

정보기술 아웃소싱에서 고객이 전문업체에 대한 의존도를 줄이기 위한 전략적 선택에 관한 연구 : 자원의존 및 기회주의 이론 관점에서

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Clients' Strategic Choices to Mitigate Their Dependence on Vendors in IT Outsourcing : Resource Dependence and Opportunism Prospects

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■ Abstract ■

Clients' outsourcing strategies noted in the IT outsourcing literature generate varying levels of client dependence on vendors. This study investigates clients' efforts to mitigate such dependence by utilizing multiple vendors. We use the theoretical lenses of resource dependency and opportunism to study this phenomenon. Specifically, we consider degree of outsourcing, duration of contract, and externalization of control as strategic choices that engender vulnerabilities that clients seek to offset by using multiple vendors. This study then considers the basis of the outsourcing relationships, clients' satisfaction with the relationships, and clients' IT workforce size as conditions that induce clients' concerns about vendor opportunism. This study argues that these conditions can exacerbate clients' experience of vulnerability, further encouraging clients' use of multiple vendors. The research model developed is tested in a survey of firms in South Korea. Results suggest a strong impact of outsourcing strategic choices on the number of vendors used by clients. The anticipated moderating effects of opportunism were only weakly supported by the data though. Theoretical and practical implications of the results are considered and suggestions for future research are offered.

Keyword : IT Outsourcing, Resource Dependency, Opportunism, Number of Vendors

1. Introduction

In the inter-organizational and IT outsourcing literatures, disparate perspectives persist on the relative viability of exclusive versus non-exclusive relationships. One perspective is that exclusive relationships can “reduce opportunism, offer downside insurance, and provide better service through continuity and insider knowledge”[8]. In contrast, multiple vendors are “more costly to monitor and coordinate”[43]. A competing perspective suggests that vendor exclusivity creates conditions of ex-post asset-specificity, as only a single vendor develops the competence to meet the client’s IT needs, preventing future switching behavior and making the client vulnerable to vendor opportunism [43, 64]. The presence of multiple vendors also creates competitive conditions that encourage each vendor toward optimal performance [16].

The use of exclusive or multiple vendors represents a strategic effort to reduce dependence and exploit power in inter-organizational relations [8]. What is the nature of this strategic effort though? This is the question of interest in this study. Specifically, this study asks : how do clients’ strategic choices about IT outsourcing interact with situational conditions conducive to vendor opportunism encourage or discourage the use of multiple vendors? IT outsourcing is defined as the provision of services by one or more vendor firms to a client [33]. Following earlier work, this study considers three critical outsourcing choices - *degree of outsourcing, contract structure and contract duration* [34, 39].

Clients’ outsourcing strategies engineer varying levels of client dependence on vendors [34]. In considering clients’ responses to such de-

pendence, it is appealing to consider the IT outsourcing phenomenon in the light of resource dependence theory [45]. Implicit in this theory is the threat of opportunism by the partner upon whom one is dependent. This study therefore considers the different types of opportunism that may occur in inter-organizational relationships [9]. Based on resource dependence and opportunism theories, this study develops a model to explain the number of vendors utilized by clients.

In the following sections, this study first elucidates the key elements of resource dependence theory as are pertinent to this study. We then consider organizational economics theories about opportunism. Next this study develops an integrated model that explains clients’ choices in regard to the number of vendors in terms of resource dependence and the prospects of opportunism. This model is tested in a survey of firms in South Korea. A discussion of our results and their implications for further research into the phenomenon and for outsourcing practice follow.

2. Asymmetric Resource Dependence and Power Imbalance

The premise of resource-dependence theory is that asymmetric interdependencies establish imbalances of power in inter-organizational relationships. In this study, we consider the nature of asymmetric interdependencies and the relational conditions that give rise to them. We then consider how dependent organizations seek to mitigate the potentially negative effects of asymmetric interdependencies. Finally, we consider conditions that exacerbate the problems of such an asymmetry.

2.1 Basis of power differentials : Asymmetric interdependencies

Interdependencies among organizations compromise organizations' control of the actions required for accomplishing desired outcomes. In fact, "interdependence is the reason why nothing comes out quite the way one wants it to" [45]. Compromised control constrains the viability of interdependent organizational agency [60]. Under such conditions, appropriate coordination mechanisms enable organizations to maintain the control necessary to achieve desired outcomes [14, 62].

Interdependencies alone do not confer power to one organization over another though. It is when interdependencies are *asymmetric* that such power differentials and the capacity for unilateral action emerge. In balanced relationships, the exchange is equally valued. In contrast, "asymmetry exists in the relationship when the exchange is not equally important to both organizations" [45]. When the exchange is not equally valued by both parties, the less dependent organization garners power over the more dependent organization. We now consider the conditions that give rise to such asymmetric interdependencies.

2.2 Inter-organizational conditions inducing asymmetric interdependence

Asymmetric interdependence is a function of "the availability of resources relative to demands for them" [45]. Specifically, an asymmetric dependence by an organization on others within its environment is determined by three factors : (1) the importance of the resource, (2) concentration

of resources within the hands of a few, and (3) discretion over resource allocation and use [45].

Two conditions make a resource important to an organization. The first is the *relative magnitude* of the input stream represented by the resource, i.e., "the proportion of total inputs or the proportion of total outputs accounted for by the exchange" [45]. As this magnitude increases, so too does the likelihood of an asymmetric dependence. For example, as clients outsource a larger proportion of their IT function, the magnitude of the IT resource externalized increases. The second condition engendering resource importance is the *criticality* of the input to the organization. Such criticality refers to the "ability of the organization to continue functioning in the absence of the resource" [45]. Critical resources too increase the incidence of asymmetric dependence. For example, technology support for mission-critical business functions represents a critical resource.

Concentration of a resource emerges in several ways. Monopolistic positions may enjoy legal protection; they may arise by virtue of coalitions or cartels or other forms of collective action [22, 45]. Such monopoly over the provision of IT resources is relatively unlikely in an open-market environment [22]. Resource concentration may also be a function of asset-specific resources, which give rise to a small-numbers condition [65]. In the context of IT provision, an exclusive, long-term relationship between a client and vendor ensures that in the long run only that particular vendor will have sufficient knowledge of the client's IT needs and the ability to satisfy them [53, 63]. The concentration of resources is accompanied by a concentration of power within an organizational field [45].

Discretion over the allocation and use of a resource is a function of several factors. The first is *possession*. Entities that hold ownership rights to a resource exercise control over it [45]. A second factor in discretion is access to the resource - those “able to regulate access to a resource without owning it” also command a level of control over the resource [45]. Third, *use* of a resource garners a measure of control over the resource [45]. Fourth, the *ability to control use* of a resource engenders resource control [45]. Fifth, the ability to “make rules or *otherwise regulate the possession*, allocation, and use of resources and to enforce the regulations” is a source of resource control [45]. IT outsourcing may externalize resource possession via the transfer of assets from client to vendor [43]; it may transfer the ability to regulate access to and use and possession of those resources via specific rights allocated via the contract and residual rights that have not been allocated [39]. Empirical work has demonstrated a tendency for the externalization of resource rights to engender a proclivity for opportunism by exchange partners and, consequently, heightened costs [5].

2.3 Organizational responses to asymmetric interdependence

In the face of asymmetric interdependencies, organizations have been noted to pursue a variety of alternate strategies to offset their exposure to powerful others. One strategy that has been noted in empirical research is the increase of the number and size of administrative units assigned to monitor the exchange relationship [61]. Such administrative differentiation introduces “requisite variety” where the complexity in the

organization’s design mirrors the complexity of its environment [6]. Administrative differentiation thereby facilitates more accurate monitoring of the environment vis-à-vis the powerful exchange partner. In the context of IT outsourcing, such administrative differentiation would entail a larger, more complex, and more differentiated outsourcing management team. Depending on the size and scope of an outsourcing project, the client may appoint an individual, team or oversight council responsible for administering the contract and monitoring vendor performance.

A second strategy commonly noted in the literature is the development of a coalition with other similar organizations [49]. Such coalitions restore a balance of power in four ways [45]. First, coalitions foster an exchange of information about the activities of the powerful, focal organization. Second, the coalition may provide a channel for communicating with another organization upon which the focal organization depends. Third, the coalition may be mobilized to negotiate relief and commitments from the focal organization. Fourth, the coalition represents a field within which the actions of the focal organization are legitimated or not. In these ways, a coalition may pre-empt the competitive or opportunistic postures of a powerful organization. In the IT outsourcing arena, such a coalition strategy might be developed among an alliance of client organizations, each of whom deals with the same outsourcing vendor.

A third strategy noted is the cultivation of alternate resource sources, thereby creating a countervailing power that balances an organization’s dependence on one vendor [29, 49]. The cultivation of such a countervailing power dilutes the concentration of resource control, thereby erod-

ing the power of the dominant organization [45]. In relation to IT outsourcing, this strategy entails the client's recourse to multiple vendors, i.e., to non-exclusive vendor relationships.

The first two strategies - administrative differentiation to support enhanced monitoring of the powerful partner and formation of coalitions to negotiate with the partner - represent an acceptance of the power imbalance and efforts on the part of the less-powerful trading partner to simply *cope with and manage* it. In contrast, the strategy of developing countervailing powers represents an effort by the less-powerful partner to *minimize* the power imbalance. By reducing the relative concentration of resources within the hands of the powerful partner, such a strategy reduces the asymmetric interdependence. The focus of this study is on such efforts by clients to offset the externalization of control inherent in IT outsourcing by increasing the number of vendors with whom they contract.

2.4 Exacerbating conditions : The possibility of opportunism

"Problems arise not merely because organizations are dependent on their environment, but because this environment is not dependable" [45]. Even in the presence of asymmetric interdependencies, the less powerful organization need not experience a sense of vulnerability. The experience of vulnerability for the less powerful organization stems from the prospect of opportunistic action by the powerful organization [58]. The relationship between asymmetric interdependencies and opportunism was first noted by Provan and Skinner [51], who observed that agricultural equipment dealers were more likely

to act opportunistically toward their primary supplier when they enjoyed the power conferred by an asymmetric dependence than when they did not.

However, resource dependence theory does not elucidate on the nature of opportunism. Therefore, for further theoretical insights on opportunism, we look to theories of organizational economics. According to organizational economics theories, opportunism can occur prior to the contracting process or upon implementation of the contract; it stems from asymmetries in information or in investments. Based on these characteristics, three distinct types of opportunism are noted : adverse selection, moral hazard, and holdup [9]. Adverse selection represents a pre-contractual form of opportunism, while moral hazard and holdup come into play once the contract is put into effect. Adverse selection and moral hazard are related to information asymmetries, while holdup stems from investment asymmetries. While commonly understood within the theoretical literature on organizational economics, these different forms of opportunism have only rarely been empirically investigated [30].

Adverse selection derives from pre-contractual information asymmetry about agents' capabilities to attain future performance levels. Such information asymmetry creates an incentive for parties with an information advantage to represent themselves inaccurately in order to make a sale or win a contract [4]. The prevalence of adverse selection within an industry can negatively impact the price of goods and services [4]. In the presence of adverse selection, agents have also been noted to make escalation decisions, which, while apparently irrational to the principal, are rational from the agents' perspe-

ctive [27]. In the outsourcing context, such adverse selection may thus result in vendors' escalation decisions that are viewed as dysfunctional by the client.

Moral hazard is a post-contractual form of opportunism that exploits asymmetric information about current performance levels [31]. Here, information asymmetries enable misrepresentation of agent performance. Under conditions of moral hazard, organizations adopt more complex contracts [48]. Formalization of contracts reduces the incidence of moral hazard associated with increased transaction costs [18].

Holdup occurs when a party to an exchange is forced to commit additional assets and investments in the face of default by the exchange partner so as to recoup the initial investment [32]. Anticipation of holdup can be a powerful deterrent to initial investments in relationship-specific assets [21]. In the presence of such ex-post opportunism, contractual inducement of goal congruence was found to be an important safeguard, minimizing parties' sense that prior investments would be might be forfeited [30]. To forestall problems of holdup, organizations screen partner qualifications, require commensurate partner investments, and monitor partners prior to undertaking relationship-specific investments [59]. Formal contracts have been found to dissuade holdup situations in relationships with foreign distributors only when the foreign legal environment was supportive of such mechanisms; when the legal environment was hostile, formal contracts were found to actually induce opportunism [11]. In inter-organizational relationships characterized by resource dependence, vendors who invested in the relationship were noted to exercise power to the detriment of their

clients much less frequently than did vendors without such commitment [50].

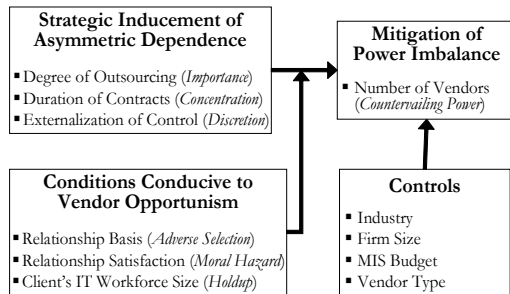
Thus, we note that the different forms of opportunism represent a significant threat to the occurrence and well-being of exchange relationships. The threat of opportunism has significant implications for governance decisions. It has been noted to increase the probability of acquisition over licensing arrangements in a sample of publicly listed firms in the U.S. [58]. Perceptions of opportunism increase the employment of contractual safeguards and hurt performance in strategic alliances [44]. The employment of legal contracts is believed to mitigate opportunism [1]. Parties to an exchange invest in a variety of safeguards so as to forestall partner opportunism. Of particular interest in this paper is the safeguard mechanism of multiple vendors - or the development of countervailing powers.

In exploring the mitigating effects of the different types of opportunism, we consider conditions underlying the client-vendor relationship that engender a threat of opportunism for the client. Specifically, we consider the basis of the outsourcing relationships, clients' satisfaction with their outsourcing relationships, and clients' IT workforce size as conditions that induce clients' concerns about adverse selection, moral hazard, and holdup respectively.

2.5 Research model

In the preceding sections, we suggested that three resource dependence conditions induced asymmetric interdependencies—the relative magnitude of the resource dependence, the relative discretion held by parties over the allocation and

use of the resource, and the relative concentration of resource ownership. We noted that asymmetric interdependencies engender power imbalances in favor of those with control of the resource and vulnerability for the less powerful exchange partner. This vulnerability is exacerbated by exchange conditions that enable partner opportunism. While other mechanisms for offsetting this vulnerability exist, this study focuses on the invocation of countervailing powers. We now consider these exchange conditions and client choices within the context of IT outsourcing. The research model developed in this study is summarized in [Figure 1]. The figure outlines the outsourcing choices and conditions examined in this research and, parenthetically, the theoretical constructs from resource dependence and opportunism theories implied by the outsourcing choices and conditions.



[Figure 1] Research model

3. Outsourcing Strategies and Vendor Exclusivity

Our premise has been that the importance of a resource, the concentration of the resource in the hands of a few, and discretion over its allocation and use create an asymmetric interdependence in

inter-organizational relationships. When such conditions are coupled with concerns about partners' potential opportunism, decision-makers seek to minimize their exposure to the resulting power imbalance by utilizing a countervailing power. We now consider how a client's outsourcing strategy may induce an asymmetric dependence. We examine three critical elements of an outsourcing strategy—outsourcing degree, externalization of control, and duration of contracts. We consider the countervailing power in terms of the number of vendors used and opportunism in terms of conditions that exacerbate or mitigate clients' experience of vulnerability in the outsourcing relationship.

3.1 Degree of outsourcing(Resource importance)

The degree of outsourcing reflects the scope of the outsourcing decision - the extent to which the firm internalizes or externalizes its IT function. Researchers have recognized three organizational categories in the degree of IT outsourcing : *comprehensive outsourcing*, *selective outsourcing*, and *minimal outsourcing* [34, 36]. Under comprehensive outsourcing, IT clients transfer a major portion of their IT budget to external vendors. Under selective outsourcing, clients use a mix of external vendors and internal support to implement the IT function. In the case of minimal outsourcing, clients satisfy most of their IT needs in-house.

IT researchers have noted the heightened client vulnerability that accompanies a comprehensive outsourcing strategy [34]. From a resource-dependence perspective, this vulnerability may be understood in terms of the *importance* of the outsourced resource, by virtue of its

magnitude. As organizations move from minimal through selective toward comprehensive outsourcing, the size of the IT functionality that is now controlled by an entity external to the organization increases. Consequently, so too does the importance or impact of the outsourced resource [45]. As the importance of the outsourced resource increases, clients' perceived vulnerability is also likely to increase. They are therefore liable to seek to mitigate this vulnerability by diffusing the outsourced IT resources among multiple vendors, i.e., by developing countervailing powers. We therefore propose :

Hypothesis 1a : As the degree of outsourcing by the client organization increases, the total number of vendors used by a client will increase.

3.2 Duration of contracts(Resource concentration)

Longer-term contracts are typically believed to heighten client vulnerability relative to short-term contracts [34]. Given the pace of change in the IT arena, it is more difficult to stipulate realistic contract terms and measures for distant time horizons. Furthermore, given the pace of technological innovation and continuing drop in IT costs, the probability of technological obsolescence and costs structures that are incommensurate with the market are higher with longer contracts. Finally, shorter-term contracts motivate vendors desiring contract renewal toward higher performance levels [34, 41].

From a resource-dependence perspective, longer-term contracts facilitate the *concentration* of the client's IT resources within a single vendor. "Although a large-numbers exchange condition obtains at the outset, it is transformed during contract execution into a small-numbers exchange relation" [64]. This ex-post small numbers conditions is a function of the idiosyncratic experiences garnered by the vendor in the performance of the contract [64]. Longer-term contracts concentrate these experiences and heighten the probability of an ex-post small-numbers condition. In order to diffuse the vulnerability culminating from such a resource concentration with longer-term contracts, clients will utilize multiple vendors. In addition to pre-empting the development of ex-post asset-specificity of the outsourced function, the presence of multiple vendors creates conditions of competition [16, 64]. We therefore propose :

Hypothesis 1b : As the duration of the contracts employed by the client organization increases, the total number of vendors used by a client will increase.

3.3 Contractual externalization of control (Resource discretion)

Client-vendor relationships may be structured as buy-in relationships, fee-for-service relationships, or as partnerships [34, 39]. These relationships represent increasing externalization of control of client's resources to a vendor, and consequently, increasing levels of client vulnerability [56]. With a buy-in contract, clients pur-

chase resources from a vendor to supplement their in-house capabilities; however, the management of those capabilities is handled exclusively by the client. This type of relationship represents the lowest level of externalization of control. With a fee-for-service contract, the client stipulates performance targets and an accompanying fee structure. Such contracts shift control of asset and/or service management to the vendor. Since complete delineation of client needs is near impossible, such contracts render the client vulnerable to vendor non-performance or malfeasance on issues that are not clearly covered by the contract [65].

Partnerships or strategic alliances are believed to be the most vulnerable type of outsourcing arrangement for the client [34]. The contract terms underlying such arrangements tend to be sketchy and poorly specified, increasing the range of client vulnerability to the vendor [34]. When requirements cannot be completely specified in the terms of a contract, control over the non-contractible elements is allocated to the vendor [25]. Nonetheless, clients do pursue such relationships when they lack the expertise to adequately stipulate appropriate contractual terms and are looking to develop such capabilities through relationships with outsourcing vendors [42].

From a resource-dependence perspective, with increasing externalization of control to a vendor, *discretion* over allocation and use of IT resources is increasingly vested in the vendor. With a buy-in relationship, resource rights are wholly held by the client organization. In a fee-for-service relationship, resources themselves - i.e., people, equipment, and software - are often transferred to the vendor organization

[43]. However, while resources may be *owned* by the vendor, the contract explicitly stipulates the client's usage rights. Given the looser structure of partnership arrangements, though, even usage rights may not explicitly be ceded to the client. Thus, with increasing externalization of control, clients are likely to pursue relationships with multiple vendors so as to develop countervailing powers. We therefore propose :

Hypothesis 1c : As clients increasingly externalize resource control to its vendors, the total number of vendors used by a client will increase.

4. Mitigating Effects of Opportunism in IT Outsourcing

Earlier, we noted that a central reason for an organization's inability to depend on others is the threat of opportunism. Here, we consider relational conditions that contribute to clients' perceptions of a possible threat of vendor opportunism. Factors that contribute to a *perceived* threat of opportunism also have consequence for governance decisions [48, 57]. Specifically, we explore three relational conditions that can provoke client feelings of vulnerability within the outsourcing relationship - the nature of the basis of the relationship, clients' satisfaction with the relationship, and the client's IT employees retained. We consider these in terms of their probability of inducing adverse selection, moral hazard, and holdup respectively. These conditions are expected to intensify clients' use of multiple vendors in an effort to offset their vulnerability

stemming from outsourcing choices that induce asymmetric dependence.

4.1 Relationship basis(Adverse selection)

Outsourcing relationships may be oriented toward efficiency improvements or access to emergent IT-related knowledge [35, 52]. In a relationship based on cost-minimization, clients can typically obtain an advance understanding of the specific cost-saving targets that they would like to accomplish based on market information [43]. Therefore, vendors are less able to exploit ex ante information asymmetries. In contrast, in a relationship based on knowledge acquisition, the vendor typically has more advance intelligence about the outsourced activities than the client and desired outcomes cannot be easily specified by the client [52]. In this case, information asymmetry favors vendors and adverse selection is more likely to occur [52]. In order to offset the possibility of adverse selection, clients will rely on multiple vendors. We therefore propose :

Hypothesis 2a : When the relationship basis includes the acquisition of knowledge rather than cost-efficiency alone, the relationship between strategic choices inducing asymmetric interdependence and the number of vendors employed will strengthen.

4.2 Relationship satisfaction(Moral hazard)

Clients' satisfaction with their outsourcing experiences enhances their trust in their vendors

[20, 55]. Trust, in turn, reduces monitoring activities and negotiation costs [66]. Thus, trust and commitment generate a "virtuous circle", resulting in improved client-vendor relationships and vendor performance over time [37, 56]. In contrast, client dissatisfaction with their outsourcing experiences engenders distrust and a sense that outsourcing relationships need to be more closely monitored [55]. Thus, low levels of client satisfaction increase clients' perception of moral hazard in their outsourcing relationships and the commensurate need for costly monitoring [9]. When clients experience such vulnerability to moral hazard in the presence of an asymmetric interdependence, they will be inclined to offset such vulnerability via a reliance on multiple vendors. We therefore propose :

Hypothesis 2b : When clients' satisfaction with the relationship is low, the relationship between strategic choices inducing asymmetric interdependence and the number of vendors employed will strengthen.

4.3 IT workforce size(Holdup)

A critical concern in outsourcing relationships, wherein ownership of critical IT resources is transferred to the vendor [43], is that should the outsourcing fail, the client will be unable to back-source the outsourced activities. IT staffing levels in particular represent a significant constraint to back-sourcing: the absence of indigenous skills can threaten the viability not only of the back-sourced project,

but also of other projects off which IT staff may need to be diverted [10]. In contrast, when clients have maintained IT staffing levels, back-sourcing represents a feasible solution. Thus, low IT staffing levels make clients vulnerable to holdup by vendors, where the initial outsourcing investment by the client forces the client to continue investing in the outsourcing relationship despite an absence of commensurate investments by vendors. Clients with limited personnel will therefore seek to offset this exposure by contracting with multiple vendors. In contrast, clients who have retained sufficient IT personnel will be less susceptible to this type of opportunism since they will be in a better position to back-source their IT functions.

A second dynamic comes into play with regard to the size of the client's IT staff. A larger internal IT workforce is typically associated with larger overall budgets, which serve as a deterrent to vendor opportunism. When assets involved in the relationship "produce greater-than-normal returns for the receiver, the receiver may refrain from opportunistic actions that could cause relationship termination" [54]. Thus, the anticipation of large future revenue streams discourages vendors from holding up such organizations. We therefore propose :

Hypothesis 2c : When clients have retained a small IT workforce, the relationship between strategic choices inducing asymmetric interdependence and the number of vendors employed will strengthen.

5. Research Methods

The location for data collection was South Korea. In this study, a thousand firms were identified from Maeil Business Newspaper's 2004 Annual Corporation Reports. Survey questionnaires were sent to the CIO of each company. One week after the surveys were sent out, a follow-up post-card was mailed. Four and seven weeks later, the same questionnaires were mailed again to increase the response rate. A total of 390 companies replied, yielding a response rate of 39%. However, 54 firms did not outsource at all and 25 surveys consisted of incomplete data. These were discarded, leaving 311 responses for the final analysis.

An analysis of non-respondent bias was conducted by comparing the total sales volume and the number of employees across responding firms and 50 randomly-chosen non-responding firms [7]. This analysis revealed no significant differences between respondents and non-respondents at the significance level of 0.05.

The survey instrument consisted of objective and subjective questions assessing the dependent, independent, and control variables. Given the factual nature of the items assessing a majority of the constructs, though, the possibility of a common method problem was minimal [46]. Prior research has suggested that outsourcing choices, i.e., degree of outsourcing, contract type, and contract duration, are meaningful within specified categories, and that variations within categories are not meaningful [34, 39]. Therefore, raw responses on these scales were categorized and recoded as discussed below. Similarly, since our prior and ensuing discussion of relationship satisfaction and client IT employees retained are

based on categories, these too were recoded so as to be consistent with our conceptualization. These categories also make it easier to identify and interpret potentially non-linear relationships among constructs.

5.1 Dependent variable

Number of Vendors (Countervailing Power) : Respondents were asked to indicate the total number of vendors with whom they had outsourcing contracts. Countervailing power does not increase linearly with an increasing number of vendors, but rather plateaus out. To account for this, the natural log of the number of vendors was computed and this metric used in the ensuing analysis as the dependent variable.

5.2 Independent variables

In regard to the degree of outsourcing, respondents considered their entire IT operations. In providing information on the duration of the contract and externalization of control though, respondents were asked to consider their relationship with their dominant or main vendor. This single vendor served as the point of reference for the two questions.

Degree of Outsourcing(Importance) : Respondents were asked to report their amount of IT outsourcing as a percentage of their total IT budget. Following Lacity and Willcocks [34], these responses were subsequently categorized as follows: outsourcing levels under 20% of IT budget represented minimal outsourcing, selective outsourcing was between 20% to 80% of the IT budget, and comprehensive outsourcing was more than 80% of IT budget. These repre-

sented increasing levels of resource importance.

Contract Duration(Concentration) : Respondents were asked to indicate the number of years stipulated in the contract with their dominant vendor. Following Lacity and Willcocks [34], responses were subsequently categorized as short-term contracts, i.e., those for less than 4 years, medium-term, i.e., those from 4 to 7 years, and long-term, those longer than 7 years. These represented increasing levels of resource concentration.

Externalization of Control(Discretion) : Respondents were asked to indicate the nature of the client-vendor relationship specified on the contract from one of eight possible choices - a buy-in contract, standard contract, detailed contract, loose contract, mixed contract, partnership, and other. Further information regarding the definition of each of these categories is available from the authors upon request. Following Lacity and Willcocks [34], three major contract categories were subsequently constructed : a buy-in contract, a fee-for-service contract (i.e., standard, detailed, loose, and mixed contracts), and a partnership. These represented increasing levels of vendor discretion.

5.3 Moderators

Relationship Basis(Adverse Selection) : Following Lee et al. [39], items on the client satisfaction scale (described below) were separately aggregated for client satisfaction with cost-efficiency and knowledge garnered (technology catalysis and strategic competence dimensions in Lee et al.). The scores for the two sub-scales were then compared and the relationship basis was coded as 0: a cost-based relationship when

client satisfaction with cost-efficiencies exceeded their satisfaction with knowledge gained, 1 : a knowledge-based relationship when satisfaction with knowledge gained exceeded satisfaction with cost-efficiencies, and 2 : both cost- and knowledge-based when clients' satisfaction levels were equal in both areas. This yielded a 3-category nominal scale for the assessment of relationship basis.

Relationship Satisfaction(Moral Hazard) : This was assessed using the 9-item, 7-point, self-report client-satisfaction instrument developed by Grover et al. [26]. The reliability (Cronbach's α) of this scale was found to be 0.96. Exploratory factor analysis with an extraction criterion of a minimum eigenvalue of 1 revealed only a single factor, with the loading for all items being 0.85 or better. This attests to the convergent validity of the scale. Since this was the only perceptual scale used in the survey instrument, discriminant validity cannot be confirmed with these data. However, the reader is referred to the prior instrument validation by Grover et al. [26].

Responses on this scale were averaged across the nine items. Since the client satisfaction instrument was used to operationalize both relationship basis (adverse selection) and relationship satisfaction (moral hazard), an ANOVA was conducted to ensure that the two metrics were not systematically related. This was found to be the case ($F = 0.126$; $p = 0.881$).

Client IT Workforce Size(Holdup) : Respondents reported the number of IT employees. Since only firms that had reported some outsourcing activity were retained for this analysis, this metric was interpreted as client IT employees retained after outsourcing.

5.4 Controls

Several pragmatic considerations are likely to impact the number of vendors with which a client contracts. Critical among these are the industry in which the client operates and the size of the client organization. Specifically, industries with more integrated and standardized processes are more likely to rely on an exclusive outsourcing relationship so as to foster a consistent architecture across the organization [19]. Larger clients and those with bigger MIS budgets are more likely to engage with multiple vendors as the scope and heterogeneity of their operations increases [40]. Participants in a chaebol-based relationship are apt to view the relationship as exclusive [17, 38]. Since these four variables are likely to account for some of the underlying variance in clients' choice of the number of vendors, they are treated as the control effects in our model.

Industry : Work by Chatman and Jehn [12] indicates the specific industries associated with Thompson's [60] long-linked, mediating, and intensive industry types. Following Chatman and Jehn [12], manufacturing, distribution, construction, and transportation/warehousing/communication firms were categorized as belonging to long-linked technology industries; the mediating technology category included firms in banking/finance/insurance ; the intensive technology category included research and information technology firms.

Firm Size : The two metrics typically used as surrogates of firm size in the organizational literature are the number of employees and sales revenue, which may be used interchangeably if highly correlated [2]. These two metrics were

found to be highly correlated in our data set, i.e., $r = 0.916$, $p(r) = 0.000$. Following Agarwal [2], to preclude multicollinearity problems in our analysis, we therefore relied solely on sales revenue as an indicator of firm size.

MIS Budget : Consistent with prior IS research [34], budget was assessed as a percentage of total sales. Higher budgets may be a manifestation of several possible circumstances that impact the number of vendors used: complexity of IT operations, administrative differentiation of the IT function, and resource slack.

Vendor Type : Respondents used one of two types of IT service vendors—members of traditional chaebols, i.e., corporate clusters with common financial holdings by a parent firm (about 60% of the market share), and independent IT service vendors (about 40% of the market share). Firms in the first group of IT vendors were initially spin-offs of internal IT departments of af-

iliated firms within a chaebol. While these vendors have historically tended toward exclusive relationships with their client firms, in the late 1980s, recognizing their lack of accumulated IT knowledge, they began partnering with non-Korean firms such as IBM and EDS. The second group of IT vendors entered the outsourcing market with their own IT solutions, targeting niche areas. Chaebol-based IT vendors differed from independent IT service vendors in that they provided IT services largely to affiliated firms within the same chaebol.

A chaebol-based client-vendor relationship earmarks both the presence of a coalition and a shared culture. As noted earlier, the presence of a coalition enables a partner to an exchange manage its asymmetric dependency. Groups such as keiretsus and chaebols provide the institutional context that dissuades competition among trading partners. In the context of our

<Table 1> Summary of constructs and metrics

Theoretical Construct	Study Metric	Logic
Countervailing Power	Natural log of number of vendors used	Increases in the number of vendors yields diminishing returns in terms of countervailing power
Resource Importance	Degree of outsourcing	The size of the IT functionality controlled by an external entity, and consequently the importance of the outsourced resource increases as organizations move from minimal through selective toward comprehensive outsourcing
Resource Concentration	Duration of contract with dominant of vendor	Longer-term contracts facilitate the concentration of the client's IT resources within a single vendor
Resource Discretion	Contractual externalization of control to dominant vendor	With the increases in the level of externalization of control to a vendor, discretion over allocation and use of IT resources is increasingly vested in the vendor
Adverse Selection	Relationship basis	Information asymmetry favors vendors and adverse selection is more likely to occur in a relationship based on knowledge as opposed to cost-minimization.
Moral Hazard	Reciprocal of client's satisfaction with the relationship	As client satisfaction increases, moral hazard decreases
Holdup	Reciprocal of client's IT workforce size	The larger the IT workforce retained by the client after outsourcing, the better the client's ability to backsource upon vendor malfeasance and consequently, the lower the holdup potential.

study, vendors were a member of their clients' chaebol or an independent organization.

5.5 Mapping of constructs to variables

The outsourcing context of this study enables a test of the underlying theories of resource dependence and opportunism. From the discussion

above, it should be evident that the mapping of the theoretical constructs to the metrics employed in this study is not always direct and linear. In <Table 1>, we summarize this mapping and the logic for the metrics employed.

6. Analysis and Results

<Table 2> Distribution of categorical variables

Construct	Categories(Frequency ^a , Percentage)		
	Industry	Long-linked technology (198; 63.7)	Mediating technology (65; 20.9)
Vendor Type	Independent (82; 26.4)	Chaebol-based (229; 73.6)	
Degree of outsourcing	Minimal outsourcing (68; 21.9)	Selective outsourcing (163; 52.4)	Comprehensive outsourcing (80; 25.7)
Contract Duration	Short-term (138; 44.4)	Medium-term (117; 37.6)	Long-term (56; 18.0)
Externalization of Control	Buy-in (67; 21.5)	Fee-for-service (109; 35.0)	Partnership (135; 43.4)
Relationship Basis	Cost-based (117; 37.6)	Knowledge-based (108; 34.7)	Both (86; 27.7)
Relationship Satisfaction	Low (150; 48.2)	Medium (63; 20.3)	High (98; 31.5)
IT Workforce Size	Small (131; 42.1)	Medium (97; 31.2)	Large (76; 24.4)

^a n = 311

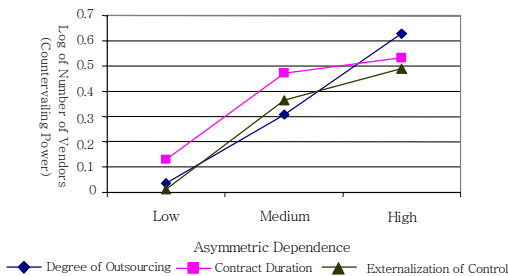
<Table 3> Descriptive statistics and correlations for continuous variables

Variables	Means(SDs.)	Correlations(n = 311)						
		1	2	3	4	5	6	7
1. Number of IT Vendors	1.56(0.81)	1.000						
2. Firm Size(Revenue)	4102.75(12591.42)	0.062	1.000					
3. MIS Budget	1.17(1.85)	-0.045	-0.058	1.000				
4. Degree of Outsourcing	54.39(30.55)	0.449+	0.026	-0.039	1.000			
5. Contract Duration	5.16(2.56)	0.396+	0.015	-0.019	0.793+	1.000		
6. Relationship Satisfaction	4.86(0.77)	0.191+	0.083	-0.123*	0.235+	0.266+	1.000	
7. Client IT Workforce	48.83(98.95)	-0.113*	0.534+	0.072	-0.166+	-0.138*	0.019	1.000

* p < .05 ; + p < .01

The GLM procedure was used. This procedure was best suited to the categorical nature of the independent, moderator, and control variables. The frequency distribution of the categorical variables is provided in <Table 2>. Descriptive statistics and correlations for continuous variables are presented in <Table 3>.

<Table 4> presents the results of the hierarchical regression. The analysis was conducted using the GLM procedure in SPSS. To minimize the multicollinearity problems possible with the interaction terms, the asymmetric dependence and opportunism variables were centered [3]. In Model 1, we include the four controls - industry type, organizational size (revenue), vendor type, and MIS budget. To these, we add the main effects of outsourcing degree, contract duration, and externalization of control in Model 2. Here, we note that the incremental explained variance of 24% over the base model is significant. Furthermore, we note that the degree of outsourcing, contract duration, and externalization of control each had significant effects on the number of vendors employed by clients.



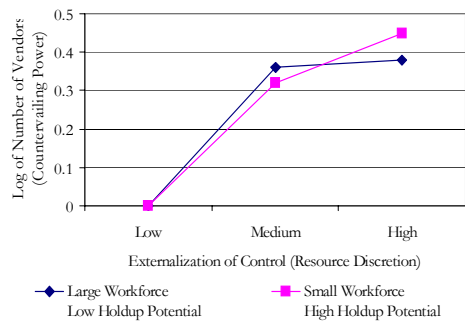
[Figure 2] Effects of asymmetric dependence on number of vendors used

To confirm the nature of the effects of degree of outsourcing, contract duration, and externalization of control on the number of vendors

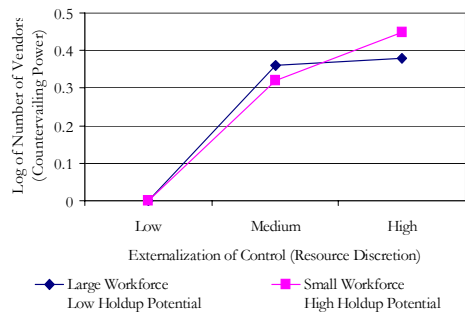
used, we plot the log of the number of vendors utilized (countervailing power) at different levels of asymmetric dependence in [Figure 2]. As will be apparent from this figure, our data provide support for hypotheses 1a, 1b, and 1c.

In Model 3, we inspect the main effects of the three moderators - the relationship basis, relationship satisfaction, and the client's IT workforce size. The addition of these variables contributes only an insignificant 1.7% to explaining the variance in the number of vendors utilized.

3a : Moderated Effect of Degree of Outsourcing (Resource Importance)



3b : Moderated Effect of Externalization of Control (Resource Discretion)



Categories : High moral hazard [low satisfaction] : 1-4.5 on satisfaction scale(98 firms)
 Moderate satisfaction : 4.5-5 on satisfaction scale(63 firms)
 Low moral hazard [high satisfaction] : 5-7 on satisfaction scale(150 firms)

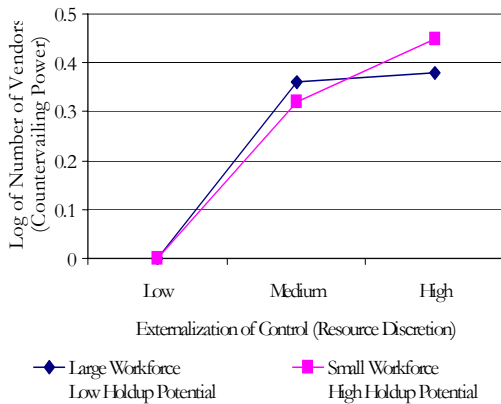
[Figure 3] Moderating effects of relationship satisfaction(Moral hazard)

<Table 4> Explaining the number of vendors-Results of hierarchical regression

Effect	Model 1 : Controls	Model 2 : Asymmetric Dependence	Model 3 : Opportunism Conditions	Model 4 : Adverse Selection Moderation	Model 5 : Moral Hazard Moderation	Model 6 : Holdup Moderation
	F(p)*					
Intercept	89.315(0.000)	97.609(0.000)	47.718(0.000)	51.237(0.000)	52.442(0.000)	34.592(0.000)
Industry	0.604(0.548)	0.210(0.810)	0.120(0.887)	0.210(0.811)	0.593(0.553)	0.130(0.878)
Firm Size [Revenue]	2.009(0.065)	1.622(0.141)	1.712(0.119)	1.677(0.128)	2.822(0.011)	1.764(0.108)
Vendor Type	1.277(0.259)	0.421(0.517)	0.058(0.809)	0.066(0.798)	0.363(0.547)	0.015(0.903)
MIS Budget	0.778(0.379)	0.165(0.685)	0.405(0.525)	1.157(0.283)	0.493(0.483)	0.168(0.683)
Degree of Outsourcing (Importance)		10.220(0.000)	10.695(0.000)	12.447(0.000)	6.009(0.003)	1.251(0.288)
Contract Duration (Concentration)		5.142(0.006)	4.947(0.008)	5.120(0.007)	5.743(0.004)	2.154(0.119)
Externalization of Control (Discretion)		2.981(0.053)	2.933(0.055)	3.103(0.046)	1.002(0.369)	1.378(0.254)
Basis (Adverse Selection)			0.993(0.397)	0.278(0.757)	0.912(0.403)	0.359(0.699)
Satisfaction (Moral Hazard)			0.695(0.500)	0.418(0.659)	1.015(0.364)	0.388(0.679)
IT Workforce Size (Holdup)			0.184(0.981)	0.255(0.957)	0.518(0.794)	0.963(0.451)
Degree*Basis				1.530(0.194)		
Duration*Basis				1.182(0.319)		
Externalization*Basis				1.320(0.263)		
Degree*Satisfaction					2.7575(0.029)	
Duration*Satisfaction					1.860(0.118)	
Externalization*Satisfaction					4.936(0.001)	
Degree*Workforce						1.023(0.427)
Duration*Workforce						1.624(0.094)
Externalization*Workforce						2.279(0.012)
R ² (p)	0.051(0.192)	0.291(0.000)	0.308(0.000)	0.344(0.000)	0.400(0.000)	0.431(0.000)
Adjusted R ²	0.014	0.246	0.233	0.234	0.299	0.260
ΔR ² (p)		0.240(0.000)	0.017(0.153)	0.066(0.010)	0.092(0.000)	0.123(0.000)

* The F-statistic is reported in lieu of parameter estimates since there are multiple parameter estimates for each categorical variable.

In Models 4, 5, and 6, we investigated the effects of the different opportunism conditions. Notably, adverse selection, i.e., a cost- versus knowledge-basis for the outsourcing relationship, did not moderate the effects of conditions inducing asymmetric dependence on the use of countervailing power. Thus, hypothesis 2a was not supported. Moral hazard was found to moderate the effects of both importance and discretion on countervailing power, but not of concentration. The potential for holdup was found to moderate the effects of both concentration and discretion on countervailing power, but not of importance. Following Cohen and Cohen [15], we now explore the interaction plots in order to understand the nature of the moderating effects noted in <Table 3>. These plots are presented in [Figure 3] and [Figure 4].



Categories : High holdup potential [small workforce] : <10 employees
 Medium workforce : 11-50 employees
 Low holdup potential [large workforce] : more than 50 employees

[Figure 4] Moderating effect of client IT workforce size(Holdup potential) with regard to externalization of control (Resource discretion)

In [Figure 3], we illustrate the moderating effects of moral hazard, i.e., relationship satisfaction. As expected, the increase in the number of vendors used associated with the increase in the degree of outsourcing is steeper for low levels of relationship satisfaction - or high moral hazard. This finding provides partial support for Hypothesis 2b.

With regard to the externalization of control or resource discretion, once again we note that the increase in the number of vendors used with increases in externalization of control is steeper for clients experiencing low relationship satisfaction, i.e., high moral hazard, than for those with high satisfaction levels. This too provides support for hypothesis 2b.

In [Figure 4], we illustrate the moderating effect of the size of the client's IT workforce, i.e., of holdup potential. Here too, we notice a steeper rise in the number of vendors employed as the externalization of control increases for clients that have retained only a small workforce and consequently experience a high holdup potential. This finding provides support for hypothesis 2c.

7. Discussion

The premise of this paper has been the following. Clients' outsourcing strategies engender varying levels of asymmetric dependence on their outsourcing vendors. In order to offset such asymmetric dependence, clients will develop countervailing power by utilizing more vendors. <Table 5> summarizes the results of our hypothesis testing. We then consider the implications of our findings in the light of the underlying theories used.

<Table 5> Summary of findings

Hypothesis		Result
1a	As the degree of outsourcing by the client organization increases, the total number of vendors used by a client will increase	Strong support
1b	As the duration of the contracts employed by the client organization decreases, the total number of vendors used by a client will increase	Strong support
1c	As clients increasingly externalize resource control to its vendors, the total number of vendors used by a client will increase.	Weak support
2a	When the relationship basis is the elicitation of knowledge rather than cost-efficiency alone, the relationship between strategic choices inducing asymmetric interdependence and the number of vendors employed will strengthen.	No support
2b	When clients' satisfaction with the relationship is low, the relationship between strategic choices inducing asymmetric interdependence and the number of vendors employed will strengthen.	Partial support-degree and externalization
2c	When clients have retained a small IT workforce, the relationship between strategic choices inducing asymmetric interdependence and the number of vendors employed will strengthen.	Partial support-externalization of control

7.1 Resource dependence

Our findings provide clear support for resource dependence theory. As conditions that heighten the asymmetric dependence of clients on their vendors increased, so too did clients use of countervailing power. This finding was observed for all three conditions associated with asymmetric dependence - degree of outsourcing or resource importance, duration of contract with the dominant vendor or resource concentration, and contractual externalization of control to the dominant vendor or resource discretion. The weakest of the three main effects was the externalization of control - i.e., resource discretion. The effects of this variable were moderated by two of the three opportunism conditions though, indicating that it is indeed an important component of the model. The robustness of these findings suggests that resource dependence theory is a powerful lens through which to view the outsourcing phenomenon.

It is retrospectively intuitive that the condition most susceptible to exacerbation by vendor opportunism was the externalization of control. The degree of outsourcing and duration of the contract with the dominant vendor do not engender a level of client vulnerability to vendor opportunism that the allocation of control of the IT resource to a vendor does. Regardless of the extensiveness of the IT resource outsourced or the duration of the contract, a tightly-specified contract can preclude opportunism. In contrast, a loose contract heightens a client's exposure to willful vendor opportunism as well as inadvertent non-performance [34, 65].

7.2 Opportunism

We considered the basis for the outsourcing relationship in terms of its potential for adverse selection. Specifically, we proposed that it would be relatively easy to assess prospective vendors'

ability to provide cost-savings. In contrast, we believed that information asymmetry would be high - and would favor the vendor - when the basis for the relationship concerned knowledge transfer. Our results provide no support for the moderating effect of such adverse selection. This finding may be partially attributable to the fact that concerns about adverse selection may have a stronger effect on governance choices made prior to the onset of the outsourcing relationship, (i.e., the selection of the specific vendor to use), than on the mitigation of vulnerability after the commencement of the relationship.

We conceptualized client satisfaction with the relationship in terms of moral hazard experienced by the client. Notably, the moderating effects of this moral hazard condition were the strongest of the three opportunism conditions. Much as expected, moral hazard was found to moderate the effects of degree of outsourcing (resource importance) and externalization of control (resource discretion), strengthening the increased usage of multiple vendors commensurate with higher levels of asymmetric dependence.

Finally, we considered the effects of the size of the client's IT workforce in terms of clients' susceptibility to holdup. This condition was found to moderate only the effects of externalization of control on the number of vendors used. Here too, the nature of the moderation was as anticipated - the increase in the number of vendors used was steeper when the client's IT workforce was small or holdup potential greater than when the workforce was large.

Overall, our study provided sparse support for the exacerbation of resource dependency conditions by the possibility for vendor opportu-

nism. Clearly, there were not direct effects of opportunism on the number of vendors employed. Even the moderating effects of the three types opportunism were sporadic though. These findings are at odds with that of earlier research that emphasizes the role of opportunism in governance choices [44, 47]. While it is possible that the role of opportunism in explaining choices is greatly exaggerated, two conditions specific to this study may explain these findings : the opportunism metrics employed and the Asian context.

Opportunism Metrics: Much of the earlier research that has empirically investigated the effects of opportunism on governance choices has utilized perceptual measures [57, 58]. Our operationalization of the different forms of opportunism in terms of situational conditions likely to be associated with adverse selection, moral hazard, and holdup is a less direct assessment of clients' experience of vulnerability to vendor opportunism. Perhaps a more direct assessment would yield stronger results.

The Asian Context : Concerns about opportunism are not a universal phenomenon. Rather, they are a manifestation of societal assumptions that come to be a self-fulfilling prophecy [23, 24]. Research has suggested that opportunities for opportunistic behavior are culturally-linked and that collectivist cultures may stymie intra-group opportunism [13]. Given that almost $\frac{2}{3}$ of our sample were chaebol-based relationships, this might account for the sparse effects of opportunism in our study.

Research has also indicated that the effects of opportunism are contingent on contextual factors such as firms' risk orientation and agents' incentive alignment [58]. Specifically, when high levels of opportunism are anticipated, internal-

ized governance is lower in risk-averse than in risk-seeking contexts. Similarly, governance is less internalized with high levels of anticipated opportunism when there is alignment of interests than when interests are not aligned. Notably, Asian cultures tend to be more risk averse and manifest greater agreement with organizational rules and objectives than do western cultures [28].

7.3 Implications for practice

This study examined clients' choices regarding the number of outsourcing vendors used from the perspective of their efforts to mitigate the negative impacts of asymmetric interdependencies and potential vendor opportunism. As is apparent from [Figure 2], a robust finding of this study is that as clients' outsourcing strategic choices induce conditions of asymmetric dependence, their usage of additional vendors appears warranted. Thus, the number of vendors appears to be a viable client response to conditions of asymmetric dependence. Our findings also point to the relevance of conditions engendering client susceptibility to moral hazard and holdup. Under such conditions, clients' responses to conditions of asymmetric dependence were heightened.

Accordingly, the results of this study provide guidelines to organizations considering the number of vendors that they should use. The study emphasizes that this decision is contingent on organizations' different situational conditions such as their satisfaction with previous outsourcing experiences and the size of the client's IT staff retained.

7.4 Limitations and suggestions for future research

A couple of limitations associated with the empirical testing of this study need to be acknowledged. First, in cases where clients utilized multiple vendors, they were asked to respond to questions regarding contract types, periods, and relationship satisfaction based on their relationship with their dominant vendor. This provides a perspective of outsourcing choices based solely on the client's relationship with its dominant vendor. Second, only the CIO of each organization was surveyed. While information from the CIO should provide a high level of confidence in the quality of the information gathered, selection bias could still exist due to relying on a single respondent for variables in the proposed model.

The results of this study suggest several directions for future research. First, we considered three conditions that induce asymmetric interdependencies among client-vendor relationships. It is possible that other conditions may also create power imbalances and leave clients in a vulnerable situation. For example, IT functions that are more critical to clients will engender higher levels of client dependence on the vendor. Second, a Korean sample was used for this study. Thus, replication of this study across geographic areas and cultures is needed so that the findings can be more generalized. Third, the choice of the number of vendor in outsourcing relationship can be contingent on diverse factors, including environmental uncertainty, technological substitutability, customer's outsourcing management capability, IS maturity, and corporate philosophy. Future research that examines such

factors can provide deeper understanding of the outsourcing process. Finally, this study examined the proposed model from the client's perspective. Analysis of the outsourcing relationship from the vendor's perspective too may enable a more robust understanding of the outsourcing phenomenon.

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Appendix A : Details of Survey Instrument

Outsourcing definition provided to survey respondents

The term IT OUTSOURCING refers to the practice of commissioning part or all of an organization's IT assets, people, and/or activities to one or more external providers. It includes any one or combination of the following : system planning, application analysis and design, application development, operation and maintenance, system integration, data center operation, telecommunication management and maintenance, software, hardware products, facilities management (e.g., PC management), end user support (e.g., training), and so on.

Degree of Outsourcing

Definition	The total outsourcing expenditure on the basis of the IT budget in a given year.
Instruction	Please answer this question considering all sorts of IT expenditure spent in the previous financial year including the purchased human and technical resources and services that are controlled by in house management or outside service providers, and any capital investment for joint ownership of an entity to do the needed IT activities.
Item	<i>What is the amount of IT outsourcing as a percentage of the total IT budget?</i>
Categories	Comprehensive outsourcing (more than 80% of IT budget) ; Selective outsourcing (20% to 80% of IT budget) ; Minimal outsourcing (less than 20% of IT budget).

Duration of Contracts

Definition	The duration of the outsourcing contract between the service receiver and provider.
Instruction	Please answer this question based on the outsourcing contract with your dominant IT service provider.
Item	<i>How many years did you make the contract with your service provider?</i>
Categories	Short-term (less than 4 years) ; Medium term (from 4 to 7 years) ; Long-term (more than 7 years).

Externalization of Control

Definition	Type of contract between the service receiver and provider in an outsourcing relationship.
Instruction	What kind of relationship (or contract) did you set up with your service provider? Please check only one number considering the contract type with your dominant outsourcing provider.
Items	<ol style="list-style-type: none"> 1. <i>Standard contracts</i> : your firm signed the service provider's standard, off-the-shelf contract. 2. <i>Detailed contracts</i> : the contract included special clauses for service scope, service levels, performance measures, and penalties. 3. <i>Loose contracts</i> : the contract did not provide comprehensive performance but specified the service providers' performance as "whatever the customer was doing in the baseline year" for the next five to 10 years at 10% to 30% less than the customer's baseline budget. 4. <i>Mixed contracts</i> : For the first few years, requirements of the contract were fully specified (detailed contract), but the technology and business requirements in the long run were not defined (loose contract). 5. <i>Partnership</i> : the relationship involved significant resources of your and your service provider(s) to create, add to, or maximize joint value. Also, the contract included an agreement to furnish a part of the capital and labor for a business enterprise, and each shares in benefits and risks. 6. <i>Buy-in contracts</i> : your firm bought some resources to supplement in-house capabilities, but the resources were managed by in-house business and IT management. 7. <i>Other</i> (specify).
Categories	Fee-for-service contract (1, 2, 3, and 4) ; Partnership (5) ; Buy-in contract (6).

Number of Vendors

Definition	The total number of IT service providers working together based on formal contracts.
Instruction	Please answer this question considering the number of all IT service providers connected by formal outsourcing contracts as of the end of the previous year.
Item	<i>What is the total number of service providers with whom you had outsourcing contracts?</i>

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고려대학교 경영대학 부교수로 재직하고 있다. 성균관대학교에서 공학학사를 취득하였으며, 한국과학기술원 테크노경영대학원에서 경영공학 석사와 박사 학위를 수여 받았다. City University of Hong Kong과 국민대학교에서 강의와 연구를 수행한 경력을 가지고 있다. 주요 관심분야는 정보기술 아웃소싱, 지식 경영, 정보기술의 기업 확산 및 영향 등이며, 지금까지 이와 관련하여, MIS Quarterly, ISR, Journal of MIS, Journal of the AIS, IEEE Transactions on Engineering Management, European Journal of Information Systems, Communications of the ACM, Communications of the AIS, Information & Management, 경영학 연구, 경영정보학 연구 등을 포함한 다수의 국내외 학술지 및 학회지에 논문을 게재하였다. 현재 MIS Quarterly, ISR, Journal of the AIS 등의 저널에서 편집위원으로 활동하고 있다.