tr>
<td>Financial leverage (+)</td>
<td>Loh and Venkatraman (1992)</td>
<td>Not supported</td>
<td>Financial leverage (+)</td>
<td>Supported</td>
</tr>
<tr>
<td>Firm size (assets) (+)</td>
<td>Ang and Cummings (1997)</td>
<td>Supported</td>
<td>Firm size (assets) (+)</td>
<td>Supported</td>
</tr>
<tr>
<td>Firm size (assets) (-)</td>
<td>Ang and Straub (1998)</td>
<td>Supported</td>
<td>Supported</td>
<td>Financial leverage (-)</td>
</tr>
<tr>
<td>Firm size (assets and sales) (+)</td>
<td>Loh and Venkatraman (1992)</td>
<td>Not supported</td>
<td>Supported</td>
<td>Financial leverage (+)</td>
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</table>

Table 6. Comparison of business-related determinants of onshore outsourcing and offshoring (adapted from Dibbern et al., 2004)
and IS offshoring brought out from this study concern the aspects of prior business cost. IS offshoring intensity is not associated with a high prior business cost, but is significantly associated with low prior financial leverage. Both these results for offshoring indicate the long-term strategic perspective taken by the firms deciding to offshore. Since the decision to offshore is not dependent on high prior business cost, these firms are not looking for immediate cost reduction; rather they are looking for long-term stable cost reduction (Rost, 2006). At the same time, firms that have low debts (low financial leverage) can afford to take risks to go for offshoring. It is important for firms to realize that offshoring is a long-term decision having strategic business implications, and firms should not be looking for short-term gains from offshoring contracts.

Fifth, the research assists offshoring vendors to target those companies with the identified firm characteristics as possible offshoring clients.

The IS offshoring phenomenon is increasingly gaining importance in the industry. Thus, it is important that we answer the fundamental question: What makes firms offshore? Hence, understanding the determinants of offshoring is vital. In addition to understanding these determinants, we need to know how these determinants differ from determinants of traditional onshore IS outsourcing. Such knowledge will lead to a better appreciation of the offshoring phenomenon and may help managers to enhance firm performance. If offshoring is different from traditional onshore IS outsourcing, offshoring firms resorting to a strategy similar to that for IS outsourcing may require refocusing their agenda, so as to address the particular issues associated with the implementation of offshore contracts. Through this study on IS offshoring, we understand the role of firm-level business-related variables (business size, business cost, business financial leverage, and business performance) in determining the intensity of offshoring activity. We also analyze how these are similar or different from previous research on onshore IS outsourcing activity. The results from this research suggest that offshoring is different from onshore outsourcing and needs greater academic as well as practitioner attention.

REFERENCES


ENDNOTES

1. Offshoring intensity is defined as the amount of production or service that has been transferred by the company from its parent country to a foreign destination and is operationalized by the number of jobs offshored by that company.

2. IS outsourcing literature generally refers to the context of onshore IS outsourcing. The distinction from offshore outsourcing became noteworthy only after the growth of information and technological capabilities that could facilitate offshore outsourcing.

3. The US press and media are replete with articles or shows debating the offshoring activity, example: CNN’s Lou Dobbs show on Exporting America.
Techsunite.org (http://www.TechsUnite.org) is the nationally-oriented web site of WashTech/CWA, the nation’s leading union for high-tech workers. TechsUnite is a project of the Communications Workers of America, AFL-CIO, in collaboration with the following site partners, supporters and stakeholders: Alliance@IBM, Carol-Trevelyan Strategy Group (CTSG), Center on Wisconsin Strategy, CWA National Education and Training Trust, Washington Alliance of Technology Workers, and Working Today.

http://www.cnn.com/CNN/Programs/lou.dobbs.tonight/popups/exporting.america/content.html

Year after which offshoring phenomenon became widely prevalent in business

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