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127. The impact of IT vendor to firm's IT outsourcing

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Abstract

This study seeks to better understand the impact of IT vendor to firm's IT outsourcing in Korea. Using the event study methodology, we empirically analyze the impact of IT vendor in Korea. IT vendors' characteristics (such as services with asset specificity, size, and nationality) that may affect the success of IT outsourcing are considered. We find that IT outsourcing announcements significantly increase firms' market value in Korea. In terms of IT vendors' characteristics, our study find that IT outsourcing announcements with large vendors are statistically significant while with small vendors are not. We also find that the market response to Korean IT vendor is significantly greater than to foreign vendor. However, unlike the US, the difference between IT outsourcing for high asset-specific service and for low asset-specific service is not found.

Key words: IT outsourcing, IT vendor, Transaction cost theory, RBT, event study

1. Introduction

Information technology (IT) in general and especially information system (IS) have been considered to be one of the firm's core resources to deal with rapidly changing environmental threat (Barney 1991). With the coming of the information age, information technology (IT) investments are becoming increasingly important to firms' survival and growth (Bharadwaj 2000). However, firms have undergone difficulties to spend a lot of money on information technologies or information systems because of rapidly changing technologies and business environments. After Kodak's IT outsourcing decision which serves as a catalyst for diffusion of IT outsourcing, firms increasingly considered IT outsourcing that turn over all or a portion of IT functions to professional IT vendors because of the strategic point of view. Nowadays, firms are strategically regarding outsourcing as a change-management tool to drive enterprise-level transformation such as a dramatic shift in competitive position or a major increase in market share or stock price (Craumer 2002). In Korea, as many other countries in the world, IT has been an engine of growth for the last two decades and Korean firms are also widely adopting IT outsourcing. According to ITSA (The Korea System Integration R&D Association) report, IT outsourcing has grown more than 20 percent annually until 2005, is expected to grow over 10 percent per year by 2008 because of its benefits, such as reduced costs and improved business processes. But, IT outsourcing market in Korea has some different characteristics compared to other countries' markets. In the US or other developed countries, firms are outsourcing to specialized independent IT vendors typically for organizational downsizing for solving the problems of insufficiency of skilled IT human resources. Contrarily, IT outsourcing market in Korea started under the leadership of conglomerate groups (so called 'Chaebol'). Conglomerate groups established subsidiary IT vendor to integrate the groups information systems and to manage all kinds of IT functions. (Lee 1995). In recent years, because the success of the firms' outsourcing will highly depend on the degree to which the performance levels that are expected of vendors and contracts are specified and monitored by the firms, the firms require more sophisticated contract management capabilities (King 2004). IT vendors are playing an important role in IT outsourcing success. However, unlike other countries where firms select

the specialized independent IT vendor, many Korean firms choose subsidiary companies of the conglomerates because of groups influence, cultural similarity, security and so on (Lee 1995; Kim 1997). Admittedly, selecting IT vendor in Korea is quite different with that of other countries. This study aims to assess the value of overall IT outsourcing to firms, and characteristics of IT vendors in Korea. We employ the event study methodology. We shall investigate the following questions: (1) Can IT outsourcing increase firms' value in Korea? (2) Does IT vendor really play an important in IT outsourcing? (3) How do various context factors (such as vendor size and nationality, vendor's services) affect IT outsourcing? The rest of the paper is organized as follows: We present theory and four hypotheses about the market value of IT outsourcing in Section 2. Section 3 briefly explains the methodology of event study, and Section 4 describes our dataset. Section 5 presents the empirical results and discussion of the results. Section 6 concludes the paper with a summary of its contributions and the limitation of this study.

Theory and Hypothesis

After a significant portion of Kodak's IT functions in 1989 was transferred to IBM and other vendors, IT outsourcing has prevailed throughout the world (Loh and Venkatraman 1992). More than 50 percent of firms are expected to outsource all or a portion of their IT functions in 2006 and this trend will surely continue in the future too (King 2004). Large firms with mature IT departments have turned to IT outsourcing as a way to concentrate their resources on efforts to produce high added value (Grover 1996) and small firms have often turned to IT outsourcing as a way to obtain IT resources that are not available or feasible internally (Kole 1983). Namely, firms have selected gradually more IT outsourcing than in-housing because of various benefits having IT outsourcing such as, financial benefits (e.g., reducing costs, generating cash), technical benefits (e.g., improving the quality of IT, gaining access to new technology) and so on (Smith et al. 1998). According to resource based theory, firms consider IT outsourcing as a strategic decision which can be used to fill the gap between desired capabilities and actual capabilities in the firm's IT resources and capabilities (Chon and Grover 1995). Filling the gap through an IT outsourcing strategy not only preserves the firm's stock of IT resources and capabilities, but also increases IT resources and capabilities in order to buttress and extend positions of competitive advantage (Grant 1991). And, according to resource dependence theory, firms obtain scarce and valued IT resources through IT outsourcing because organizational survival depends on the acquisition of scarce and valued resources from the environment in a stable and low cost manner (Pfeffer and Salancik 1978). Therefore, we can expect that stock market will react positively to IT outsourcing announcements due to merits of IT outsourcing. To see whether this question is empirically supported in Korea, we propose the following hypothesis.

***Hypothesis 1:** Announcements of IT outsourcing cause positive abnormal returns for firms in Korea.*

However, according to the transaction cost theory, transaction costs arising from negotiating, monitoring and enforcing contracts (Chon and Grover 1995) cannot be always less than production costs. If transaction costs increased as result of asset specificity exceed production costs, firms had better do in-housing than IT outsourcing. Like this, asset specificity of IT resource outsourced by IT vendor is critical problem in each firm's IT outsourcing strategy. By the degree to which the outsourced IT resources are asset specific, IT resources can be widely divided into high asset specificity and low asset specificity. It is high asset specificity that IT resources could not be readily resold or redeployed by other firms or other purposes. For example, high asset-specific IT resources are the licensed and patented technologies, proprietary technologies for which the client contracted with IT vendor, IT infrastructure or

application that were to be codeveloped jointly the client firm and IT vendors (Oh et al. 2006). If IT resources cannot readily be used by other firms because of site specificity, physical asset specificity, or human asset specificity, they are highly asset specific (Malone et al. 1987). Contrarily, it is low asset specificity that the IT resources could be readily resold or redeployed. Low asset-specific services to be outsourced by IT vendor include IT infrastructure, such as data centers management, system maintenance, PCs, telecommunications networks, and other commodity resources (Oh et al. 2006). If firms outsource IT resources that are high asset specificity, according to transaction cost theory, this increases the risk of IT vendor's opportunistic behavior, allowing maximizing their own self-profits at the client firm's expense (Klein et al. 1978; Oh et al. 2006). Also the client firms are apt to lock in the existing IT vendors due to high switching cost, significant delays, and new learning curve. (Oh et al, 2006). Therefore, we can expect that market reaction will be greater in low asset-specific services than high asset-specific services in Korea. We posit the following hypothesis.

Hypothesis 2: the reaction of stock prices to the announcements of IT outsourcing is greater in low asset- specific services of IT vendor than high asset- specific services of IT vendor.

IT vendor's competence is a key factor of the success of IT outsourcing (McFarlan and Nolan 1995; Kim and Chung 2003). One can expect that large IT vendors retain more variety of business and technical experiences (know-how), abundant and professional human resources, and the newest information technologies to provide IT outsourcing of high quality compared to small IT vendors (Oh et al. 2006). Also, IT vendor's size is often directly associated with the reputation. Since the reputation may represent reliability and capability, large sized IT vendors would provide high quality services. Therefore, firms prefer these IT vendors in order to remove the risks, such as nonperformance and unfaithful performance, although firms must pay higher fees (Oh et al. 2006). In Korea's IT outsourcing market, large IT vendors can be classified into two groups: the Korean vendors and foreign vendors. The Korea's vendors, subsidiary companies of conglomerate groups, such as SK C&C, Samsung SDS and LG CNS have held good reputation and competence thanks to the aid of the conglomerate. The foreign vendors, such as HP, IBM, and so on are well known all over the world and they are famous for abundant IT resources, like professional human resources, leading information technology, and know-how (Lee 1995). Accordingly, we expect that market reaction will be greater in the contract with large IT vendors in Korea. To empirically find the size effect in Korea, we propose the following hypothesis:

Hypothesis 3: the reaction of stock prices to the announcements of IT outsourcing is greater for large IT vendor than for small IT vendor.

As mentioned in the previous section, there are domestic vendors and foreign vendors in Korea. Because cultural similarity is acute when the client firm and IT vendor are far apart culturally or geographically (Root 1982), Also, according to agency cost theory, if goal between the client firm and IT vendor is inconsistent or risk preference between client firm and IT vendor is different, agency costs increase in IT outsourcing relationship by information asymmetry (Lee and Nam 1999). Because foreign vendors don't fully understand the Korea's business culture or have need of long time to understand it, they are higher goal incongruence or inconsistency of risk preference than the domestic vendor. For those reasons, Korean firms are likely to prefer the domestic vendors. We can expect that market reaction will be more positive to announcements for firms entering into a contract with Korean vendors. To empirically find IT vendor's nationality effect in Korea, we posit the following hypothesis:

Hypothesis 4: the reaction of stock prices to the announcements of IT outsourcing is greater for

Korea's vendors than for foreign vendors.

Event Study Methodology

We employ the event study methodology to assess relationship between firms' value in stock market and IT outsourcing announcements with IT vendor. Because the event study methodology is easily available, we omit it in this paper. If you want to the event study methodology, we will send it to you by e-mail.

Data Collection

To empirically test relationship between IT outsourcing and market reaction, we gather IT outsourcing announcements from January 2003 to January 2007 for Korea. In Korea, there are many available databases carrying news of IT outsourcing. We use NAVER as the main database. To collect news on IT outsourcing announcements of firms traded on the Korea stock exchanges (such as KOSPI and KOSDAQ), we searched the Kiwoom.Com Securities' database. The target news sources were edaily, moneytoday, ETnews, Maeil Business News, HanKyung News. Full text search was done using the keywords: "IT outsourcing", "IS outsourcing", and so on, which yielded more than 3,000 items of news. We refined the data by reading the details of the news. Having done that, historical stock prices were collected from KRX. We used the KRX 100 index to calculate the return of the market portfolio. In the process of computation, we needed at least 175 days of stock prices to predict the returns during the event window. If a firm does not have enough historical stock prices, then it is eliminated. The final sample size is 60 firms for the Korea stock market.

Results and Discussion

Table 1 reports the CAR and T-test results of the 60 samples. From the table, we can see that t-statistic is positive and significant. This implies that IT Outsourcing announcements can significantly increase firms' value in Korea. Thus, Hypothesis 1 is supported. As predicted in overall IT outsourcing effect (H1), our study found that IT outsourcing cause positive abnormal returns for firms in Korea. In a similar vein with our study, Hayes et al. (2000) who classified the client firms (contract-granting firms) by size and industry to examine the impact of IT outsourcing announcements found that the market reaction was greater for small firms as compared to large firms, and for firms in service industries as compared to firms in non service industries. Although we do not classify the client firms (contract-granting firms) by size and industry like Hayes et al. (2000), both our study and Hayes et al. (2000) presented positive and significant findings. In the result, our study demonstrated that IT outsourcing can significantly increase market value of client firms in Korea.

To test for asset-specific services of IT vendor, we divided the samples into two groups: high asset specificity and low asset specificity according to extent which the IT resources to be outsourced by IT vendors are asset specificity. Table 1 reports the t-statistics of high asset specificity and low asset specificity. We can see that IT outsourcing can significantly increase market value both high asset-specific services of IT vendor and low asset-specific services of IT vendor. However, the t-statistic of the difference between high asset-specific and low asset-specific is insignificant. As a result, Hypothesis 2 is not supported. Our finding of insignificant difference between high asset specificity and low asset specificity is not consistent with Oh et al. (2006). This may be due to the context of our study. In Korea, market does not react greater in low asset- specific services of IT vendor than high asset-specific services of IT vendor, because firms consider SLA or short-term (less than 4 years) contracts to remove the risk of IT outsourcing when firms enter into a contract with IT vendor. In reality, more than 80 percent of samples in our study are short-term contracts. For those reasons, IT vendor's services with asset specificity are of little importance in Korea.

The test results for IT vendor's size effect are reported in Table 1. The t-statistics of large IT vendor is statistically significant while that of small IT vendor is not. However, the t-statistic of the difference between small IT vendor and large IT vendor is insignificant. Hypothesis 3 is not supported. Although the difference between small IT vendor and large IT vendor is not statistically significant, we could at least find that IT outsourcing announcements are significantly increasing firms' market value when the IT vendors are large. In a similar vein with our study, the prior two studies also found that IT vendor size is positively related to market's reaction in US (Hayes et al. 2001; Oh et al. 2006). More exactly, Hayes (2001) found significantly more positive for large ERP vendors as opposed to small ERP vendors, and Oh et al (2006) found that vendor size was significantly related to investors' reactions. For those reasons, when firms enter into a contract with IT vendor, vendors' size must be considered to some degree.

To test for IT vendor's nationality, we divided the samples into three groups: the Korean vendors, the foreign vendors, and consortium including both Korean vendors and foreign vendors. The t-statistics of these three groups of IT vendors are reported in Table 1. The t-statistics for Korean vendors and consortium are significantly positive while the t-statistic for foreign vendors is not. Among these three sub-samples, the difference between Korean vendors and foreign vendors and the difference between foreign vendors and consortium are statistically significant. This implies that Hypothesis 4 is supported. These findings mean that market reaction is greater for Korean vendors than for foreign vendors. Indeed, Korean firms prefer Korean vendors because of conglomerate groups influences, cultural similarities, and so on. In conclusion, vendor's nationality plays a vital role in Korea's IT outsourcing market.

Conclusion

An important contribution of this study is that IT vendors play an important role in success of IT outsourcing. We were able to find some empirical evidences regarding the choice of IT vendors. This may have certain practical implications. If a firm is considering IT outsourcing in Korea, it should first consider IT vendor's size and nationality. On the contrary, whether the IT service has high asset specificity or low asset specificity is not so important factor to be considered as in the US cases. This study provides the client firms with definite standards in order to select the best IT vendor, and IT vendors with strategy to survive in rapidly changing IT outsourcing market. Like all the other studies, our study is not free from a number of limitations. First, the total sample (60 announcements) is relatively small compared to other studies. We will try to increase the sample size to make our argument stronger. Secondly, our study does not consider Application Service Providers (ASP) because we were not able to find IT outsourcing announcements including ASP. In the future, we hope the comparison between ASP and IT outsourcing is possible. Third, our study investigated IT outsourcing market in Korea. In future studies, multi-national comparison would be interesting.

References

Because of the regulation that RIP paper cannot exceed 7 pages in length, we omit the references. If you want to the omitted list, we will send it to you by e-mail

Table 1: Test Results

Sample Category		N	\overline{CAR}	$VAR(\overline{CAR})$	t-statistics
Overall IT Outsourcing Effect		60	0.0136	0.000024	2.80***
IT vendor Services	High Asset Specificity	41	0.0103	0.000029	1.91*
	Low Asset Specificity	17	0.0255	0.000100	2.55**
	Difference between high and low asset specificity		-0.0152	0.011364	-1.34
IT vendor size	Large-size IT vendor	38	0.0148	0.000039	2.36**
	Small-size IT vendor	22	0.0115	0.000059	1.51
	Difference between large and small vendor		0.0032	0.009904	0.32
IT vendor nationality	Korean vendors	43	0.0165	0.000032	2.94**
	Foreign vendors	9	-0.0098	0.000185	-0.72
	Consortium	8	0.0245	0.000187	1.79*
	Difference between Korean vendors and foreign vendors		0.0264	0.014714	1.79*
	Difference between Korean vendors and consortium		-0.0080	0.014780	-0.54
	Difference between consortium and foreign vendors		0.0344	0.019285	1.78*

***significant at the 1% level **significant at the 5% level *significant at the 10% level