

Control Mechanisms and Performance in Plural Sourcing: The Moderating Effect of Social Ties

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Abstract

This paper seeks to shed light on the effect of organizational controls on outsourcing performance in the context of plural sourcing. Plural sourcing in service outsourcing is a new phenomenon and as such opens opportunities to re-examine our understanding of organizational controls. We theorize that the controller of a plural sourcing setting will seek to mitigate against performance and relational risks when governing both internal and external providers. Results from 122 large firms in the UK and USA suggest that in the case of internal provider, in an attempt to improve performance, the controller is more likely to apply outcome control while in the case of external provider, the controller is likely to use behavioural control. We also found a selective effect of social ties on the relationships between organizational controls and performance.

Introduction

The use of organisational control mechanisms is assumed to motivate people to achieve desired outcomes. There has been growing interest in the IS literature in recent years to understand the choice of organisational controls and their effect on performance in the IS literature (Wiener et al, 2014; Gopal and Gosain, 2010; Tiwana and Keil, 2009; Choudhury and Sabherwal, 2003). In particular, past studies took interest in understanding controller's choice of organisational controls in software development projects under various sourcing settings. One stream of studies has focused on the controller's choices of organisational controls when an internal team is developing software (Kirsch et al, 2002; Kirsch, 1997). A related stream of studies has examined organisational controls and their effect on performance in outsourcing

settings where the software development was carried out by a third party provider (Gopal and Gosain, 2010; Tiwana & Keil, 2009; Choudhury and Sabherwal, 2003). Both streams, regardless of the sourcing settings, have demonstrated the importance of control mechanisms in motivating the controlee to achieve desired outcomes and the effect of control mechanisms on project performance.

Recent developments in the outsourcing industry have called for the re-examination of organisational control choices. First, the emergence of plural sourcing in service outsourcing, defined as a governance form in which firms make or buy (or ally in order to procure) more or less similar goods and services, presents new opportunities to examine controller's preferences of control mechanisms under a governance structure that 'does not sit between the individual governance modes, but rather is a combination of multiple governance modes in their full manifestation' (Krzeminska et al 2013: 1614). A controller who is governing an internal provider (e.g. captive centre) is likely to seek strategies to mitigate performance risk arising from high levels of performance ambiguity by elevating the transparency of outcomes delivered by the captive centre, while in the case of a 3rd party service provider, the controller will seek to mitigate against relational risk, improving the visibility of the supplier's behavior and tightening its relationships with the external party. Second, with few exceptions (Wiener, et al, 2014; Gopal and Gosain, 2010; Tiwana and Keil, 2009), the organizational control literature has so far shed little light about the effect of controls on outsourcing performance. Indeed, observations from past studies suggest that in certain organizational settings or particular project phases, certain some control mechanisms can be more influential than others (Chouhurry and Sherwbal 2003; Gopal and Gosain 2010); however, explanations offered in the literature have so far been anchored in the knowledge base theory of the firm suggesting a moderating effect for boundary spanning activities (Gopal and Gosain 2010). As our study posits that the controller of a plural sourcing setting is likely to choose organizational mechanisms that mitigate performance and relational risk, we sought to examine the moderating role of relational governance, widely discussed in the IS outsourcing literature as positively affecting outsourcing performance. Strong relationships, examined here as strong social ties, may indeed enhance the positive effect of certain organizational controls on performance by mitigating relational risk and promoting collaboration and cooperation between the controller and controlee. Against these backdrops, this study examines the effect of organizational controls on outsourcing

performance and the moderating role of social ties in plural sourcing setting. Results from a survey of 122 large firms in the UK and USA that practice plural sourcing suggest that the controller is likely to mitigate performance risk in captive centre setting by applying an outcome control; however will not use self control to enhance the positive effect of shared objectives and values to improve performance. In non-equity partnership (external provider), the controller will use behavioural control to mitigate relational risk and improve visibility of the supplier behavior; however, will not pursue investment in clan control to strengthen the relational dimension. We also found a selective effect of moderation of social ties. Social ties strengthen the positive effect of clan, behavior and self control on performance in the case of 3rd party service providers and outcome control in internal service provider, but weaken the positive effect of clan on performance in the case of internal service provider.

The remaining of the paper is organized as follows. We first review the plural sourcing and organizational control literatures and proceed to develop a set of hypotheses that examine the effect of organizational controls in internal and external sourcing setting on outsourcing performance. We also theorize the moderating effect of social ties. Results of our survey will then be presented followed by a discussion and future research sections.

Theoretical Background

Plural Sourcing

Plural sourcing is a governance form in which firms make or buy (or ally in order to procure) more or less similar goods and services (Krzeminska et al 2013). While early studies have examined plural sourcing as a governing form of same product or service (Gulati and Puranam, 2006), Krzeminska et al. (2013) have questioned the ability to evaluate whether two inputs are the same and consequently proposed to consider these inputs as more or less similar.

Plural sourcing has offered opportunities for research to debate the definition of this sourcing model (Gulati and Puranam 2006; Krzeminska et al 2013), the motivation to pursue this sourcing model (Dutta et al 1995; Heide 2003) and the optimization of the utilization of internal and external providers (Puranam et al 2013). Indeed, plural sourcing has attracted great interest in recent years (e.g. Parmigiani 2007; Puranam et al 2013) as firms have adopted a governance structure that ‘does not sit between the individual governance modes, but rather is a combination of multiple governance modes in their full manifestation (Krzeminska et al 2013: 1614). As a result, plural

sourcing allowed firms to consider certain benefits not available under the separate governance form for external and internal providers. For example, Dutta et al. (1995) explains that when producing a similar component in-house, the firm develops a monitoring capacity relevant for contracting the production of a similar product to an external provider. Harrigan (1986) claimed that the costs of contracting out could be reduced under a plural sourcing governance structure, as the client firm is fully aware of the production costs and therefore can effectively deter the external provider from over-charging. Puranam et al (2013) also highlighted complementarities, either incentives or knowledge, as one outcome of the plural sourcing governance structure in which there could be ‘improvements in the competence of internal suppliers because of procurement from external suppliers and vice versa’ (ibid.: 1152).

From a transactional view, plural sourcing may prevent an opportunistic behaviour by either internal or external provider. Viewing external providers as non-equity partners (i.e. ‘markets’) and internal providers as equity partners (i.e. ‘hierarchies’), Das and Teng (1996) suggest that there is less opportunistic behaviour (Ouchi 1980) within equity partnerships as compared with non-equity partnership. In particular, the relational risk in equity partnership, i.e. the potential of having a partner who does not co-operate or behaves opportunistically (Das and Teng 1996), can be better controlled because of joint ownership, monolithic control and diminished performance ambiguity. By contrast, firms will struggle to control performance risk in equity partnership, which is the risk of not achieving the alliance objectives, even when partners co-operate fully (Das and Teng, 1996). This is mainly because of high initial investments in setting up the internal venture and the relatively high costs involved in governing the internal venture. On the other hand, non-equity partnership, such as contracting out work to external providers, presents a high potential of opportunistic behaviour. Das and Teng (1996: 838) suggest that ‘[B]eyond the specifics identified by the contract ex-ante, non-equity contractual agreements rely heavily on the goodwill and voluntary co-operation from independent firms’. They conclude that as partners realize that they lack the means to deal with such opportunism, the non-equity partnership will therefore present challenges in controlling the relational risk. On the other hand, non-equity partners can easily control the performance risk by either exiting the relationship without incurring heavy costs or by controlling for the level of commitment to secure their returns (Gopal and Koka 2012). Controlling opportunistic behaviour has been examined in the organisational control literature. In this regard, organisational controls have been described as the means through which firms ‘motivate individuals to achieve desired objectives [...] exercised via

formal and informal modes' (Kirsch et al 2002). We now turn to the literature on organisational controls and its implications for plural sourcing governance.

Organizational Control Mechanisms

Most relevant studies refer to four main control mechanisms (Ouchi 1979), namely; outcome, behaviour, self and clan. Two modes of control, behaviour and outcome, are classified as formal while self and clan are categorized as informal. Moreover, the extant literature (e.g. Kirsch et al 2002; Gopal and Gosain 2010) assumes that there is a controller and a contolee in an either intra- or inter-organisational setting in which the contolee is expected to respond to certain mechanisms, rituals and procedures put forward by the controller (Kirsch 2004). In the case of a formal control mode, outcome-based control will see the controller specifying parameters of desired outcomes for the contolee and evaluating the contolee's performance based on whether these targets have been met while giving the contolee the freedom to pursue his approach to achieving these goals (Kirsch 2002). In behaviour control as another formal mode, the controller is using rules, steps and procedures for the contolee to follow. The assessment of the contolee's performance is based on the degree to which the contolee has adhered to the specified procedures (Gopal and Gosain 2010; Kirsch et al 2002). Kirsch et al (2002) argue that formal control modes 'share a common underlying assumption that the controllers and contolees have incongruent goals, and they both align by providing appropriate incentives to the employees' (ibid. :486). In terms of informal control modes, clan control takes place when contolees adopt the same values and beliefs, so that they feel they belong to the same group within the organisation and hence are committed to achieving the group goals (Kirsch et al 2002). Individual members will then be assessed on the basis of whether they have acted in accordance with the group values and norms. Self control is assuming intrinsic motivation on behalf of the contolee who is setting his own goals, monitors his own achievements, and rewards or sanctions himself accordingly (Kirsch et al 2002: 486). In this regard, the controller does not directly exercise control over the contolee but rather encourages contolees to exercise self-control via personal development training or task definition and structuring (Kirsch et al 2002). Controllers often use the various types of control in combination, creating a portfolio of controls (Choudhury and Sabherwal, 2003; Kirsch, 1997). The information systems literature has seen significant development in understanding the choices of controls, their evolution over a project life and their impact on

performance. For example, Choudhury and Sabherwal (2003: 313) identify the evolution of a portfolio of controls over five outsourcing projects. They confirm that in the context of outsourcing as well as internal software development, firms do use control mechanisms. Further, they conclude that many findings relating to the use of control mechanisms based on an internal provider setting apply to the outsourcing case, with a greater emphasis on outcome controls in the beginning of the outsourcing project and behavioural controls applied later in the project. Gopal and Gosain (2010) examine the effect of control mechanisms on project performance in an outsourcing setting from the controlee's viewpoint (i.e. supplier). They assume a moderating role for boundary spanning activities as eliminating knowledge gaps between the vendor and the client firm.

The results of these studies are very helpful in developing our understanding of controls in the outsourcing context in general and as compared with internal development of software. However, these studies also hint at some opportunities to further develop the organisational controls literature in the IS outsourcing field. Firstly, existing studies have examined controls within one particular context such as in-house software development (Kirsch et al 2002) or outsourcing setting (Gopal and Gosain 2010; Choudhury and Shebherwal 2003). As such, previous research is limited to governance structures where the controller and the controlee operate either *within* organizational boundaries (i.e. Kirsch et al 2002; Kirsch, 1997) or *across* organizational boundaries (i.e. Gopal and Gosain, 2010; Choudhury and Sabherwal, 2003). The emergence of plural sourcing, in which the dual governance structure for internal and external providers is combined into one governance structure and in which choices regarding controls are made by a centralized function, have not been addressed in the existing literature. While control mechanisms previously reported for in-house software development projects (Kirsch 1997) and outsourcing setting (Choudhury and Shebherwal, 2003) are likely to be applied in the plural sourcing setting, it is not clear what effect these controls would have on performance (Gopal and Gosain, 2010) when they are applied from a centralized governance function. As Tiwana and Keil (2009) assert that it is plausible that control mechanisms will achieve a varying effect on performance such as in the case of internal projects (where the control relationship spans an internal departmental boundary) as compared with outsourced projects (where it spans an inter-organizational boundary).

Secondly, plural sourcing poses a risk of opportunism by both internal and external providers (or equity and non-equity partners). Equity partnerships will find it hard to

control performance risk because of performance ambiguity within the venture, while non-equity partnership will struggle to control relational risk (Das and Teng 1996). In order to meet desired performance, the controller of a plural sourcing governance structure is likely to apply formal or informal controls that balance out relational and performance risk. For example, equity partnerships will require the application of formal mechanisms that will allow the controller to eliminate performance ambiguity while encouraging the socialisation of the equity partner and motivating him to pursue initiatives. We seek to advance our understanding of how the application of controls affects performance as a balancing act against opportunism in a plural sourcing setting.

Thirdly, the risk of opportunism exists in outsourcing relationships regardless of control strategies applied by the controller, simply because contracts cannot accommodate for solutions for any exchange hazards without incurring the costs of being overly complex to effectively govern the relationships (Gopal and Koka, 2012). A stream of studies has persistently argued that non-contractual elements in outsourcing relationships, also known as the relational dimension in outsourcing (Tate and Ellram, 2009), may safeguard against opportunism in outsourcing. It has been claimed that strong relationships between the client firm and the provider may enact flexibility which is required to overcome stiff contractual arrangements (Gulati 1995). Several studies have argued for complementarity (as opposed to substitution) between relational and contractual governance (Poppo and Zenger, 2002; Vlaar et al, 2007; Goo et al, 2009). As such, we seek to examine the role that the strength of social ties plays in motivating individuals to achieve certain desired targets via the application of organisational control. The organisational control literature has so far paid little attention to the moderating role of the relational dimension in outsourcing, though relational governance has been persistently mentioned as having a positive effect on outsourcing performance (Lacity et al. 2010). To our knowledge, the only study that examined such effects is by Gopal and Gosain (2010), in which they proposed that boundary-spanning activities moderate the effect of modes of control on project performance. In their study, boundary-spanning activities represent the interactions between the client firm and the provider, a critical interface in any outsourcing arrangement, however one that does not address the risk of opportunism in a client and provider relationship. Alternatively, the relational dimension in outsourcing, commonly understood as the unwritten, worker-based mechanisms designed to influence inter-organizational behaviour (Macneil, 1980; e.g., Poppo and Zenger,

2002) manifested via the strength of social ties (Storck, 2000; Child, 2001; Granovetter, 1973) between the client firm and the provider may complement the contractual arrangement, offering relational flexibility (Gopal and Koka 2012) beyond the guidance and incentives available via organisational controls. The strength of social ties can be defined as the closeness and the frequency of interactions (Hansen 1999) between the provider and client firm. Developing strong social ties comes at a cost and strong social ties are not always viewed as necessary to mitigate a collaborative risk. As such, a client firm might consider investing in relational governance via strong social ties to mitigate contractual risks only if such an investment is less costly than the damages incurred by opportunistic behaviour of the partner.

Having identified three areas for further development of the organisational control literature, we now turn to offering a set of hypotheses.

Hypotheses Development

At the center of the hypotheses development is the assumption that a controller seeks to mitigate performance and relational risk, thus maximizing performance, by exercising certain control mechanisms. In considering which control mechanisms will lead to better performance, the controller examines the nature of the risk and the partnership with the internal and external provider. In the face of high performance or relational risk, we argue that the controller will seek to exercise a mitigating control mechanism. On the other hand, the presence of low risk of either performance or relational may lead the controller to exercise a complementary control mechanism in order to maximize performance.

In the case of equity partnership, the controller is likely to assume high performance risk as a result of performance ambiguity and high exit barriers. Consider the case of a captive centre that provides knowledge or business process services to a parent firm. In such a case, there are high dependencies between the parent firm and the captive centre, requiring the parent firm to invest efforts in task coordination and knowledge sharing between the parent firm and the captive (Srikanth and Puranam 2013).

Further, governing performance in captive centres is often distributed between the parent firm and the captive centre (Oshri, 2011), thus elevating the level of ambiguity with regard to the contribution of the captive centre to performance. In addition, high initial investments in the captive centre may result in limited flexibility to exit the equity partnership, thus elevating the performance risk, as the controller is unlikely to

pursue an immediate termination of the venture in case of negative performance. As such, the controller is likely to mitigate the risk of high levels of performance ambiguity by seeking to increase the degree of performance transparency through the exercise of outcome control. We therefore argue that:

H1: In equity partnership, such as in a captive centre setting, higher levels of outcome-based controls will be associated with higher performance

An equity partnership suggests a joint set of objectives between the parties involved. Consider again the example of a captive centre that provides knowledge or business process services to the parent firm. Similar to internal development projects, it is less likely that the captive centre will act in an opportunistic way that will damage the parent firm (Tiwana and Keil, 2009). Rapport between onshore and offshore captive centre counterparts have been reported to improve performance (Kotlarsky and Oshri, 2005) and captive centre employees have been reported to develop organizational identification and a collaborative attitude (Levina, 2006) critical for the success of the partnership. Other sources of concern such as security and confidentiality that are often associated with worsening performance, have been reported to be mitigated in the case of captive centres (Carmel and Agarwal 2002). As such, captive centre counterparts are likely to develop a sense of trust with and belonging to the parent firm and identify with the parent firm's objectives and values. The controller is therefore likely to perceive the relational risk to be low, posing little risk to the equity partnership performance. However, as trust between the parties is high, the controller, as a complementary act to the trustful relationship, is likely to encourage the controlee to assume further responsibilities and develop the unit capabilities by offering its staff training, personal development and a career path (Oshri 2011). The controller will therefore be expecting the captive to set-up its own goals and objectives and develop a strategic path that includes growth and efficiency (Oshri and van Buhm 2012). We therefore argue that:

H2: In equity partnership, such as in a captive centre setting, higher levels of self-control will be associated with higher levels of performance

Non-equity partnerships entail an excessive amount of relational risk (Das and Teng 1996). Consider the case of outsourcing a function to a third party service provider. In

such a case, there is a lack of shared ownership of the outsourcing venture between the client firm and the supplier which is likely to make it difficult to align their objectives, thus retaining a high degree of opportunistic behavior within the partnership (Das and Teng, 1998; Choudhury et al, 2003; Keil and Tiwana, 2009). On the other hand, the ability of the controller to assess performance is rather high through the monitoring of service level agreements and clauses in the contract. As such, there is little performance ambiguity with regard to the outcomes delivered from the outsourced function as the responsibility to deliver resides with the supplier. However, there is little control over the behavior of the controlee in terms of processes and methodologies followed as part of the controlee's delivery of the service. It has therefore been suggested that in the case of non-equity partnership, as outcome control is part of the setting of the non-equity partnership, a mitigating strategy for the relatively high relational risk is in the form of behavior control which will 'regulate the conduct of partners to prevent major surprises' (Das and Teng, 2001, p. 261). Therefore, the controller is likely to mitigate a relational risk in non-equity partnership and improve the controlee's performance by exercising behavior control.

H3: in non-equity partnership, such as in a 3rd party outsourcing setting, higher levels of behavioral control will be associated with higher levels of performance

While it is commonly accepted that non-equity partnership is less prone to present performance risk, we argue that certain performance hazards incurred by the supplier may elevate the performance risk. In a non-equity partnership, the supplier is often concerned with the possibility of endangering profitability (Gopal and Sivaramakrishnan 2008; Gopal and Koka 2010; Gopal and Koka 2012). A mitigating strategy by the supplier is to utilize high quality personnel in projects where performance hazard is high, such as in fixed-price contracts and staff lower quality personnel in time and materials contracts where the performance hazard is moderate (Gopal and Sivaramakrishnan 2008). However, such a mitigating strategy may result in varying performances across projects by the supplier and thus may affect its relationship with client firms. An alternative approach to mitigate performance hazards experienced by the supplier is to re-negotiate the terms in the contract in order to ensure acceptable profitability levels for the supplier. Yet, such a mitigating strategy by the supplier can be successful only if the client is willing to re-negotiate

the terms through what has been coined 'relational flexibility' (Gopal and Koka 2012). Relational flexibility allows the parties to make adjustments in formal mechanisms such as the contract that constitute the non-equity partnership on the basis of a stable and strong relationships between the parties. As supplier's effort to secure profitability may result in either worsening performance of the outsourcing venture or deteriorating relationships with the client, the controller is likely to consider the use of an organizational control in an attempt to restore the performance of the outsourcing venture. As the outcomes of the outsourcing venture can be manipulated by the supplier through an opportunistic staffing strategy that secures acceptable levels of profitability, the controller is likely to apply measures that promote relational flexibility as an alternative strategy. In this regard, the controller will seek to improve the relationships with the supplier by promoting and rewarding supplier's behavior that results in a sense of belonging to the non-equity partnership, creating shared values, beliefs and norms within the partnership (Kirsch, 1997; Choudhury and Sabherwal, 2003). We therefore posit that:

H4: In non-equity partnership, such as in a 3rd party outsourcing setting, higher levels of clan control will be associated with higher levels of performance.

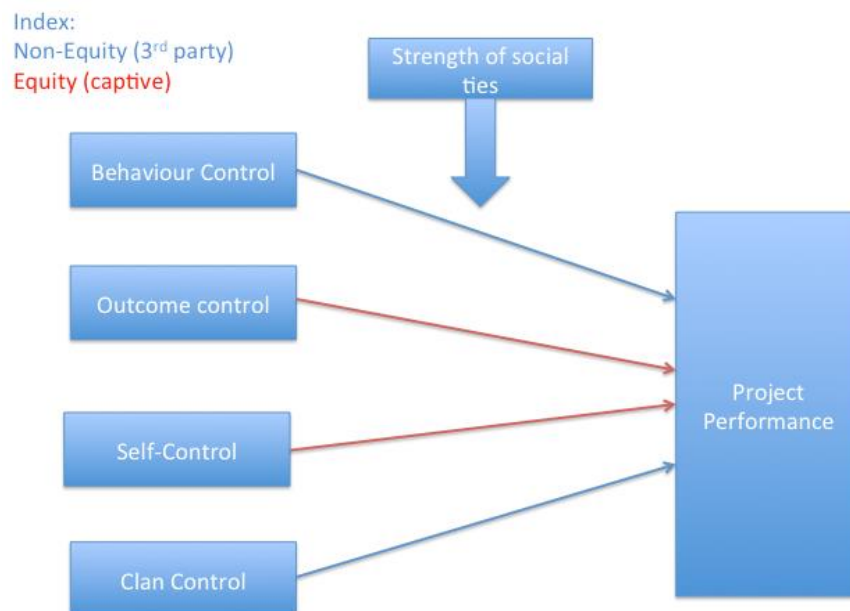
The IS outsourcing literature has discussed in depth the positive effect of strong relationships on outsourcing performance (Lacity et al, 2010). These findings have implications for the study of control mechanisms and their impact of performance. On the one hand, the effectiveness of control mechanisms, designed to motivate individuals to achieve desired performance, can be challenged by one of the partners. For example, a supplier seeking to safeguard against performance hazards within a non-equity partnership may pursue a staffing strategy that distorts the effect of the outcome control mechanism. On the other hand, the effectiveness of a control mechanism can be limited, in particular where the conditions to change the behavior of the contreee are not conducive to the nature of the control mechanism. For example, the application of outcome control in equity partnerships may not reduce performance ambiguity as the contribution of the parent firm and the captive centre cannot be de-coupled, and under certain conditions could possibly erode the relationships between the units. In both cases, strong relationships between the controller and the contreee, in the form of strong social ties, may improve the effectiveness of a control mechanism applied by the controller. Strong social ties are

likely to be developed within a partnership that benefits from trust between the parties and high frequency communications between the controller and contreee. Such a partnership is conducive to avoid opportunism and would promote relational flexibility as the course of conflict resolution or negotiations. We therefore suggest that:

H5: In equity and non-equity partnerships, strong social ties between partners will strengthen the positive effect of formal and informal modes of control on outsourcing performance.

Our theoretical model is depicted in Figure 1.

Figure 1: Theoretical model



METHODS

Data Collection

We conducted an online survey on a sample of UK and US firms with more than 3000 employees in 2013. Senior managers at each firm, involved in making decisions about both internal and external sourcing within the organisation were asked to respond to a survey regarding their relationships between their firm and a) the most valuable internal sourcing relationship and (b) the chosen most valuable external

sourcing relationship. This study applied a “key informant” methodology for data collection (Kumar et al. 1993; Segars and Grover 1998; Goo et al. 2008).

Having completed the design of our questionnaire in June 2013, we have performed content testing by collecting comments on the wording used in the questionnaire from several experts from the academia and the outsourcing industry. This followed by minor modifications in the wording used in the questionnaire and was followed by a pilot study using an online survey facility. Our pilot study took place in the end of June 2013. Over 100 firms were initially contacted and 20 fully completed questionnaires were obtained, resulting in a response rate of 19% for the pilot stage.

Following the pilot stage, over 980 firms were contacted, resulting in 150 fully completed instruments obtained and a response rate of 15.3%. Of the 150 completed surveys, 28 were omitted because they did not use plural sourcing, hence our final N is 122. Based on the data, there was not a significant difference between the demographic characteristics of the firms that responded and those that did not. Overall, the respondents represented a diversity of firms across multiple industries. For a full description of the firms, see Table 1.

The respondents worked in a range of areas within their firm: owner/board executive (6.67%), Finance (9.33%), IT (69.33%), Facilities (2.67%), Marketing (1.33%), Customer Services (4%), Human Resources (2%), Logistics (2.67%) and Other (2%)

Services from partnerships were sourced in the areas of: application management, software testing, data warehousing, ERP systems, finance and accounting, human resources, procurement, contact centers, legal services and research and development. Table 2 displays the proportion of each service provided by both equity and non-equity partnerships

Enter Tables 1 & 2 about here

Each of our respondents responded to a series of questions regarding both equity and non-equity partnerships. In order to more clearly present the results of the analysis, we present the analysis for equity and non-equity partnerships separately.

Measurement

Dependent Variable

Performance is based on measures developed Grover et al (1996) and Heckman and King (1994). Performance consists of four questions on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This measure consists of the following items: “the products/services delivered meet our expectations”; “we have met our goals”; “we have achieved our desired cost savings”; “we are satisfied with the overall benefits we have received”.

Independent Variables

Modes of Control are based on measures from Kirsch and colleagues (2002). We measured four modes of control: Clan Control, Behavioral Control, Outcome Control and Self-Control. Cronbach’s alpha for each mode can be found in Table 3.

Clan Control consists of three questions on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This measure consists of the following items: “we actively participate in meetings with them to understand their values, norms and goals”; “we are a "regular" member of the project team that includes them and our representatives”; “we place a significant weight on understanding their goals, values and norms”.

Behavioral Control consists of three questions on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This measure consists of the following items: “expect them to follow an understandable written sequence of steps in delivering their services”; “assess the extent to which they follow existing written procedures when delivering the outsourced service”; “anticipate that they apply acceptable practices and methodologies when delivering the outsourced service”¹.

Outcome Control consists of three questions on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This measure consists of the following items: “evaluate their performance by the extent to which services were delivered as defined in the contract, regardless of how this goal was accomplished”; “check regularly about progress achieved regardless of the actions taken by them”; “test intermediary and/or final outcomes/deliverables against criteria defined in the contract, regardless of how these outcomes were achieved”.

Self Control consists of three questions on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This measure consists of the following items: “noticed that they defined specific procedures for delivering services, without our involvement”; “noticed that they decided on the methodologies to use for delivering services, without our involvement”; “noticed that they made changes where needed to ensure service delivery, without our involvement”².

Moderating Variables

Strength of Social Ties

We examined strength of social ties using a series of questions on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Our measure of strength of social ties was based on Chiu et al.’s (2006) scale, which combines closeness of ties and

¹ This item was developed by the authors

² This item was developed by the authors

communication frequency (based on Hansen, 1999). Respondents were asked to indicate the strength of the ties between their firm and their most valuable internal sourcing relationship, and their most valuable external sourcing relationship on the following items: “we maintain close social relationships with some members of the vendor/global in-house centre”; “we know some members of the vendor/Global In-house Centre on a personal level”; “we spend a lot of time interacting with some members of the vendor/Global In-house centre”; “we have frequent communications with some members of the vendor/Global In-house centre” ($\alpha=.880$).

The means, standard deviations and correlations of all variables included in the analysis are presented in Table 3³.

Enter Table 3 about here

Values on the diagonals are Cronbach’s alphas for each measure within each type of partnership.

³ Initially we controlled for firm size and sector, the services provided by the sourcing arrangement, the number and length of contracts between the firm and their sourcing vendor. We did not find that these variables had a significant effect on either the dependent or mediating variables. The inclusion or exclusion of these variables did not alter the magnitude, direction or significance of the variables of interest on the dependent variables, and hence in the final models we do not include these variables to preserve the parsimony of the model.

Common Methods Variance

In order to test for common methods variance (CMV) we conducted Harman's single-factor test (Podsakoff et al. 2003). Our results did not indicate that common methods bias was high as more than one factor emerged to explain the variance in our analysis. In addition, no one factor accounted for the majority of covariance among the measures, meeting both of the criteria set forth by Podsakoff et al. (2003) for determining if a detrimental level of common method bias exists. We also conducted a second test to examine a control for the effects of an unmeasured latent method factor. In this test, only four of the paths from CMV to single-indicator constructs were significant, indicating a small amount of CMV.

ANALYSIS AND RESULTS

In order to test our hypotheses we estimated a series of linear regression models. In Model 1 we included the modes of control in order to test Hypotheses 1-4. In Model 2 we added the effect of the strength of the social ties and in Model 3 we include the interaction effects between modes of control and the strength of social ties in order to test Hypothesis 5 (all interaction terms were mean-centered prior to entering the equation).

Enter Table 4 about here

In the upper half of Table 4, we present the results for the equity based partnerships (Hypotheses 1 and 2) and in the lower half of Table 4, we present the results for non-equity based partnerships (Hypotheses 3 and 4). In Model 1 for equity based partnerships, we find support for Hypothesis 1. The higher the use of outcome-based controls, the higher the performance of the partnership ($b=0.39, p<.01$), supporting Hypothesis 1. We do not find support for Hypothesis 2, there was not a significant relationship between the use of self-

control and performance ($b=0.01$, $p = n.s$). In addition, we do find a positive and significant effect of clan control on performance ($b=0.16$, $p<.05$), and do not find a relationship between behaviour control on performance.

In the lower half table focusing on non-equity partnerships, we see that higher levels of behavioral-control are associated with higher performance ($b=0.42$, $p<.01$), supporting Hypotheses 3. We do not find a significant relationship between clan control and performance, failing to support Hypothesis 4.

In order to test Hypothesis 5, we estimated Model 2 to first test the main effect strength of social ties on performance. We find that in both cases the stronger the social ties, the higher the performance (equity partnerships, $b=0.22$, $p<.01$; non-equity partnerships, $b=0.28$, $p<.05$). Finally in Model 3, we include the interaction effects of the modes of control and strength of the relationship. We focus only on the interactions of the modes of control and strength of ties about which we previously hypothesized.

In the equity partner condition, we find that the interaction between outcome control and strength of social ties is positive and significant ($b=0.43$, $p<.05$), indicating when there are high levels of outcome control and strong social ties, equity partnerships report higher levels of performance (a visual depiction of this can be seen in Figure 2). We found a negative interaction between clan control and the strength of social ties ($b=-0.16$, $p<.05$). This indicates that when there high levels of clan control and there are strong social ties, performance is likely to be lower. We did not find a significant interaction between self-control and strength of social ties.

In the non-equity conditions, we find that the interaction between behavioral control and strength of social ties is positive and significant ($b=0.23$, $p<.05$), indicating when there are high levels of behavioral control and strong social ties, non-equity partnerships report higher level of performance ((a visual depiction of this can be seen in Figure 3). We also find

a positive and significant effect for clan-control and strength of social ties ($b=0.15$, $p<.05$), indicating when there are high levels of clan-control and strong social ties, non-equity partnerships report higher levels of performance.

Figure 2. Interaction of Outcome Control and Strength of Social Ties in the Equity Condition

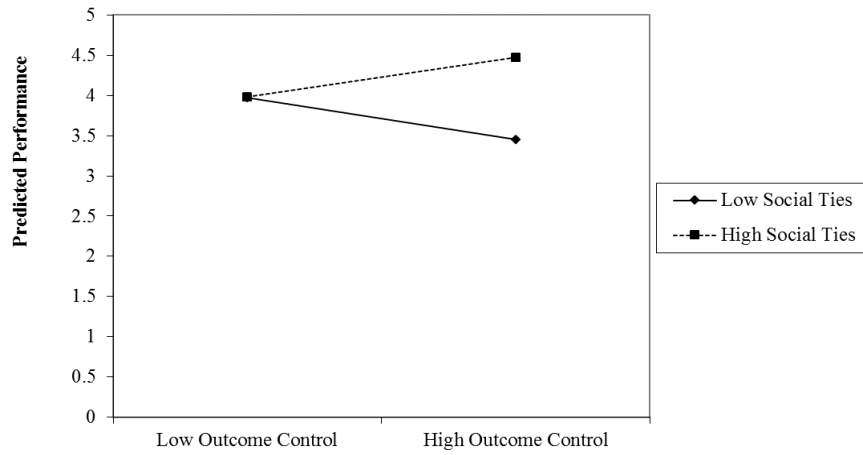


Figure 3. Interaction between Behavioural Control and Strength of Social Ties in the Non-Equity Partnerships

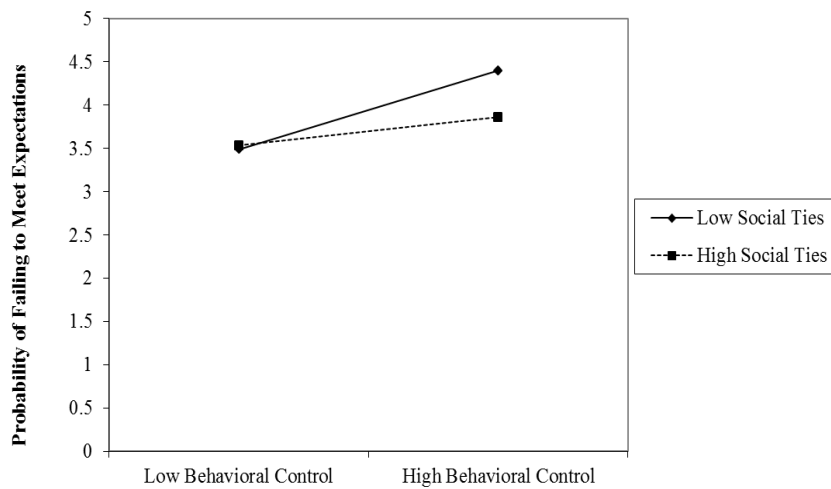
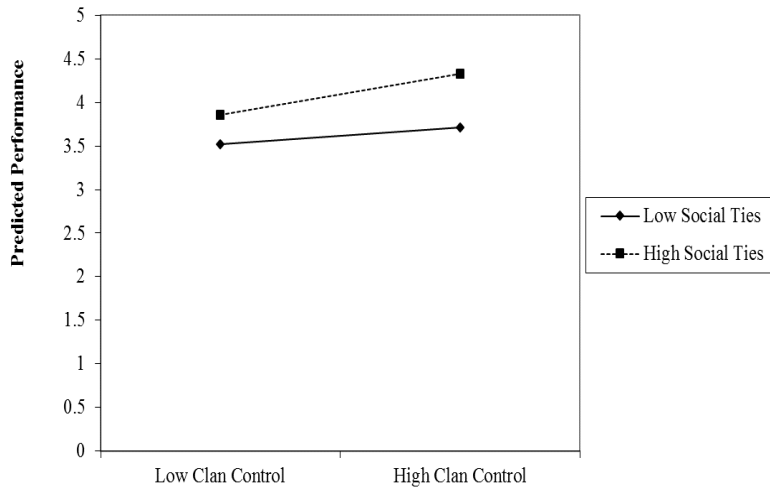


Figure 4. Interaction between Clan-Control and Strength of Social Ties in the Non-Equity Partnerships



DISCUSSION

While plural sourcing has gained traction in the academic literature (Gulati and Puranam 2006; Krzeminska et al 2013), little advancement has been achieved in the extant literature with regard to understanding the implications of organizational controls and performance for this sourcing model. In this paper we sought to address this gap and examine the effect of organizational control mechanisms on performance in plural sourcing settings. Perceived as an equity (internal provider) and non-equity (external provider) partnerships, our assumption was that the controller is likely to seek higher performance in a plural sourcing setting by applying either a balancing or a complementary control mechanism when mitigating either a performance or a relational risk. Our results partly support the use of balancing and complementary acts (H1 and H3) as a mean of improving performance in plural sourcing setting; however, show lack of support for the balancing or complementary controls (H2 and H4) on performance.

Indeed, our study found support for H1 in which outcome based controls have a strong and positive effect on the performance for equity partnership such as captive centre. In such a setting, the controller will predominantly face less relational risk; however, will require to

mitigate high levels of performance risk through the use of outcome based controls (Das and Teng, 2001). We therefore find that in the equity context, investments in outcome based controls, as a formal balancing act, result in better performance of the plural sourcing setting.

No support was found for H2, in which we hypothesized that the controller will seek to improve performance in equity partnership through the use of self control as a complementary act. While equity partnerships have been traditionally characterized as offering high levels of trust and socialization between the parties (Das and Teng, 2001; Kotlarsky and Oshri 2005), our study suggests that by granting the controlee the autonomy to pursue their own initiatives, further develop the captive centre and seek growth opportunities will not result in better performance for the plural sourcing setting. One explanation for the rather surprising results is that a complementary informal control in the form of self control is unlikely to lead to higher performance because of the tight control the parent is likely to exercise over its subsidiaries in an attempt to limit investments in the subsidiary and restrain the subsidiary from entering new markets (Oshri 2011).

In the case of non-equity partnerships, we found support for H3 in which higher levels of behavioral control, as a complementary act, will improve the performance of the plural sourcing setting. The controller will aim to mitigate the relational risk and improve the controlee's performance by keeping a close track of certain behaviors and processes engaged by the controlee (Das and Teng, 2001). It therefore appears, that in non-equity partnerships, because outcomes and objectives are meticulously detailed in the formal contract, the controller complement the formal contract with the exercise of behavioral control mechanisms, as a way to mitigate relational risks.

We did not find support for H4, thus concluding that the use of clan control in non-equity partnership did not lead to better performance in the plural sourcing setting. As such, our assumption that an informal complementary act on behalf of the controller in the form of

creating a sense of belonging between the internal and parent firm staff will result in better performance through the development of shared values, beliefs and norms within the partnership was not confirmed. One possible explanation is the two interdependent processes of building the clan and leveraging the clan (Chua et al, 2012) reported in the literature. Building *clan* entails the establishment of shared norms, values and beliefs that accommodate and enhance the goals of an arrangement while leveraging *clan* involves the effective peer enforcement of the shared norms and values of the clan. Especially in the case of large or newly formed project teams, the *existence* (establishment) of a strong clan as a stepping platform to *enforcing* (leveraging) it cannot be assumed (Chua et al, 2012). In this regard, the non-equity partnership context poses great difficulties for the enactment of clan control in the form of spatial and cultural distances (Wiener, 2014; Chua et al, 2012; Carmel and Agarwal, 2002). Wiener et al (2014) make a similar observation and suggest that clan control appears to be challenging to promote in inter-organizational relationships, particularly in the offshore outsourcing context. The authors argue that while there can be frequent interactions and shared frames of reference between clients and vendors, these might not be sufficient to promote a strong social cohesion and shared social norms, which are essential for the enactment of clan control.

Finally, we found selective support for the moderating effect of social ties on the relationships between control mechanisms and performance in plural sourcing (H5). In the case of equity partnership, strong social ties between the controller and controlee have magnified the positive effect of high levels of clan and outcome controls on performance. In the case of non-equity partnership, strong social ties between the controller and controlee magnify the positive effect of high levels of self and behavior control on performance. Further, in the case of non-equity partnership, strong ties between the controller and controlee moderate the relationships between clan control and performance. These results indicate that the effect of control mechanisms on performance can indeed be enhanced as a result of

intensive interactions between the controller and the contree, motivating the contree to achieve desired outcomes. We therefore confirm past observations that relational governance positively affects outsourcing performance (Lacity et al 2010); however, we demonstrate that the positive effect of social ties on outsourcing performance can also be indirect, impacting the controller's choice of an organizational control vis-a-vis the sourcing model chosen, i.e. internal or external provider. However, no less important is the finding that strong social ties between the controller and contree may have no effect on the relationships between control mechanisms and performance for the case of behavior and self control in equity partnership and outcome control in non-equity partnership. We assert that in equity partnership, the role of social ties in enhancing the positive effect of control mechanisms on performance is limited as the main concern of the controller is to mitigate against performance ambiguity. On the other hand, in non-equity performance, the moderating effect of social ties as enhancing the effect of outcome control on performance is limited, as detailed contracts and SLAs between the controller and contree are substitutes to the effect of outcome control. Last but not least, one surprising result is the negative moderation effect of social ties on the relationships between clan control and performance in equity partnership. Das and Teng (2001) argue that equity partnerships are ideal organizational settings for the enactment of social and clan control, simply because partner firms are conducive to the idea of employing similar socialization, communication and training mechanisms among their staff, often resulting in the enhancement of the partnership performance. However, our study suggests that strong social ties weaken the positive effect of clan control on performance in equity partnership, hinting at the conclusion that an excessive investment in socialization may become counter-productive, resulting in a diminishing performance.

A Plural Sourcing View on Organizational Controls

The extant plural sourcing literature has so far focused on aspects concerning the optimization of the amount of work carried out by an internal and external provider and the learning implications for the client firm that may diffuse opportunistic behavior behalf of the external provider. Common to numerous studies on plural sourcing is the choices a manager is making (e.g. the optimal ratio of outsourcing versus in-house development) as he weighs the risks and returns of such a decision (Krzeminska et al, 2013; Puranam et al 2013). Our study extends the plural sourcing literature by considering the effect of control mechanisms on performance. Extrapolating from our study, we assert that the controller of a plural sourcing setting is likely to prefer a pair of control mechanisms, clan and outcome-based in the case of internal provider, and behavioral control mechanisms in the case of external provider to motivate these providers to achieve desired outcomes. In the case of an internal provider (i.e. equity partnership), the controller perceives that the pairing of outcome and clan control to be an effective combination when considering control strategies to, on the one hand, diffuse performance ambiguity, while, on the other hand, enhance the sense of belonging of the internal provider as a complementary informal act that put the controller and contree on the ‘same grounds’, with shared values and objectives. The controller is unlikely to deploy control strategies that include the use of behavior control or self control in the case of an internal provider, as those are less likely to improve the captive centre’s performance. As the client firm retains control over the governance structure of the captive centre and often is monitoring methodologies and processes used by the captive centre, the controller is likely to perceive a low level of process and governance hazard in his relationship with the captive centre which does not require neither balancing or complementing act in the form of a behavioral control. The controller is also unlikely to see value in granting the captive centre the autonomy needed to set its own goals and monitor its own achievements as a mean of self control. Being part of the equity partnership, the captive centre is already motivated to pursue

the shared goals of the partnership and monitor its performance to ensure on-going support of the parent firm in the captive centre, and the parent firm is likely to restrict the capability-base of the captive to ensure little investment in such subsidiaries. Therefore, in his engagement with the captive, the controller may endow a low level of opportunistic behavior to the contree thus releasing the controller from the need to deploy a balancing or complementary act in the form of self control.

On the other hand, the case of a third party provider (non-equity partnership) suggests that the controller of a plural sourcing setting is likely to prefer the use of behavioral control mechanisms as a balancing act to a relational risk. Yet, our results suggest that in search for better performance, the controller is likely to prefer an investment in processes and methodologies but unlikely to invest in informal control modes such as clan and self control. Further, in the case of a third party provider, the investment in self control is perceived by the controller to worsen the performance of the engagement. These are rather surprising results as the outsourcing literature has persistently suggested that a strong relational governance is likely to improve outsourcing performance. One explanation for the high likelihood of the controller to prefer a formal control mode (behavior) over informal controls (clan and self) is the ability to monitor the effect of the control. The organizational control literature has already indicated that informal control modes are much harder to monitor and their effect is often subject to the assessment of the controller (Kirsch, 2004), while the use of behavioral mechanisms in the form of processes and methodologies is rather objective and can be more easily monitored and reported.

Our study, therefore, emphasizes the risk mitigation approach applied by the controller when considering the control mechanisms that could improve the performance of the plural sourcing setting. In the equity context the controller is therefore likely to prefer a balancing act to a performance hazard, however in the form of a formal control mechanism, and a

complementary act to a relational risk either an informal control mechanism (clan) when common grounds between the controller and controlee have already been established. In the non-equity context the controller is likely to invest in processes and methodologies in the form of behavioral control as a complementary at to a relational risk, but unlikely to invest in informal control modes such as clan and self control. These dynamics of controller's control preferences come into effect in the unique case of plural sourcing as the controller assess the range of hazards, both performance and relational, in his engagements with both internal and external providers.

Limitation and Future Research

There are several limitations in this study that can be addressed in future research. First, we have followed Krzeminska et al.'s (2013) definition of plural sourcing in which two inputs are more or less similar. While such definition can guide the selection of cases in hardware components (based on similar functionality, technology and interface), it is far more challenging to assess the similarity of service components as their functionality might change during delivery, for example, support service through a call centre that becomes a sales service during the call. We therefore call for the further refinement of the plural sourcing definition, in particular in the case of the service industry. Second, numerous studies on organizational controls have examined aspects relating to controls by collecting observations from both the controller and the controlee. In this study we collected data from the controller, thus drawing conclusions about the controller and controlee's behavior based on observations made by the controller. Future studies should consider collecting data from pairs of plural sourcing settings. Last but not least, our theorization was guided by the argument that the controller is likely to seek ways to mitigate against relational and performance hazards. Though this argument is highly supported in the IS outsourcing literature, our study did not

include instruments that represent performance and relational risks. We encourage future studies to examine the presence of such risks as part of the data collection.

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Table 1: Description of the sample

Description of the Firms		Frequency	Percentage
Location	United Kingdom	60	49.18%
	United States	62	50.81%
Firm Sector	Financial services	21	17.20%
	Manufacturing	23	18.90%
	Retail, distribution and transport	13	10.70%
	Pharmaceutical	9	7.40%
	Electronics	9	7.40%
	Energy	4	3.30%
	Insurance	14	11.50%
	Telecommunication	13	10.70%
	Public sector	4	3.30%
	Other commercial sector	1	0.81%
	Other non-commercial sector	11	9.00%
Firm Size	3000 to 5000 employees	31	25.40%
	5000 to 10,000 employees	38	31.10%
	More than 10,000 employees	53	43.40%
Respondent Characteristics		Frequency	Percentage
Respondent Position	Owner/Board Executive	6	4.90%
	Finance	11	9.00%
	IT	86	70.50%
	Facilities	4	3.30%
	Marketing	2	1.50%
	Customer Services	6	4.90%
	Human Resources	2	1.60%
	Logistics	3	2.50%
	Other	2	1.60%

Table 2. Types of Services Provided by the Sourcing Arrangement.

	Equity Sourcing Arrangement		Non-Equity Arrangement	
	Frequency	Percentage	Frequency	Percentage
Application Management	71	58.20%	115	94.30%
Software Testing	71	58.20%	111	91.00%
Data Warehousing	71	58.20%	104	85.20%
ERP Systems	54	44.30%	97	79.50%
Finance & Accounting	45	36.90%	96	78.70%
Human Resources	49	40.20%	93	76.20%
Procurement	40	32.80%	93	76.20%
Contact Centers	45	36.90%	103	84.40%
Legal Services	34	27.90%	93	76.20%
Research & Development	35	28.70%	89	73.00%

Table 3. Means, Standard Deviations and Intercorrelations of Variables of Interest

Equity Partnerships		Mean	s.d.	1	2	3	4	5	6
1	Performance	4.06	0.76	0.82					
2	Clan Control	4.04	0.86	0.48	0.81				
3	Behavioral Control	3.98	0.86	0.58	0.65	0.83			
4	Outcome Control	3.90	0.80	0.49	0.64	0.78	0.76		
5	Self-Control	3.47	1.08	0.21	0.27	0.31	0.34	0.83	
6	Strength of Social Ties	4.01	0.86	0.51	0.53	0.59	0.61	0.22	0.90
<hr/>									
Non-Equity Partnerships									
1	Performance	3.87	0.54	0.88					
2	Clan Control	4.04	0.72	0.63	0.87				
3	Behavioral Control	4.05	0.76	0.57	0.52	0.86			
4	Outcome Control	4.01	0.71	0.05	-0.02	0.13	0.85		
5	Self-Control	3.83	0.67	0.67	0.53	0.62	0.24	0.91	
6	Strength of Social Ties	3.82	0.81	0.71	0.44	0.42	-0.01	0.53	0.85

All correlations greater than +/- 0.16 are significant at the 0.01 level

	Model 1		Model 2		Model 3		
Equity Partnerships	B	S.E.	B	S.E.	B	S.E.	
Clan Control	0.16	0.06 *	0.35	0.10 *	0.72	0.26 *	
Behavioral Control	0.04	0.11	0.12	0.08	0.87	0.57	
Outcome Control	0.39	0.10 **	-0.04	0.11	-1.74	0.52 *	
Self Control	0.01	0.05	0.02	0.05	-0.45	0.32	
Strength of Social Ties			0.22	0.08 **	-0.64	0.22 **	
Clan Control X Strength of Social Ties					-0.16	0.07 *	
Behavioral Control X Strength of Social Ties					-0.12	0.14	
Outcome Control X Strength of Social Ties					0.43	0.13 **	
Self Control X Strength of Social Ties					0.10	0.07	
Constant	1.64	0.34	1.34	0.35	4.77	0.84	
R ²	0.36		0.39		0.49		
ΔR ²	0.35		0.03		0.10		
Non-Equity Partnerships	Model 1		Model 2		Model 3		
	B	S.E.	B	S.E.	B	S.E.	
Clan Control	0.03	0.05	0.02	0.05	-0.37	0.22	
Behavioral Control	-0.01	0.07	0.02	0.06	0.89	0.29 *	
Outcome Control	-0.05	0.05	-0.02	0.04	-0.07	0.18	
Self Control	0.42	0.08 **	0.25	0.08 **	-0.83	0.39 *	
Strength of Social Ties			0.28	0.04 **	-0.38	0.29	
Clan Control X Strength of Social Ties					0.15	0.05 *	
Behavioral Control X Strength of Social Ties					-0.23	0.07 *	
Outcome Control X Strength of Social Ties					0.00	0.05	
Self Control X Strength of Social Ties					0.27	0.09 *	
Constant	1.27	0.27	0.95	0.23	3.93	1.19	
R ²	0.61		0.72		0.74		
ΔR ²	0.59		0.11		0.02		

Table 4. Linear regression results predicting performance

Notes: * p< 0.05, ** p< 0.0

