Resource-based Sources of Bargaining Power and Management Control Concerns in Inter-firm Relationships: An Exploratory Study of Technology Firms

Neale G. O’CONNOR*
NUS Business School,
National University of Singapore

Kerry JACOBS
School of Business,
UNSW Canberra
Australia

Anne WU
Dept of Accountancy, National Chengchi University,
Taiwan

Nov 28th 2013

Keywords: Management control system, Supply chain management, bargaining power, resource dependency, design dependence

Data Availability: All data are proprietary and not available due to confidentiality agreement.
JEL Classifications: G18, M41, M42, M48

Neale O’Connor Email: bizngo@nus.edu.sg Phone: (65) 66012993
Kerry Jacobs Email: k.jacobs@adfa.edu.au Phone: (61) 2 6268 8067
Anne Wu Email: anwu@nccu.edu.tw Phone: (1)713-893-3501

(*) corresponding author. We acknowledge the managers of the firms who were generous with their own time in interviews. An earlier version of this paper was presented at AFAANZ Meeting, July 2013, AAA Annual Meeting, August 2013, National Taiwan University, The University of Hong Kong, Chinese University of Hong Kong, City University of Hong Kong. The authors would like to thank Shannon Anderson, Ramji Balakrishnan, Chris Chapman, Henri Dekker, Maris Martinsons, Steve Salterio, Bin Srinindi and Ed Vosselman for the many discussions surrounding the issues presented in this paper. The authors are indebted to Siang-Ru Huang and April Yu Yue for their research assistance. The authors are grateful to The National Science Foundation of China for its support (No.71032005).
Resource-based Sources of Bargaining Power and Management Control Concerns in Inter-firm Relationships: An Exploratory Study of Technology Firms

ABSTRACT

The process of inter-firm relationships often involves a rich interplay between the parties that works to take advantage of each other's capabilities. Prior studies have shown that changing partner capabilities after the initial formation have a large impact on the subsequent development and success of the relationship. We add to this research by examining how combinations of different resource-based sources of bargaining power held by contracting parties in the supply chain drive their appropriation, coordination and cooperation concerns; and how these concerns affects the use of management control decisions. We develop a framework that contrasts the two common sources of resources-based bargaining power that describe the specific endowments of buyers and suppliers in a business to business relationship: market dominance and design dependence. Under resource-based bargaining power asymmetry we propose that the resource dominant partner will use management controls to address appropriation concerns, while the weaker partner will use the same to address coordination concerns. Under resource-based bargaining power symmetry and high interdependence relationships we propose that in addition to dealing with appropriation and coordination concerns, both partners will use management controls as a relational signal in addressing cooperation concerns. We examine this framework using case studies of five well known multinational electronics original design manufacturers, as they relate to the management of their component suppliers. We observe that the use of management control practices by buyers is different across different combinations of buyer market dominance and supplier design dependence.

Keywords: Management control system, Supply chain management, bargaining power, resource dependency, design dependence
Resource-based Sources of Bargaining Power and Management Control Concerns in Inter-firm Relationships: An Exploratory Study of Technology Firms

I. INTRODUCTION

This study aims to further contribute to the theory on the relationship between management accounting control and trust in inter-firm relationships by exploring the use of controls across different resourced-based sourced bargaining power settings in which we argue necessitate the need for management controls to not only address appropriation and coordination concerns, but also to build a particular type of trust. We use the notions of thick and thin trust and their association with external and internal governing institutions (Vosselman & van der Meer-Kooistra, 2009) to explain the different roles of management controls across three resource-based bargaining power sets of inter-firm relationships: asymmetric, symmetric (low interdependence) and symmetric (high interdependence).

Our study is motivated as follows. First, although resourced-based sources of bargaining power are known to play an integral role within inter-firm relationships (Chua and Mahama, 2007; Yan and Gray, 2001; Helper and Levine, 1992), their role within the overall design of the management control system is not well understood. This is in part due to the fact that much of the literature on inter-firm management control behavior has represented bargaining power as coming from a context-based bargaining set which exists at the beginning of the relationship (see Appendix A). That is, as the number of alternatives that a partner has relative to the other partner (e.g., Van Den Abbeele et al., 2009), or as the relative strategic importance or degree of economic dependence one partner has relative to the other partner (e.g., Schloetzer, 2012; Matsumura & Schloetzer, 2010; Caglio & Ditillo, 2010; Cooper & Slagmulder, 2004; Gietzmann, 1996). However, in the post-contractual setting, resource-based bargaining power is more likely to
dominate the partners’ bargaining set and their control concerns, which we argue will influence how management controls are used in the relationship (Yan and Gray, 2001).

Second, Caglio and Ditillo (2008) challenge researchers to more fully explore not just the nature but also the purpose of the use of management controls (such as Dekker, 2004). Our paper responds to their challenge. Caglio and Ditillo (2008) propose a three part differentiation of the purposes of management controls between appropriation, coordination and cooperation. While researchers generally agree that appropriation and coordination concerns are critical to inter-firm relationships, the contribution of management controls to cooperation is not so clear. Dekker (2004) examines the notion of goodwill and capability based trust but locates these within a framework of appropriation and coordination concerns. In contrast, Caglio and Ditillo (2008) relate trust directly to the cooperation concerns of transacting parties. Vosselman and van der Meer-Kooistra (2009) went to some length to better theorize the notion of trust in the context of the dominant management control purpose. They distinguish between thick and thin trust where thin trust exists in the formal governance and accounting setting, and that thick trust develops as an outcome of the institutional setting and the relational signaling role of accounting. In suggesting how accounting can play these different roles of formal controls and relational signaling they imply that we might expect a relationship between these roles when they are used for all purposes, but most clearly when both parties share both coordination and appropriation.

---

1 Appropriation concerns relate to the expectation that parties enter into a transactional relationship based on the pursuit of long-term self-interest and that the joint output is perceived by the parties to be clearly and fairly distributed. Coordination concerns relate to the management of performance and reputation risk associated with doing business with the other party. Cooperation concerns relate to relational risk, that the other party will not act opportunistically; and that other party is committed to the relationship in terms of information sharing, problem solving, adaptability to changes and restraint from the use of power (Caglio and Ditillo, 2008; Mahama, 2006).

2 Researchers have also explored whether trust and control are predominantly substitutive or are complementary to each other (Dekker, 2004). For example, Van der Meer-Kooistra and Vosselman (2000) consider trust to be a substitute to control in high complexity inter-firm relationships, whereas Tomkins (2001) views trust and control to be complimentary.
concerns. We extend the Vosselman and van der Meer-Kooistra’s (2009) framework by applying the differential management control concerns of the transacting parties within a resource-based bargaining power framework, and showing how these concerns are associated with observed management control practice in a business to business (B2B) supply chain setting.

Our basic research question is: What is the joint relationship between differential resources-based bargaining power and the use of management controls in addressing the appropriation, coordination and cooperation concerns of the parties?

We first consider the control concerns of parties in a low interdependence type relationship in which the transacting parties have few specific resource endowments and depend on the trustworthiness of the institutional environment (including legal and social institutions) outside the transactional relationship to support the use of contracting and management controls in addressing appropriation and coordination concerns (Vosselman and van der Meer-Kooistra, 2009). We contrast this with the asymmetric resource-based bargaining power setting in which we argue that the specific resources of the dominant partner provide a substitutable governing structure which enables a dominant partner to use management controls more extensively in addressing appropriation concerns. The weaker party relies on external institutions to support the use of management controls in addressing coordination concerns.

Finally, we explore the relational signaling role of accounting in addressing appropriation and cooperation concerns when both partners have strong and symmetric resource-based bargaining power endowments. As the parties have specific resources, and with this more alternatives through exit opportunities, they have a greater chance to act opportunistically. We use the prisoner’s dilemma in game theory to frame the different bargaining power positions of the parties that proxy for the need for thick trust (Vosselman and van der Meer-Kooistra’s, 2009). Here, we argue that thick trust along with appropriation and cooperation becomes a concern of both parties and in such case the use of management controls will be more extensive. In this case,
we expect that management controls will be used as a formal control in addressing appropriation and coordination concerns as well as a relational signal in addressing cooperation concerns.

We use these arguments to develop our propositions in relation to a business to business (B2B) bargaining power framework that contrasts the level of resources that are held by downstream buyers (market dominance) and those resources held by their upstream suppliers (design dependence). We illustrate these different uses of management controls across the different bargaining power sets by reference to five well known multinational electronics original design manufacturers as they relate to the management of their electronics component suppliers. The firms we study employ a variety of financial and non-financial performance measurement, monitoring and cost management practices. The research context is the supply chain for consumer electronics which contrasts with areas such as heavy industry or automotive as critical technologies for core components are often resident in specific suppliers rather than the buyer. At the same time, we consider buyers that vary in market dominance, which is a departure from the literature that has emphasized the perspective of powerful firms (Subramani & Venkatraman, 2003).

Our study contributes to the growing literature on forms of inter-firm relationships, the processes and outcomes (e.g., Langfield-Smith, 2008; Dekker, 2004; Van der Meer-Kooistra and Vosselman, 2000; Arino and Ring, 1994). In particular, we extend the literature that focuses on bargaining power and control by examining how different combinations of resource-based sources of bargaining power of the parties has implications for collaboration success by affecting the control concerns and the management control decisions. There are a small number of studies that examine the influence of resource-based sourced of bargaining power on the use of management controls (e.g., Chua and Mahama, 2007; Yan and Gray, 2001; Helper and Levine, 1992).

A second contribution of this study is to frame cooperation concerns more specifically alongside the coordination and appropriation concerns of the parties. Prior literature has either
examined trust as an interaction (Dekker, 2004), or independently, or as an aggregate construct (i.e., cooperation, Caglio & Ditillo, 2008). Building on the control, trust building and relationship framework introduced by Vosselman and van der Meer-Kooistra (2009) we place thick and thin trust within a dynamic bargaining power framework, in which we show how different combinations of resource-based bargaining power influence and shape the various partner concerns, governing mechanisms, drivers of the use of management controls and their location.

A third contribution of this study is to the implicit contracting literature (Baiman & Rajan, 2002; Krishnan, Miller & Sedatole, 2011). Given that collaboration is a costly activity and the risk of failure significant, researchers have long been interested in when implicit contracts (those that reside outside of the formal contract) such as management controls are a cost-effective response or mode of governance? Researchers suggest various transactions costs determinants such as task uncertainty and demand uncertainty can drive the use of implicit contracts (e.g., Krishnan, Miller & Sedatole, 2011). However, we argue in this paper that it is the resource endowments of the respective partners that are also an important driver of the incentives of one (or both) party/s to use implicit contracts.

The remainder of the paper is structured as follows. In Section 2, we review the bargaining power and the management control literature. We develop our theoretical propositions in section 3. We discuss our case methods in section 4. In section 5 we build our case analysis from the performance measurement, cost management and monitoring practices observed and link these to the level of bargaining power of the buyer. We draw conclusions and suggest directions for future research in Section 6.
II. LITERATURE REVIEW

Bargaining power and management control practices

*Management control practices*

We define management control practices as ex-post contracting mechanisms that either party can use to safeguard, constrain and incentivize the behavior of the other party. Following Dekker (2004) and Ouchi (1982) management controls can be divided into outcome (content based), behavioral and social controls. Outcome controls are used by the buyer to control the appropriation of profits generated by the transformative processes of the supplier (Dekker, 2004). For example, the use of formal performance evaluation and monitoring by the buyer for the purposes of benchmarking and providing feedback to suppliers.

Behavior and social (context based) controls are used to coordinate interdependent tasks associated with product design and the transformation process (Dyer & Singh, 1998). Context based behavioral controls can also be used to facilitate the developing absorptive capacity of the supplier and the buyer’s knowledge of the transformation process. For example, the use of monitoring mechanisms whereby a buyer will send a team of engineers to work with the supplier to coordinate the customization of a new component as part of the buyer’s new product design process or the use of inter-firm cost control mechanisms in which the buyer sends engineers to the supplier to facilitate or identifying opportunities for joint cost reduction (Cooper & Slagmulder, 1999).  

---

3 We use management control practices and management controls interchangeably throughout the paper.
4 Social controls are internal-type controls that encourage desirable behavior and outcomes through shared norms and values in the organization. These controls rely on the hierarchy in supporting human resources selection and socialization procedures and are less likely to be effective in addressing control concerns in the interorganizational context. Vosselman and van der Meer-Kooistra’s (2009) concur in saying that formal controls (accounting information and external measures) are likely to be relevant in the inter-firm setting as they are codified in a contractual arrangement.
Sources of bargaining power and management control practices

Several lines of enquiry have examined the importance of bargaining power to the use of management controls, cost information sharing between contracting parties from the experimental (Van den Abbeele, Roodhooft & Warlop, 2009) and field-based (Schloetzer, 2012; Caglio & Ditillo, 2010; Matsumura & Schloetzer, 2010; Chua & Mahama, 2009; Cooper & Slagmulder, 2004; Langfield-Smith & Smith, 2003; Van der Meer Kooistra & Vosselman, 2000) perspectives. However, much of the literature on inter-firm management control behavior has represented bargaining power as coming from a context-based bargaining set which exists at the beginning of the relationship (see Appendix A). Yet Yan and Gray (1994) argue that bargaining power is more than just contextually specific but also reflects a resource specific ‘bargaining set’ associated with the partner’s contribution to strategic resources and expertise to the partnership. In other words bargaining power is both context and resource based.

One interesting attempt to synthesize some of the early themes was the work of Van der Meer-Kooistra and Vosselman (2000). They highlight and bring together a number of different resource-based and contextual factors identified in other work as potentially driving management control in inter-firm settings. Van der Meer-Kooistra and Vosselman (2000) suggest that the nature and role of management control is influenced by the contracting party characteristics (including resources held), contextual factors such as the transaction characteristics and environment characteristics. Market based approaches suggest a high dependence on short term contracts and market prices. Bureaucracy based patterns involve the use of supervision, performance measurement and evaluation, ex post information processing and direct intervention. Trust based patterns require long-term arrangements, personal consultation and coordination, process oriented and culture based control mechanisms. Van der Meer-Kooistra and Vosselman (2000) theorize that bureaucracy based patterns would be more likely in partnerships with asymmetry in bargaining power, and that trust-based patterns will be likely when there is no asymmetry in bargaining power (Langfield-Smith & Smith, 2003, also report this association).
Therefore bargaining power (asymmetry) can be expected to have an impact on the respective use of bureaucratic or trust based approaches to management control. However, even Van der Meer-Kooistra and Vosselman’s (2000) synthesis don’t resolve all of the contradictions as they are not consistent with Caglio and Ditillo 2008, p. 873) arguments around the drivers for control archetypes of trust, decentralized coordination and intensive communication in outsourcing relationships.5

In short, much of this work has been conducted with a general analysis of the relationships between the characteristics of the transacting parties and management control patterns. As we argue in the next section, bargaining power based on the resource differentials of the partners is likely to figure more heavily in the ongoing relationship and how management controls are deployed in dealing with appropriation, coordination and cooperation concerns.

**Resource-based sources of bargaining power in inter-firm relationships**

Bargaining power has been examined extensively in the joint venture and inter-firm alliance literatures and is defined as each party’s resource contributions and/or the relative strategic importance of the relationship to each party (Yan & Gray, 1994). Yan and Gray (2001) present a more complex conceptualization which suggests that there are two types of bargaining power evident in joint ventures that can be extended to inter-firm collaborative arrangements. This is power based on resource differential, which is influenced by the partners’ contribution of strategic resources and expertise to the partnership, and context-based bargaining power, which includes (a) the alternatives available to each partner during the partner selection or negotiation stage and (b) the perceived strategic importance of the partnership to each partner. As the perceived importance of the partnership increases, partners may have less context-based bargaining power (Yan & Gray, 2001).

5 Recent contributions have also focused on the consequences of adopting management control systems under the theorization that such systems can build trust (e.g., Coletti et al., 2005; Baiman and Rajan, 2002; Mahama, 2006).
Yet we would argue that as context and resource cannot be separated there may be a trade-off between the context-based and resource-based bargaining power—that is, one may offset the other. Helper and Levine (1992) show that both contextual and resource based bargaining power are interwoven as the ability of the buyer to switch between suppliers depend crucially on the contextual factors of the availability of alternative suppliers, the frequency of transactions, as well as resource based factors such as the type of specific investments made by the buyer. For example, the buyer’s bargaining power is made weaker as the fewer the number of alternative suppliers open to a buyer, the higher the frequency of transactions; and the more specific the type of investment made by the buyer, the higher the transaction costs involved in a switch. Where the number of alternative suppliers is high, the frequency of transaction is low, and the seller makes a significant amount of specific investment, the buyer’s bargaining power would be high.6

Pfeffer and Salancik (1978) suggest that the degree of resource dependence (hence bargaining power) is determined by three key factors: the importance of the resources to the continued operation and survival of the acquiring organization; the extent to which the supplying organization has discretion over the resources’ control and allocation; and the availability of alternative resources. The notion of design dependence incorporates the first factor - resource importance – as it relates to the level of mutual dependence between a buyer and strategic suppliers. However, the second and third factors noted by Pfeffer and Salancik (1978) are not captured by notions of design dependence but reflect the resource control associated with market and technological dominance.

---

6 Chua and Mahama (2007) further theorize bargaining power in a way that suggests that Yan and Gray’s (2004) definition of ‘context’ is too narrow and that the interaction between resource and context in bargaining power is highly dynamic. For example, while an individual buyer may be in a weak bargaining position in the transaction cost sense (because of their specific resource balance) they might be able to enforce considerable control over suppliers through their relationships with “strong” third and fourth parties.
Design dependence bargaining power

Crook and Combs (2007, p. 548) draw on notions of resource theory (Pfeffer & Salancik, 1978) to argue that supply chain members who have access to critical resources create dependences within the supply chain and thus amass bargaining power. From this perspective Cooper and Slugmulder’s (2004) notion of design dependence can be seen as a subordinate part of a broader notion of resource dependent bargaining power, arising from control over critical proprietary knowledge within the supply chain. Cooper and Slugmulder (2004) operationalize this concept to describe how a buyer is dependent on and works closely with certain suppliers for the design and development of critical components (which implies a context of supplier bargaining power). Suppliers develop their design dependence through research and development (R&D) activities and the development of a superior brand name. For example, in consumer electronics, much of new product development innovations reside with the design capabilities of component suppliers. Intel (brand name ‘Intel inside’ for computers) and Qualcomm (brand name ‘Snapdragon’ in smartphones) are classic examples of suppliers that have high design dependence.7

Market dominance bargaining power

Market and technological dominance (hereinafter market dominance) relates to the power derived from having a dominant position in the market based on industry concentration, strategic market focus and technological superiority (see Table 1, method section). The first key indicator of market dominance is the level of industry concentration (Porter, 1980).8 In concentrated

7 While, Crook and Combs (2007) conceive of bargaining power as bi-directional, arguing that one partner in the supply chain can be more powerful than other partners (a supplier or a buyer), we situate the buyer’s technological superiority as part of the buyer’s market and technological dominance.

8 While many authors have theorized and explored a relationship between management controls and organizational strategies (see Chenhall, 2003 for review), a firm’s strategy depends on its level of its market dominance and leadership sourced bargaining power (Porter, 1980). Viewed this way understanding the different sources of bargaining power that are first order effects on strategies and specific asset resources is likely to provide deeper insights into the role of
industries, buyers have bargaining power due to their large volume and suppliers have a small number of alternatives (Benton & Maloni, 2005). Buyers can develop a dominant market position through research and development (R&D) activities, the development of a superior brand name, distribution channel, and product development or production strategy. Studies of bargaining suggest that multinational corporations in research and development intensive industries enjoy a greater bargaining power in negotiations with local authorities (Gomes-Casseres, 1990). The power relationship between the buyer and supplier will also shift toward the buyer as their market dominance and size increases. Larger buyers are likely to possess higher levels of tangible and intangible resources (Baack & Boggs, 2008; Luo & Tung, 2007).

Porter (1980) suggests that a strategic market focus on a particular market segment will give rise to higher sustainable margins. Therefore firms with a strategic market focus can be expected to position themselves in fewer markets where products have a high margin and this will generate higher returns. In a strategically ‘virtuous circle’, these higher returns can be used to fund research and development into its dominant product offerings, thereby enabling the firm to sustain its market dominance. Another source of strategic advantage is technical superiority (or technical expertise) which is a heterogeneous firm capability, developed over time, composed of an in-depth understanding of the production processes and affiliated technologies (Parmigiani & Mitchell, 2009). Having both technological superiority as well as market dominance gives the buyer significant strategic advantages which are reflected in the power to dictate technology management controls in managing the cooperation, coordination and appropriation concerns of the parties to the relationship.

This is consistent with Van den Abbeele et al. (2009) and Anderson and Dekker (2005) who argue that bargaining power is based on the mutual dependence that allows the power differentials to exist.

For example, Apple has a strong strategic market focus because of its focus on personal computers, tablets and smartphones that enables it to command on average over 30% gross margins on all of its products (2012 Annual Report), whereas Phillips has a weaker strategic market focus in selling products across a range of consumer industries, including, TVs, consumer electronics, household goods, giving it lower margins overall.
standards, which allows the buyer to dictate the terms of both the technological and operational aspects in upstream supplier relationships.

III. THEORY DEVELOPMENT

Bargaining power and management control concerns

Caglio and Ditillo (2008) propose a theoretical approach to the management control concerns of cooperation, coordination and appropriation drawn from Grandori’s (1997) argument that fundamental variables in both collective action and transaction interdependence (as characterized by the inter-firm setting) are the informational complexity of activities and relationships and the structure of interests characterizing the system of players. Within what Cagilo and Ditillo (2008) characterize as market based contexts of common standardized products (described by Cooper and Slagmulder (2004) as common supplier relationships) the information needed to regulate transactions is included in the price and no specific management control mechanism would be expected. This relationship can be theorized as an example of pure market competition. However, Cagilo and Ditillo (2008) propose a second context and associated pattern of control which they call the bureaucratic / hierarchical. This is the context where management control archetypes are most well understood and most commonly expected. Cagilo and Ditillo (2008, p. 868) suggest that in these situations we might expect detailed contracts, clear monitoring of performance and evaluations and therefore observe continuous exchange of detailed information. However, the bureaucratic / hierarchical context requires a low to moderate level of complexity and uncertainty and assumes that one of the actors (normally the purchasing entity) has significantly more bargaining power than the other actor (normally the seller). It is this asymmetry in bargaining power which has allowed the bureaucratic / hierarchical context to be modeled with agency theory and the role of management control archetypes understood as a solution to problems of information asymmetry.
While transaction cost and agency theory explains how appropriation and cooperation concerns can be addressed (though the deployment of management control archetypes as a tool to prevent free-riding and cheating) it provides relatively little insight into contexts where there is either bargaining power symmetry, bargaining power uncertainty or bargaining power transitions. It is this kind of ambiguity and uncertainty which is implied by what Caglio and Ditillo (2008) call the alternative archetype (and context) of control. They note that the research findings relating to this archetype are ambiguous and contradictory. While notions such as trust and relational control are proposed, the nature and function of these controls requires further theorization and study. From this perspective existing agency theoretic answers to the three control concerns identified by Caglio and Ditillo (2008) are unsatisfactory.

Vosselman and van der Meer-Kooistra (2009) represent an important attempt to better theorize trust and therefore to explore the cooperation objective of management control. They start with the basic notion of trust which is the willingness to accept vulnerability (Das and Teng, 2001) and extend this by borrowing the notions of thick and thin trust from Klein, Woolthuis, Hillebrand, and Nooteboom (2005) and Nooteboom (2002). They argue that these two trust types are located in different institutional and governance settings where thin trust is that trust that rests upon compensation for negative behavioral expectations without by itself producing positive behavioral expectations (Vosselman and van der Meer-Kooistra, 2009, p. 271). Thin trust requires trust in institutions located outside the transactional relationship such as regulations, legislation and social norms and therefore it can exist in the formal governance and accounting setting which characterize appropriation and coordination concerns. On the other hand thick trust complements thin trust with positive expectations about the ability, benevolence and integrity of the other party (Vosselman and van der Meer-Kooistra, 2009, p. 272) and that thick trust develops as an outcome of the institutional setting and the relational signaling role of accounting. However, Vosselman and van der Meer-Kooistra’s (2009) argue that further work is needed to understand the different roles of accounting as formal controls and relational signaling.
Main propositions

We develop three propositions that describe the role of management controls in addressing appropriation, coordination and cooperation concerns where different forms of resource based bargaining power symmetry and asymmetry exist. We build on Vosselman and van der Meer-Koostra’s (2009) summary of the various partner concerns, governing mechanisms, drivers of the use of management controls and their location (see Figure 1).

****INSERT FIGURE 1 ABOUT HERE****

Bargaining power symmetry - low interdependence relationship

While Vosselman and van der Meer-Kooistra (2009) refer to the need for thin trust in legal economic and social institutions located outside the transactional relationship to support the use of management controls, we contend that their setting applies to relationships that have minimal specific resources and symmetrical bargaining power. Appropriation concerns relate to the expectation that parties enter into a transactional relationship based on the pursuit of long-term self-interest (Vosselman and Van der Meer-Kooistra, 2009). While formal accounting practices act to align such interests through the provision of safeguards, constraints, or to provide incentives towards these ends, it is the formal contract and the thin trust in the institutions (e.g., voice threats, via the law and through reputation) that provide the core support for both parties to accept the vulnerability associated with a transaction. The scenario of a match between a low market dominant buyer and a low design dependent supplier represents a low interdependence type relationship whereby market prices and minimal use of management controls will be expected to be used (see Column A, Figure 1). Thus, our first proposition for the low interdependence bargaining power symmetry position is:

P1: When the resource-based sources of bargaining power of the buyer and supplier is low (i.e., low market dominance and low design dependence), the parties will use management controls less extensively in address appropriation concerns at the level of the transactional relationship.
**Bargaining power asymmetry**

Extending Vosselman and Van der Meer-Kooistra’s (2009) theory, we argue that in the asymmetric resource-based bargaining power setting, the specific resources of the dominant partner provides a substitutable institution, upon which control structures and exit threats depend which enables the dominant partner to use management controls more extensively in dealing with appropriation concerns. The prime channel through which exit threats exist is the presence of alternative partners (buyers or suppliers). For the dominant resource partner, finding alternative partners that do not have specific resource endowments is highly likely. For example, generic component suppliers can be easily replaced, but specific design dependent integrative circuit suppliers are more difficult to replace. At the same time, dominant partners have appropriation concerns due to the need to sustain their market dominance by extracting rents to fund product and market development activities, as well as to manage higher relational risk by reason of the fact that the partner has more to lose through the opportunistic actions of the weaker resource endowed partner. For example, generic component suppliers can use specific knowledge gained from the relationship to partner with another buyer that can potentially damage the first buyer’s market position (see Column C, Figure 1).

Because of the low levels of market dominance or design dependence bargaining power, the weaker party is likely to be a price taker, and will not be able to use management controls for the purposes of appropriation. Instead, the weak resource-based bargaining power party seeks specific resources from a more powerful partner such as new product markets and financing opportunities (in the case of suppliers) and new component designs for innovative product features (in the case of buyers). They will rely on (thin trust) external institutions in coming to the transaction but will use management controls to address coordination concerns such as safeguarding and constraining the behavior of the stronger party so as to manage the performance
risk and reputation risk of the relationship.\textsuperscript{11} For example, high design dependent suppliers provide low market dominance buyers with the chance to drive important technological standards and design innovations into their products but at the same time increase performance and reputation risk in terms of possible supply chain bottlenecks and delayed product launch.\textsuperscript{12} In this case, the buyer needs to coordinate the special design dependent technology possessed by the supplier, and integrate it into their products.

We expect that in the contexts of bargaining power asymmetry (see Column B and Column C, Figure 1) that management controls will be used to support the appropriation concerns of the stronger partner and the coordination concerns of the weaker partner.

\textit{P2: When the parties have resource based bargaining power asymmetry, the party with the dominant resource based bargaining power will use management controls to address appropriation concerns, while the weaker party will use management controls to address coordination concerns}

\textit{Bargaining power symmetry – high interdependence relationship}

Building upon Vosselman and van der Meer-Kooistra’s (2009) thick trust setting, we argue that the notion of accounting as a form of relational signaling is strongly related to the cooperation purpose of management control. This becomes clear when Vosselman and van der Meer-Kooistra (2009) notions of relational signaling in the cooperative setting are understood from a game theoretical perspective. Caglio and Ditillo (2008) provide an initial starting point for a theoretical approach to the problem of bargaining power symmetry which transcends the

\textsuperscript{11} Performance risk refers to direct consequences of a supply chain failure such as poor quality, a bottle neck in supplier. Reputational risk, which refers to the risk of an event occurring within the supply chain which tarnishes the buyer’s reputation in the market (and thereby reduces their dominant market position). For example, Mattel recalled 19 million toys due to lead paint or loose magnets in 2007; in 2006, due to a fire hazard, Dell recalled 4 million laptop computer batteries made by Sony (Sodhi, Son & Tang, 2011, p.2). Such buyers will naturally want to protect against such risk as their brand name reputation allows them to command higher profit margins and sustained sales. For example, after its recall of toys, Mattel formed a new division to audit, monitor, and respond to supply chain risks (Pyke & Tang 2009).

\textsuperscript{12} Alternatively, high market dominant buyers provide low design dependence suppliers with the chance to enter new markets, but at the same time may increase performance and reputation risk to the supplier in terms of slow product development cycle, delayed launch, poor product marketing and distribution.
limitation of the dominant theoretical approaches in many management accounting research papers. They talk about ‘the structure of interests’ which is drawn from elements of game theory and organizational analysis (Grandori, 1977, p. 907) and argue that the cooperation problem could be resolved despite bargaining power symmetry as there are competitive pay-offs (and therefore incentives) for a supplier who holds specific technology resources to cooperate with a buyer who has access to well developed market channels associated with their market dominance (Caglio & Ditillo, 2008, p. 893). However, these insights can be extended one step further in the light of key game theory insights (see Grossman & Hart, 1986; Hart & Moore, 1990). Real-world supply chain relationships (other than a market-based common supplier relationship) are characterized by ongoing relationships rather than one-off interactions. Therefore the classic free riding and cheating problems, which are the focus of agency theory, will tend to be punished in subsequent interactions. From this perspective the role of management control is not the simple monitoring device described in much of the accounting literature but rather it plays a role in processes of reputation and goodwill development in a repeated game setting. Notions of reputation, goodwill and trust developed by game theorists predict that there can be powerful (but not inevitable) incentives for players in a game to cooperate and real financial rewards associated with the reputation or goodwill (social capital) building that underpins this cooperation (Kreps, 1996; Tadelis, 2002). However, the other aspect to repeated games is the issue of threat and punishment. In effect the threat only has to be creditable not actually carried out. From this perspective management control can be both functional and non-functional (primarily exist as a threat rather than an operational control which allows the emergence of reputation and trust).\footnote{\textsuperscript{13} Therefore, while authors such as Das and Teng (2001) have argued that when a buyer has increasing market dominance they will have a greater incentive to deploy extensive management controls among their high design dependence suppliers, this is not consistent with a game theory perspective. Following Dyer and Singh’s (1998) argument that alliance partners’ investment in inter-firm knowledge sharing routines drives shared profits, there are real incentives for deployment of management control archetypes not as a form of control but as a form of shared reputation building. From this perspective the role that management control plays in cooperation, coordination and appropriation depends on the level of bargaining power symmetry, stage of the}
We argue that this is a mechanism by which we expect management controls to assist in the creation of trust.

We expect that in the context of bargaining power symmetry (high market dominance buyer and high design dependence supplier) management controls will be needed to assist with the process of reputation and goodwill development to compliment the signals provided by the respective resource holdings of the partners. In other words, while the high market dominance buyer needs the technological capability of the high design dependence supplier, and the supplier needs the volume, commercialization and market access provided by the buyer, the stakes associated with defection are higher, as each party by way of their strong resource endowments have greater opportunities to defect. Thus, management controls are needed in creating the thick trust necessary to ensure continued cooperation (see Column D, Figure 1).

**P3: When the resource-based sources of bargaining power of the buyer and supplier is high (i.e., high market dominance and high design dependence), the parties will use management controls more extensively to produce thick trust in each other’s resource dominant endowments in order to address appropriation, coordination and cooperation concerns.**

Figure 1 summarizes the linkages between the management control concern, the resource-based bargaining power set and the functions of management controls by reference to part of Vosselman and van der Meer-Kooistra’s (2009) framework (Figure 2, p. 545). We extend their framework with the addition of the asymmetric resource-based bargaining power proposition (see Column B and C, Proposition 2, Figure 1), in which the dominant partner’s main control concern is appropriation and the use of management controls as a safeguarding and incentivizing device. In contrast, the weaker partner’s main control concern is coordination and the use of management controls as an information sharing device. Figure 2 summarizes the three propositions by way of a table that contrasts the high and low levels of market dominance and resource-based bargaining power of the buyer against the design dependence resource-based relationship and the level of shared investment in inter-firm knowledge and relational reputation social capital.
bargaining power of the supplier. We use this framework as the model in which we compare our observations from the case studies examined in the method section.

****INSERT FIGURE 2 ABOUT HERE****

IV. RESEARCH CASE AND METHOD

Research Case and Method

Following Eisenhardt (1989) and Mintzberg (1979), we approached data collection with a defined research focus on potentially important variables identified from the extant literature. We carried out in-depth interviews with the top- and middle-level managers of five international consumer electronics firms in Taiwan and China, which were chosen because, these countries are home to the major portion of the global electronics supply chain. Following Gietzmann (1996, p. 617), the electronics industry would be expected to have higher levels of human asset specificity and therefore the maintenance of the buyer/supplier relationship would be more dependent on management controls and be hands-on. For example, frequent visits by customer engineering teams to the supplier’s sites to instruct them on production processes. In this setting, two main decisions drive the need for information and management control concerns in the relationship: The supplier selection decision, which involves the process of approving the supplier, ensuring that the supplier meets the production quality standards and passes certain capability requirements of the buyer. The purchase order allocation decision, which involves deciding how many components to order from a particular supplier in any month. Given the general practice of having multiple suppliers for each component, the purchase order allocation decision becomes more complex as the buyer has to decide the total order size as well as how to allocate the order across multiple suppliers. In other words, the processes of supplier selection and purchase order allocation decisions are highly complex owing to three main factors. First, decision makers have to tradeoff among multiple quantitative and qualitative attributes including technology, cost,
delivery, quality, service and flexibility to evaluate the suppliers. Second, a number of orders for hundreds of products will be subsequently allocated to qualified and preferred suppliers subject to various constraints such as production capability, capacity, minimum order quantity, and delivery while considering different costs imposed by each supplier. Third, each component order may require specific assembly material which requires more lead time. Accordingly, the information needed to make optimal decisions in such hybrid relational contexts is both incomplete (i.e., not fully contractible (Gietzmann, 1996)), and subjective due to the multi-dimensional trade-offs to be made on different attributes (Wu and Chien, 2008).  

**Case selection criteria**

We selected a number of buyer-supplier dyads which reflected different levels of buyer market dominance based on three criteria: industry concentration, strategic market factors and technological superiority (see Table 1). Several other factors also guided our case selection. First, we limited the study to the electronics industry to control for any extraneous variation (Eisenhardt, 1989) among different industries (Chowdhury, 1988). Second, we chose firms that are widely representative of best practices in the electronics industry. These five firms are global or regional leaders in the electronics industry, and thus their management practices should provide insight into the successful management of buyer supplier relationships. Their products have been viewed as leaders in their field for most of the past 10 years.

The firms studied include a MP3 player, generic phone and accessories manufacturer (MP3-A), USB and storage devices (USB-C) manufacturer, and three specialized mobile phone companies (MOB-D, MOB-E, and MOB-F). In this paper the cases sites represented by MOB-D and MOB-E have dominant market positions through having established brand names, more sophisticated product development and production strategies. While the dominant market position

---

14 This context represents a shift away from the relatively high levels of supplier loyalty described in Japanese case studies (Gietzmann, 1996; Cooper & Slagmulder, 2004) and into a highly competitive supplier market where market mechanisms would be expected to dominate and the assumption of buyer dominance is not necessarily appropriate.
power of these buyers provides an enabling force, it is the accompanying reputational risk that makes it imperative that they control critical distribution channels and financial resources and impose contracting, monitoring, and cost demands on suppliers (O’Connor, Vera-Muñoz & Chan, 2011; Noll, 2005). In contrast MOB-F and MP3-A only have a moderate level of market dominance and USB-C is in the weakest position (see Table 1 for the classifying of the five firms according to buyer market dominance bargaining power).

***INSERT TABLE 1 ABOUT HERE****

Data collection

Data were collected through both in-depth interviews and archival research. In contrast to most of the research in the literature (with the exception of Seal, Cullen, Dunlop, Berry & Ahmed, 1999; Cooper & Slagmulder, 2004), we adopted both the buyer and supplier firm’s point of view. The interviews were carried out with nine senior managers from the five large multinational electronics manufacturers and eight of their suppliers using a questionnaire and following a designed interview protocol. All of the informants had been with their current employer for at least three years. Each interview was recorded and lasted an average of 45 minutes to 3 hours, and several informants were interviewed more than once. All of the interviews were conducted in English, with the exception of USB-C and their supplier interviews, which were conducted in Chinese and translated. All of the interviews were conducted between October 2009 and November 2011 (see Panel A and B of Appendix B for interview details including the content of the structured interview instrument).

To ensure data accuracy, we followed Lincoln and Guba’s (1985) suggestion for member checks. We provided the original informants with preliminary reports on our findings and conclusions and discussed these with them on an individual basis. We also interviewed nine managers from the suppliers of the manufacturing firms. These interviews helped us to validate the data obtained in the interviews with the latter’s managers (particularly that concerning the
supplier selection and purchase order allocation criteria). Finally, in addition to interviews, we carried out a more detailed study of three of the manufacturing firms, USB-C, MOB-D and MOB-E, over a period of more than six months. This in-depth study involved further meetings (follow-up phone interviews with USB-C and a second firm visit for MOB-D and MOB-E) and the collection of archival data, including information on supplier contracts, performance measurement criteria, and published case descriptions (see Panel A & B, Appendix B for a breakdown of the five firms’ products, their suppliers’ products and the key informants who were interviewed).

Data coding

Data from the different sources were coded using typical content analysis procedures. First, following Yin (1989), we coded all data into different sources of bargaining power categories: market dominance and design dependence, based on our review of the literature. These categories included descriptions of the types of suppliers as well as the level of buyer bargaining power (see Appendix C for a breakdown of the data coding). For market dominance we gathered archival data on each case about the firm’s product market share, firm size and firm growth. We also used interviewee ratings of the importance of technology in the selection of suppliers as a proxy for the technological superiority dimension of market dominance. Although not a focal construct in our theory, we describe the way suppliers are categorized by the five purchasing firms in our study.\textsuperscript{15} Data on the performance measurement, monitoring and cost management practices were taken primarily from the interviews. Several questions were used based on the prior literature guided the interviews. For example, we used Ittner et al.’s (1999)

\textsuperscript{15} We also measured the level of design dependence with respect to the supplier using Ittner et al’s (1999) “role of suppliers” scale. This scale comprised seven questions that ranged from 7 to 29 concerning the role of the suppliers in various aspects of product development and manufacturing.
seven item “monitoring practices” scale that ranged from 6 to 34 to structure the section of the interview about management controls.

Second, within each category, if the data collected from different sources were inconsistent, then we reconciled these discrepancies by consulting the original informants. The data coding process was conducted by two of the authors, one of whom performed the coding while the other performed the role of auditor (Lincoln and Guba, 1985), by verifying the figures in the tables derived from the interview data.

V. BARGAINING POWER AND MANAGEMENT CONTROL PRACTICES

Sources of bargaining power in the case study firms

In this part, we describe the sources of bargaining power in the case study firms. While these sources of bargaining power can exist in each party’s domain, we focus on market dominance as being held by the buyer and design dependence being held by the supplier. This is a limitation that is acknowledged in the conclusion.

Market dominance

Following our primary case selection criteria, we observed a range of market dominance across our cases (see Table 1). At low levels of market dominance buyers have little bargaining power to dictate the technology and operational detail on their strategic suppliers. Two cases (MP3-A and USB-C) have a declining market share in a product market (MP3 players and USB devices) that is gradually being lost to low cost Chinese manufacturers. Their products are low margin and are technologically less complex, comprising in large part, generic components (see Panel A, Appendix C). At medium levels of market dominance buyers have bargaining power that comes from being a global brand. Buyers manufacture mature products and use an open market platform. At the same time such buyers may have the technological superiority to dictate terms to their strategic suppliers. MOB-F was an example of this case, whereby it manufactured mobile phones which are mature and attracted suppliers on the basis of its global brand and its
operational excellence – it is a world leader in six sigma process improvement methodology.

Finally, two of our three mobile phone cases fitted our notion of high levels of market dominance and technological superiority. On a first to market, market share and new product offering basis MOB-D was dominant, closely followed by MOB-E. Developing and leveraging a popular internet eco system enabled MOB-D to grow and consolidate its market position and hence its market dominance based bargaining power.

Supplier selection preferences is one area in which such bargaining power could be observed to the extent that they reflect the different levels of technology superiority of the buyer (see Panel B, Appendix C). As buyers develop their technological superiority, they demand more from their critical component / strategic suppliers in terms of technology competence and future development capability. That is, technologically superior buyers want to know that their strategic suppliers can keep up with their future product development roadmap. This was particularly the case for MOB-D, MOB-E and MOB-F.

While USB-C also indicated technology to be the number one selection criteria, their selection strategy was dependent on the type of supplier. For example, when USB-C selected strategic component suppliers to work with on the development of new products, technology capability in being able to manufacture to a target price is emphasized over and above quality and delivery. However, quality and on-time delivery are emphasized when they were selecting routine component suppliers, with target price being considered later.

Design dependence

Supply chain management practices cannot be understood in isolation from the relational context in which they occur and design dependence is an important part of that relational context (Cooper & Slagmulder, 2004). We observed different levels of design dependence within each of the cases examined as originating from the type of supplier (see Panel C, Appendix C). For example, routine component suppliers represented relatively low design dependence relationships, while strategic/critical component suppliers represented high design dependence.
MP3-A, USB-C and MOB-F have numerous routine suppliers on their books that play a minimal role in the design and development of new products. For the suppliers who supplied the critical components there was a greater design dependence on the part of the buyer in terms of the technology needed to speed up new product development. A prime example was the software on chip module, which MP3-A’s software engineers worked jointly with their strategic supplier in the design of the final component. USB-C has three types of suppliers across which USB-C has different levels of design dependence: 1) strategic (or critical component) suppliers with global capacity; 2) Non-strategic suppliers with regional capacity; and 3) non-strategic suppliers with local capacity. USB-C is able to dictate the terms and engagement conditions on their routine suppliers, but not their strategic suppliers. One of the USB-C interviewees explained:

Products from our strategic suppliers take up 80% of our cost structure. So normally we need to follow the trend set by our strategic suppliers. Even if we have a brilliant idea; it still depends on their capacity to put our ideas into mass-production. (USB-C)

We also observed a range of levels of design dependence amongst the firms that manufacture the mobile phone products (MOB-D, MOB-E and MOB-F). Mobile phones are made complex as several CPUs are combined with the base telephony module to produce the product. In addition, the touch screen technology and mechanics (e.g., casing and battery design) is constantly evolving adding more critical components (and suppliers), to which the buyers were more design dependent. Thus, in addition to the sharing of technological developments and future product roadmaps in order to speed up new product development, we observed joint investment when the supplier had a special technology.

**Appropriation concerns and management controls**

While cost performance was not the first and only criterion for the purchase allocation decision made by our five cases, cost still featured in the purchase order negotiation process. Several cost management practices were observed across the five cases that reflect the power differential between the buyer and supplier: extensive monitoring of the materials in the supply
chain, benchmarking for supplier improvement, the use of specialist purchasing managers, and incentivizing the truthful reporting of information.

*Power of the purchasing department in cost control*

Tooling costs is one area of information asymmetry and point of negotiation between the buyer and supplier. Unlike material and labor costs, suppliers are able to inflate the actual tooling costs because they are intangible and specific to a particular design. In addition, suppliers have an incentive to extract rents from investments in tooling that are not transferable to other buyer’s orders (Masten, Meehan & Snyder, 1989). Among firms in the electronics industry, it is common practice for managers in the production, research and development, and purchasing departments to have input into the purchase order allocation decision in order to manage this information asymmetry as well as to confirm suppliers’ technological capability to mass-produce high-quality products. We observed however, that the purchasing department plays a larger role in those firm’s that had lower market dominance for two reasons. First, in following a cost focused strategy, the purchasing department with its focus on cost reduction was the logical choice to have the final say in the order allocation process. This was the case for MP3-A.

Each routine supplier will be given five different improvement targets annually, and their corresponding progress will be rated on a monthly basis by the purchasing department. (MP3-A)

Whenever, the purchasing department needed an edge in the negotiations, they would ask the quality department to find some minor defects among the supplier’s deliveries and use this as a bargaining chip in future negotiations. This point of evidence was viewed positively by the supplier representative as it allowed him/her to bypass customer policy and refer the issue to his/her superior who would in turn contact the purchasing manager’s superior to renegotiate on a more favorable rate for the buyer.

Second, we observed that buyers were able to balance cost control with other non-cost related criteria by hiring a purchasing manager with an engineering background and with
extensive experience in the industry. For USB-C, hiring a purchasing manager with an engineering background and industry experience has afforded the firm a better understanding of their suppliers’ cost basis, which has led to a stronger position in the bargaining process associated with regular purchase order allocation decisions. For example, USB-C used this purchasing manager’s engineering knowledge to determine the cost of the tooling required to make the shell of a hard disk drive that was being supplied. The purchasing manager has considerable experience in the industry and so is able to provide a detailed activity based costing type breakdown of the costs involved in making a particular component. This, in turn enabled the firm to determine whether the supplier’s cost quotation is reasonable, which is a critical part of the negotiation process:

By performing this cost analysis before price negotiation, we can shorten the negotiating time, and thus decrease the new product development cycle time. Competitive advantage in time is crucial to us. We can also make use of the results of this analysis to further discuss changes in materials or designs with suppliers. (USB-C)

**Benchmarking multiple suppliers**

Benchmarking is an integral part of management planning and control process. It is a tool to manage and control costs, quality and performance (e.g., Dopuch & Gupta, 1997; Elnathan, Lin & Young, 1996). The opportunity to benchmark in a buyer supplier environment occurs naturally when multiple suppliers are available to source from and to partner with. Benchmarking information supports the buyer’s decision making in two areas: negotiating supplier efficiency improvement and to support the relative performance evaluation role of the purchase order allocation decision.

We observed both of these phenomena across the five cases. Firms used benchmarking information to put further pressure on their suppliers to improve their efficiency in order to support the buyer’s cost down strategy. However, the extent to which such pressure could be applied depended on the detail of benchmarked data the buyer could access, which in turn depended in part on the level of market dominance based bargaining power of the buyer. For
example, using their market dominant power to be able to monitor everything in the supply chain enabled MOB-D to investigate suppliers that were more inefficient. If they see one supplier has a 90% yield and another supplier has 85% yield they will investigate the second supplier to find out the inefficiency. MOB-E used cost information from their Chinese suppliers to bargain with their more expensive Taiwanese suppliers – this subsequently forced the latter to move their operations to China.

As the buyer’s market dominance decreases the influence of the power associated with design dependence and the accompanying variance across routine and strategic suppliers becomes more apparent. For example, in several cases (MP3-A and USB-C) we observed differences in the cost management practices between the routine and strategic suppliers. For example, USB-C’s power to put cost pressure on its suppliers was limited to their local and regional suppliers, and not their global strategic suppliers. For the local and regional suppliers, when there was a new design, USB-C was able to get competitive quotes from two to three suppliers for comparison. USB-C required these suppliers to break down the costing when they quote so they could compare them item by item. USB-C’s tactic was to ask suppliers to also break down miscellaneous costs such as transport as that information helped USB-C to assess their manufacturing costs. If the cost breakdown was reasonable, then USB-C would focus on the profit margin of the supplier during the bargaining process:

We have a certain practice in our industry that when output reaches a certain level and the production process is mature; we will negotiate about cutting costs. Generally, cost is our first consideration. (USB-C)

For its strategic (global capacity) suppliers, however, USB-C emphasizes a long-term relationship over cost, due to the suppliers’ higher market dominance and design dependence bargaining power.

Generally, it is hard to control strategic suppliers because they are mainly multi-national companies and have strong bargaining power. Therefore, our evaluation focuses on the current and expected relationship between our firm and those suppliers. (USB-C)
Extended supply chain monitoring and the sharing of cost information

Supply chains are not limited to just demand, lead time and capacity uncertainty. Production yield uncertainty also exits and is directly related to the technological capability of the supplier as well as the extent to which the buyer can extract profits from production improvements made by the supplier (Graves & Willems, 2003). Thus, when we asked our interviewees about any information they wished they had, but which suppliers generally do not share, three of the firms (USB-C, MOB-D, and MOB-E) agreed that strategic or major supplier yield rate was a key piece of information.

Because they share this information related, we are able to base on those yield to calculate the true cost. E.g., if I ask for a price for $10, this is based on the yield of 60%, next month they improve to 70%, i.e., 10% point’s improvement, and then the 10% has to be shared. (MOB-E)

This is especially true of strategically important Japanese and Korean LCD screen suppliers who are very good at improving yields, but are reluctant to disclose information about such improvements to buyers. The ability to extract this information however, highly depended on the market dominance based bargaining power of the buyer. For example, MOB-D was able to access this information because it had the market dominance based power to monitor not only the supplier but also the material suppliers of the supplier and thus know the inputs of its major component suppliers. As the MOB-D interviewee said:

We have the power to monitor every supplier in the supply chain. Because we control the component manufacturing process and monitor every process, you can cheat us for one day, but you cannot cheat us for one month or one year. We are able to calculate the cycle time and the yield rate for each process. Although the supplier doesn’t tell us about the yield, we monitor it. (MOB-D)

Even at the margin in contrast to the high level of market dominance enjoyed by MOB-D, MOB-E was unable to determine their strategic suppliers’ yield rate information because it does not enjoy the same level of market dominant bargaining power needed to monitor the inputs of all of its suppliers, especially their Japanese and Korean suppliers.
Coordination and cooperation concerns and management controls

To support the coordination and cooperation concerns of the buyer we observed that our cases adopted regular performance review meetings with their suppliers and measured supplier performance using a range of performance measures under each of the five technology, quality, service, delivery and cost (TQSDC) criteria, while at the same time they gave different weightings to the TQSDC criteria. We also observed the use of monitoring practices among our cases.

Performance review meetings

The performance review meetings formed the dominant platform for how the buyer managed their coordination and cooperation concerns in all cases. The formal channel through which the performance measurement system is used is the performance review meeting held between senior executives of the buyer and its suppliers. This meeting serves as a channel for sharing strategic information such as the product roadmap and capacity planning as well as a mechanism in which formal feedback is given to the supplier on their performance along with suggestions for improvement. Among our study firms, USB-C, MOB-D and MOB-E conduct quarterly performance reviews while MP3-A and MOB-F conduct annual performance reviews.

As an example that was common practice among the first three cases, the supplier management team at MOB-E used the quarterly performance review meeting to look at the trends of the past three months to determine each supplier’s grade performance and to take action concerning any development efforts (i.e., their engineers will work with the supplier to fix problem areas) or to cease purchasing from the supplier. The grading system for the supplier’s quarterly performance consisted of a letter grade ranging from excellent (A), average (B) and need for improvement (C). These grades served as a diagnostic control to guide the supplier management team on which suppliers needed intervention by the engineering team, and which suppliers to drop from the approved vendor list. MOB-E would help suppliers that were at risk of
moving from a grade “A” to “B” and they would help “save” suppliers who had a grade “C” but were thought to be critical for the future product development roadmap.

Performance measurement practices

To guide the purchase order allocation decision, four of the five cases specified specific weights on each TQSDC criteria in their purchasing manual. Typical of these cases was the appointment of a supplier management team which used the performance measure results to make decisions on monthly order allocations and to develop the suppliers on a quarterly basis as part of the performance review meeting. Our interviews with MOB-E senior management indicated that quality, cost and delivery were the main criteria emphasized in purchase order allocation because these criteria are critical to the typical cost down lifecycle of ongoing operations after each new product design is agreed to. Other factors were also considered such as supplier capacity and inventory levels of a particular component.

Consistent with the coordination concerns of the buyer we observed that firms used performance measurement as a signal to the buyer on when to intervene in the suppliers operations and when to cut the suppliers from the approved vendor list. For example, MOB-D and MOB-E use performance measures as a feedback device, putting suppliers on notice that they need to improve their performance:

If one supplier’s score is lower than others, then we request them to review [their practices]. If they have not improved after three months, we consider recommending to our engineer that he or she not select this supplier again in future. (MOB-E)

For MOB-F their focus on quality and delivery was more important. “As far as they can provide that kind of cost and provide the right quality and right product at the right time.” In one instance, the 16 week lead-time required for the delivery of a new display chip was lost when SUPP-F made a simple error in the design process. The error caused a delay in the new product rollout by MOB-F and as a result MOB-F increased the frequency of the measurement tracking and visits to SUPP-F.
In the absence of market dominance, a buyer is likely to manage its suppliers in ways that depend on the technological competence of the supplier (design dependence). That is, routine suppliers will be managed differently compared with strategic / critical component suppliers. We observe that the use of performance measurement practices in several cases is more extensive for the routine suppliers (MP3-A and USB-C). For example, MP3-A uses a point scheme in which points are deducted when a routine supplier fails to deliver a purchase order on time.

The delivery aspect is measured according to the sales forecast commitment and actual deliverable of the supplier, for which a committed line items performance (CLIP) methodology is employed by the Logistics Department. CLIP is a deduction system, where each routine supplier is scored out of 100 each calendar month. Routine suppliers are required to commit to product sale forecast quantities on a weekly basis and also to fulfill a purchase order quantity requirement. Marks will be deducted if the routine supplier fails to fulfill these criteria. (MP3-A)

For USB-C cost was most critical except for their critical component or global strategic suppliers for whom they did not have sufficient market dominance based bargaining power to pursue a cost down strategy. Rather, strategic suppliers are treated more like partners and greater emphasis is given to quality and technological capability in performance measurement and management.

**Monitoring practices**

As monitoring is costly, buyers will engage in such practices more as the level of the buyer’s design dependence on the supplier increases (Cooper & Slagmulder, 2004). An important part of the monitoring practices was the ongoing interactive use of information through the use of training and support groups. This is aimed at focusing attention and to force dialogue and learning in the buyer supplier relationship. We observed that two cases (MOB-D and MOB-E) engaged in supervision and training, including attending meetings at the supplier location at least monthly, and for MOB-F less often.\(^\text{16}\) The main purpose of these visits is to coordinate the development of

\(^{16}\) We employed Ittner et al’s (1999) instrument to gauge the extensiveness of monitoring. The instrument comprises six questions using a Likert scale with a theoretical range of 6 to 34. Whilst the sample size in small and thus the differences can be attributable to noise, the scores on the Ittner et al (1999) are revealing. For example, MOB-D, MOB-E scored the monitoring of their suppliers at 28 [two suppliers scored 18 and 20] and 25 [two suppliers scored 20 and 19] on the
new projects and customization of the materials as well as to address production problems in the components supplied.

Sometimes they have what we call “regular recheck” depending on how mature the supplier is, how important the product or component is. We will have different weighting of the suppliers and then put the visits based on this information. (MOB-F)

If there is a problem, they may come three times in one day - is possible. If there is no problem, the visits are less frequent. Depends. Not only audit, but also negotiation, especially for those new products, we need a lot of discussion. We need to revise it and improve it. (SUPP-E1)

If one of the new products is launched, SQM team will visit our plant to audit the product. So there is normally a quarter visit for audit our status. (SUPP-E2)

For our R&D people - They will visit the buyer at least twice a week. If the material is customized, we need to work very closely. If the material is common material, it is not necessary. (SUPP-E2)

At lower levels of management, all of the mobile phone manufacturers and MP3-A carried out frequent meetings between engineering personnel. These routines served to fix quality issues as well as to coordinate the development of components for new products. However, the level of engagement depended on how mature the supplier is and how important the component is (design dependence). MOB-F called these routines ‘regular rechecks.’ They assigned a different weighting on the suppliers based on these two criteria and this weighting guided the frequency and extensiveness of the regular rechecks.

Reflecting the firm’s innovative products focus, all of MOB-D’s managers, many of whom have an engineering background, must understand the technology involved to be able to monitor suppliers effectively. This firm, which has high levels of market dominance, was in their own words, “obsessive” in its monitoring practices. They had over 500 engineering managers on the ground in China often living in proximity to the manufacturing operations of major suppliers.

相同规模。MOB-F 得分 16 [18]。相比之下，MP3-A 和 USB-C 展现了较低的监控实践水平，分别为 10（战略供应商为 18）和 17，他们的供应商得分为 8 和 14。
Discussion

Relating to the theoretical model

We summarize our observations in the form of a table that contrasts the high and low levels of market dominance resource-based bargaining power of the buyer against the design dependence resource-based bargaining power of the supplier (see Figure 3). When the level of buyer market dominance is low, we observe that the uses of management control and cost management practices vary, depending on the type of supplier (see Cell A and B, Figure 3). This is in part a reflection of the differential bargaining power (either market dominance or design dependence) that exists between the routine components and strategic component type suppliers. For example, cost control practices were used on the low design dependence suppliers but not for the high design dependence suppliers. For the latter, coordination and not cost control concerns were relevant driver of the use of management controls.

Our observations also indicate that supplier performance review meetings, extensive performance measurement and monitoring helps to address the buyers coordination and cooperation concerns. As the industry product development life cycle is short (e.g., 6 months) formal performance measurement and reviews help the buyer to ensure that their portfolio of suppliers have the continuing capability to keep up with their future product road map, thus ensuring effective coordination and cooperation. Monitoring helps to address coordination and cooperation concerns at the day to day operations level such as ensuring that supplier components fit into the new product development designs of the buyer. While, the extensiveness of performance reviews, measurement and monitoring was driven in part by the level of supplier design dependence (i.e., new products, customization issues) we also observed more extensive performance reviews and monitoring among the buyers with high levels of market dominance (Cell D, Figure 3). For the high market dominance buyer, performance reviews and monitoring serves to build trust with their high design dependence suppliers as it facilitates the safe exchange of technology or tacit knowledge between the parties.
**Incentives of parties and standardized management controls**

According to the agency and transactions costs contracting literature, the use of implicit contracts such as management controls are expensive, and as such they will only be used by a party when the benefits such as the inability to fully contract on the terms of the relationship exist (Gietzmann, 1996). Thus, in the asymmetric bargaining power case, we argued that the dominant party will use management controls only for the purposes of managing their appropriation concerns of their weaker partner. However, we observed that the dominant partner also used management controls that were in place to manage the coordination concerns of their high design dependence suppliers (Cell D, Figure 3). This extension to the weaker partner reflected the use of standardized routines such as the use of performance measurement criteria and performance review meetings.

**VI. CONCLUSION**

In this study, we develop an inter-firm control framework that shows how different combinations of resource-based sources of bargaining power of the parties are related to their appropriation, coordination and cooperation concerns. These concerns, in turn are related to the purposes for which management controls are used in inter-firm relationships. Given the resource-based bargaining power endowments of the parties, we theorize the purpose and use of management controls under two scenarios: bargaining power symmetry and bargaining power asymmetry.

For the bargaining power symmetry low interdependence case, where both parties have low levels of resource-based bargaining power, we proposed that each party would use management controls due to appropriation concerns. While our observations supported this case, we found that for one buyer their purchasing department played an unexpectedly significant role
in accessing supplier cost information. For the bargaining power asymmetry case, we proposed that the dominant party would use management controls to address appropriation concerns, while the weaker party would use the same to address coordination concerns. Our observations supported this case, however, we found that the high market dominance buyers used similar performance review and measurement practices for both their high and low design dependence suppliers, reflecting a standardized approach to the use of controls, especially for dealing with appropriation concerns. Under bargaining power symmetry high interdependence case the concerns of both parties extend beyond appropriation and coordination to also include the development of thick trust. Therefore in this setting management controls play an important role in the development of thick trust and the use of management control is more extensive than previous believed. We find that high market dominance buyers use their bargaining power to dictate the technology and operational detail to their strategic suppliers. Apart from appropriation, we find that the buyer’s key concerns are coordination in ensuring that the supplier can work together with the buyer and deliver a component that fits with the new product design, but also cooperation in ensuring that the supplier is proactive is communicating and working with the buyer to solve problems as they arise.

A key contribution of this study is to frame cooperation concerns more specifically alongside the coordination and appropriation concerns of the parties. Building on the trust constructs introduced by Vosselman and van der Meer-Kooistra (2009) we place thick and thin trust within a dynamic bargaining power framework that links resource-based sourced bargaining power to partner control concerns and their management control decisions. This study extends past studies that observe a relation between resource-based bargaining power and management control (e.g., Chua and Mahama, 2007; Yan and Gray, 2001; Helper and Levine, 1992). Our observations indicate that resource-based bargaining power determinants are an important determining factor of the types of management controls deployed. For example, market dominant buyers used various cost management practices in addressing appropriation concerns and
performance measurement routines in addressing coordination concerns, while low market
dominant buyers used these practices less extensively. The need for such control practices and
associated concerns and came about because of the specific resource endowments that extended
the buyers the power to use such mechanisms in some cases (e.g., high market dominance), but at
the same time created the concerns via greater exposure the various risks (e.g., performance,
reputation and relational risk).

These findings contrast with studies that suggest that management accounting and
information sharing practices are associated with the level of context-based bargaining power
(Van den Abbeele et al., 2009; Schloetzer, 2012) in that while, context-based bargaining power
contributes largely to the “bargaining set” during buyer supplier negotiations, it is the resource-
based bargaining power that is likely to determine what management controls are used by buyers
in response to appropriation, coordination and cooperation concerns over the course of the
relationship.

For researchers, our theorizing should help clarify the role of bargaining power and its
influence over the roles of management controls used in inter-firm relationships. In other words,
we show that the appropriation, coordination and cooperation concerns of the parties and the use
of management controls to deal with these concerns varies according to the symmetric or
asymmetric balance of the resource-based bargaining set. For managers, knowing the specific
source of the resource-based power, its balance with the specific resources of the other party, and
when it is likely to be used should aid in negotiations as well as help build realistic expectations
about the potential benefits of specific management control interventions.

The small number of firms used and industry sector focus reflects the exploratory nature
of our research. While our interviews were conducted with both buyers and their suppliers and
confined our observations to how buyers manage two general types of suppliers (routine and
strategic component suppliers), suppliers and their relative bargaining power could vary within
each type depending on size, age and industry reputation.
Future research could examine how different buyers of varying bargaining power use management control and cost management routines on the same supplier. While we considered market dominance and design dependence as the main sources of bargaining power, there are other factors that were not considered. For example, component supplier dynamics (i.e., technology, supplier role) may interact jointly with both market dynamics (i.e., inventory requirements, market growth) and firm dynamics (buyer power, number of suppliers, size) to influence the use of management control and cost management practices. Given these possible joint effects, and the evidence that the purchase order allocation decision tends to be a subjective process, future studies could also examine the consequences of bias or error in the supplier purchase order allocation decision in a total-cost-of-ownership model (Wouters, Anderson & Wynstra, 2005). The performance consequences of errors in purchase allocation (e.g., supplier withdrawal, improvement, rationing, or the supply of poorer quality materials) remain unexamined to date, and thus would be a fruitful direction for future research.
Figure 1. Resource-based Bargaining Power, Trust Building and Management Control Framework
(Vosselman and van der Meer-Kooistra, 2009)\(^a\)

<table>
<thead>
<tr>
<th>Bargaining power symmetry</th>
<th>Bargaining power asymmetry</th>
<th>Bargaining power symmetry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low/Low Resource-based</td>
<td>High/Low Resource-based</td>
<td>High/High Resource-based</td>
</tr>
<tr>
<td>Bargaining power(^b)</td>
<td>Bargaining Power</td>
<td>Bargaining Power</td>
</tr>
<tr>
<td>Column A</td>
<td>Column B</td>
<td>Column C</td>
</tr>
<tr>
<td>Partner concern</td>
<td>Appropriation</td>
<td>Coordination</td>
</tr>
<tr>
<td>Main behavioral problem(^b)</td>
<td>Potential opportunistic behavior (lack of thin trust)</td>
<td>Behavioral uncertainty (lack of thin trust)</td>
</tr>
<tr>
<td>Main mechanisms(^b)</td>
<td>Orchestrate design of formal accounting and control structures and related practices</td>
<td>Voluntary self-regulating decisions</td>
</tr>
<tr>
<td>Drivers of the use of accounting - Primary power basis(^b)</td>
<td>Thin trust in institutions</td>
<td>Thin trust in institutions</td>
</tr>
<tr>
<td>Location of the drivers(^b)</td>
<td>Centre: the contractual power base</td>
<td>Centre: the contractual power base</td>
</tr>
<tr>
<td>Functions of accounting (management controls)(^b)</td>
<td>Safeguarding device</td>
<td>Information sharing and coordination device</td>
</tr>
<tr>
<td>Accounting (management controls) aim at(^b)</td>
<td>Control and thin trust</td>
<td>Control and thin trust</td>
</tr>
<tr>
<td>Propositions</td>
<td>P1: When the resource-based sources of bargaining power of the buyer and supplier is low the parties will use management controls less extensively in address appropriation concerns at the level of the transactional relationship.</td>
<td>P2: When the parties have resource based bargaining power asymmetry, the party with the dominant resource based bargaining power will use management controls to address appropriation concerns, while the weaker party will use management controls to address coordination concerns.</td>
</tr>
</tbody>
</table>

\(^a\) The low and high references to resource-based bargaining power refer to the four quadrants of low/high market dominance and low/high design dependence sources of resource-based bargaining power (see Figure 2).

\(^b\) Headings taken from Figure 2 of Vosselman and van der Meer-Kooistra (2009, p. 279). The shaded area represents the main contribution to their framework.
## Figure 2. Theoretical Context as Applied to Technology Firms

<table>
<thead>
<tr>
<th>Buyer Market Dominance</th>
<th>Supplier Design Dependence</th>
<th>High Supplier Technology</th>
<th>Low Supplier Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low / Medium</strong></td>
<td><strong>Bargaining power asymmetry (Cell A)</strong></td>
<td>Buyer resource dominance</td>
<td>Supplier resource dominance</td>
</tr>
<tr>
<td>Industry concentration – regional follower</td>
<td>Low interdependence relationship</td>
<td>Buyer resource dominance</td>
<td>Supplier resource dominance</td>
</tr>
<tr>
<td>Strategic market focus – low margin</td>
<td>Institutions (i.e., regulations, legislation and social norms and rules) provide the source of trust as they provide the basis for voice and exit threats (credible threats) thus contractual / formal accounting constraints, safeguards and incentives will dominate.</td>
<td>Buyer – coordination concerns drive the use of management controls off a credible threat based on a <strong>thin trust of external institutions</strong></td>
<td>Supplier – appropriation concerns drive the use of management controls off a credible threat based on a <strong>design dependence resource power</strong></td>
</tr>
<tr>
<td>Technological superiority – mature products, open market platform</td>
<td><strong>Bargaining power asymmetry (Cell B)</strong></td>
<td>Supplier is a price taker</td>
<td>Buyer is a price taker</td>
</tr>
<tr>
<td><strong>High</strong></td>
<td><strong>Bargaining power asymmetry (Cell C)</strong></td>
<td>Buyer resource dominance</td>
<td>Supplier resource dominance</td>
</tr>
<tr>
<td>Industry concentration – global leader</td>
<td>Buyer – appropriation concerns drive the use of management controls off a credible threat based on <strong>market dominance resource power</strong></td>
<td>Buyer is a price taker</td>
<td>Supplier is price taker</td>
</tr>
<tr>
<td>Strategic market focus – high margin</td>
<td><strong>Bargaining power asymmetry (Cell D)</strong></td>
<td>Both buyers and suppliers have the same level of appropriation, coordination and cooperation concerns.</td>
<td>Management controls are used to provide the relational signaling to create the thick trust required to manage cooperation concerns that exist by reason of their specific resources brought to the relationship.</td>
</tr>
<tr>
<td>Technological superiority – innovative products, proprietary platform</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Propositions are as follows: Proposition 1 (Cell A): **P1:** When the resource-based sources of bargaining power of the buyer and supplier is low, the parties will use management controls less extensively in address appropriation concerns at the level of the transactional relationship. Proposition 2 (Cell B & C): **P2:** When the parties have resource based bargaining power asymmetry, the party with the dominant resource based bargaining power will use management controls to address appropriation concerns, while the weaker party will use management controls to address coordination concerns. Proposition 3 (Cell D): **P3:** When the resource-based sources of bargaining power of the buyer and supplier is high the parties will use management controls more extensively to produce thick trust in each other’s resource dominant endowments in order to address appropriation, coordination and cooperation concerns.*
Figure 3. Observed Management Control Practices by the Buyer

<table>
<thead>
<tr>
<th>Buyer Market Dominance</th>
<th>Supplier Design Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low / Medium</strong></td>
<td></td>
</tr>
<tr>
<td>Industry concentration</td>
<td></td>
</tr>
<tr>
<td>– regional follower</td>
<td></td>
</tr>
<tr>
<td>Strategic market focus</td>
<td></td>
</tr>
<tr>
<td>– low margin</td>
<td></td>
</tr>
<tr>
<td>Technological superiority</td>
<td></td>
</tr>
<tr>
<td>– mature products, open</td>
<td></td>
</tr>
<tr>
<td>market platform</td>
<td></td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td><strong>Bargaining power symmetry</strong></td>
</tr>
<tr>
<td></td>
<td>and low interdependence (Cell A)</td>
</tr>
<tr>
<td>Appropriation concerns</td>
<td></td>
</tr>
<tr>
<td>Cost information and knowledge of supplier’s cost model gained through</td>
<td></td>
</tr>
<tr>
<td>Outcome controls</td>
<td></td>
</tr>
<tr>
<td>• Expert knowledge of purchasing department</td>
<td></td>
</tr>
<tr>
<td>Coordinate and trust concerns</td>
<td></td>
</tr>
<tr>
<td>Outcome controls</td>
<td></td>
</tr>
<tr>
<td>• Performance review meetings</td>
<td></td>
</tr>
<tr>
<td>• Performance measurement criteria - Quality, Cost and Delivery</td>
<td></td>
</tr>
<tr>
<td><strong>High</strong></td>
<td><strong>Bargaining power asymmetry (Cell B)</strong></td>
</tr>
<tr>
<td>Appropriation concerns</td>
<td></td>
</tr>
<tr>
<td>Cost information and knowledge of supplier’s cost model gained through</td>
<td></td>
</tr>
<tr>
<td>Outcome controls</td>
<td></td>
</tr>
<tr>
<td>• Sharing of cost information in negotiations (open book accounting)</td>
<td></td>
</tr>
<tr>
<td>• Benchmarking multiple suppliers</td>
<td></td>
</tr>
<tr>
<td>Behavioral controls</td>
<td></td>
</tr>
<tr>
<td>• Monitoring for yield improvement</td>
<td></td>
</tr>
<tr>
<td>Coordinate and trust concerns</td>
<td></td>
</tr>
<tr>
<td>Outcome controls</td>
<td></td>
</tr>
<tr>
<td>• Performance review meetings</td>
<td></td>
</tr>
<tr>
<td>• Performance measurement criteria - Quality, Cost and Delivery</td>
<td></td>
</tr>
<tr>
<td><strong>High</strong></td>
<td><strong>Bargaining power asymmetry (Cell C)</strong></td>
</tr>
<tr>
<td>Appropriation concerns</td>
<td></td>
</tr>
<tr>
<td>Cost information and knowledge of supplier’s cost model gained through</td>
<td></td>
</tr>
<tr>
<td>Outcome controls</td>
<td></td>
</tr>
<tr>
<td>• Sharing of cost information in negotiations (open book accounting)</td>
<td></td>
</tr>
<tr>
<td>• Benchmarking multiple suppliers</td>
<td></td>
</tr>
<tr>
<td>Behavioral controls</td>
<td></td>
</tr>
<tr>
<td>• Monitoring for yield improvement - Controlling the input (materials suppliers)</td>
<td></td>
</tr>
<tr>
<td>Coordinate and trust concerns</td>
<td></td>
</tr>
<tr>
<td>Outcome controls</td>
<td></td>
</tr>
<tr>
<td>• Performance review meetings</td>
<td></td>
</tr>
<tr>
<td>• Performance measurement criteria - Technology, Quality, Cost and Delivery</td>
<td></td>
</tr>
<tr>
<td>Behavioral controls</td>
<td></td>
</tr>
<tr>
<td>• Extensive monitoring for problem solving and early Product life cycle interaction and intervention.</td>
<td></td>
</tr>
<tr>
<td>• Direct control - Controlling the input (materials suppliers), Owning the machine in the supplier’s factory</td>
<td></td>
</tr>
</tbody>
</table>
Table 1. Buyer Market Dominance Bargaining Power and Case Selection Criteria

<table>
<thead>
<tr>
<th>Level of market dominance</th>
<th>Industry concentration</th>
<th>Strategic market focus</th>
<th>Technological superiority</th>
<th>Illustrative case examples$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Global leader</td>
<td>High margin consumer electronics</td>
<td>Innovative products, Proprietary platform</td>
<td>MOB-D, MOB-E</td>
</tr>
<tr>
<td>Medium</td>
<td>Global follower</td>
<td>Medium margin consumer electronics and other industries</td>
<td>Mature products, Open market platform</td>
<td>MOB-F MP3-A</td>
</tr>
<tr>
<td>Low</td>
<td>Regional follower</td>
<td>Low margin consumer electronics</td>
<td>Mature products, Open market platform</td>
<td>USB-C</td>
</tr>
</tbody>
</table>

$^a$The firms studied include a MP3 player, generic phone and accessories manufacturer (MP3-A), USB and storage devices (USB-C) manufacturer, and three specialized mobile phone companies (MOB-D, MOB-E, and MOB-F). In this paper the cases sites represented by MOB-D and MOB-E have dominant market positions through having established brand names, more sophisticated product development and production strategies. In contrast MOB-F and MP3-A only have a moderate level of market dominance and USB-C is in the weakest position.
References


Cheng, H. M. The History and Development of HTC. *Keynote speech given to Asia Pacific Management Accounting Association Conference 5th, November, 2010.*


Gietzmann, M. B. (1996). Incomplete contracts and the make or buy decision: governance design and attainable flexibility. Accounting, Organizations and Society, 21(6), 611-626.


### Appendix A. Yan and Gray (1994) Bargaining Power Framework and Accounting Literature Summary

<table>
<thead>
<tr>
<th>Source of bargaining power - Yan and Gray (1994) framework</th>
<th>Stage of contracting</th>
<th>Literature on bargaining power and control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Post contracting stage</td>
<td>Management Control Roles</td>
</tr>
<tr>
<td>Source based sources</td>
<td></td>
<td>Can influence the use of criteria in the supplier selection process</td>
</tr>
<tr>
<td>Partners contribution to strategic resources and expertise to the relationship (+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Context based sources</td>
<td></td>
<td>Most relevant to the use of information in supplier selection and approval decisions</td>
</tr>
<tr>
<td>a) Number of alternatives available (+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Perceived Strategic Importance (-)</td>
<td></td>
<td>Can influence information sharing in coordination</td>
</tr>
<tr>
<td>No specific source mentioned</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( ^a \) Refers to economic dependence as a source of bargaining power

\( ^b \) Refers to design dependence as a source of bargaining power

\( ^c \) Refers to a context of unequal bargaining power, but no specific source of bargaining power mentioned

47
Appendix B: Interview Details

Panel A. Research Sites and Supplier Relationships

<table>
<thead>
<tr>
<th>Buyers</th>
<th>MP3-A</th>
<th>USB-C</th>
<th>MOB-D</th>
<th>MOB-E</th>
<th>MOB-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headquarters</td>
<td>Europe</td>
<td>Asia</td>
<td>U.S.</td>
<td>Asia</td>
<td>U.S.</td>
</tr>
<tr>
<td># Suppliers</td>
<td>100+</td>
<td>100+</td>
<td>500+</td>
<td>1000+</td>
<td>500+</td>
</tr>
<tr>
<td>1. Major Products</td>
<td>MP3 players, mobile phones, accessories</td>
<td>USB flash drives, portable hard drives, SSD drives</td>
<td>Mobile phones, tablets, MP3 players, computers</td>
<td>Mobile phones, tablets</td>
<td>Mobile phones, tablets</td>
</tr>
<tr>
<td>2. Nine Buyer Interviewees</td>
<td>Procurement manager</td>
<td>Global supply manager and procurement manager</td>
<td>Procurement manager</td>
<td>Purchasing manager, logistics manager, and senior accountant</td>
<td>Production design manager</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suppliers</th>
<th>SUPP-A</th>
<th>SUPP-C</th>
<th>SUPP-D</th>
<th>SUPP-E</th>
<th>SUPP-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Major Products (related buyer)</td>
<td>Capacitor (critical component supplier)</td>
<td>Plastic housing (local customized component supplier)</td>
<td>Batteries (D1) Capacitor/inductor (D2) (critical component suppliers)</td>
<td>Printed circuit boards (E1) Cameras (E2) (critical component suppliers)</td>
<td>Video display modules (critical component suppliers)</td>
</tr>
<tr>
<td>2. Seven Supplier Interviewees</td>
<td>Sales Manager</td>
<td>Quality control engineer</td>
<td>Quality control engineer (D1) Sales Manager (D2)</td>
<td>Sales manager (E1) (1 hour) Quality control engineer, sales manager (E2)</td>
<td>Production design manager</td>
</tr>
</tbody>
</table>
Appendix B: Interview Details (Con’d).

Panel B. Research Sites and Key Informants

<table>
<thead>
<tr>
<th>#</th>
<th>Firm</th>
<th>Interviewee Position</th>
<th>Location</th>
<th>Date</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MP3_A</td>
<td>Procurement manager</td>
<td>Hong Kong</td>
<td>14/05/2010</td>
<td>2 hours</td>
</tr>
<tr>
<td>2</td>
<td>SUPP-A</td>
<td>Sales Manager</td>
<td>Hong Kong</td>
<td>15/10/2010</td>
<td>45 min</td>
</tr>
<tr>
<td>3</td>
<td>USB-C</td>
<td>Global supply manager</td>
<td>Taiwan</td>
<td>14/10/2009</td>
<td>3 hours</td>
</tr>
<tr>
<td>4</td>
<td>USB-C</td>
<td>Procurement manager</td>
<td>Taiwan</td>
<td>14/10/2009</td>
<td>3 hours</td>
</tr>
<tr>
<td>5</td>
<td>SUPP-C</td>
<td>Quality control engineer</td>
<td>Taiwan</td>
<td>14/10/2009</td>
<td>2 hours</td>
</tr>
<tr>
<td>6</td>
<td>MOB-D</td>
<td>Procurement manager</td>
<td>China</td>
<td>31/10/2009</td>
<td>1.5 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>07/10/2011</td>
<td>.5 hour</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17/11/2011</td>
<td>2 hours</td>
</tr>
<tr>
<td>7</td>
<td>SUPP-D1</td>
<td>Quality control engineer</td>
<td>Hong Kong</td>
<td>25/11/2010</td>
<td>2 hours</td>
</tr>
<tr>
<td>8</td>
<td>SUPP-D2</td>
<td>Sales Manager</td>
<td>Taiwan</td>
<td>10/03/2011</td>
<td>45 min</td>
</tr>
<tr>
<td>9</td>
<td>MOB-E</td>
<td>Purchasing manager</td>
<td>Taiwan</td>
<td>15/10/2009</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>05/11/2010</td>
<td>3 hours</td>
</tr>
<tr>
<td>10</td>
<td>MOB-E</td>
<td>Logistics manager</td>
<td>Taiwan</td>
<td>15/10/2009</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>05/11/2010</td>
<td>3 hours</td>
</tr>
<tr>
<td>11</td>
<td>MOB-E</td>
<td>Senior accountant</td>
<td>Taiwan</td>
<td>15/10/2009</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>05/11/2010</td>
<td>3 hours</td>
</tr>
<tr>
<td>12</td>
<td>SUPP-E1</td>
<td>Sales manager</td>
<td>Taiwan</td>
<td>13/10/2009</td>
<td>1 hour</td>
</tr>
<tr>
<td>13</td>
<td>SUPP-E2</td>
<td>Quality control engineer</td>
<td>Taiwan</td>
<td>13/10/2009</td>
<td>2 hours</td>
</tr>
<tr>
<td>14</td>
<td>SUPP-E2</td>
<td>Sales manager</td>
<td>Taiwan</td>
<td>13/10/2009</td>
<td>2 hours</td>
</tr>
<tr>
<td>15</td>
<td>MOB-F</td>
<td>Production design manager</td>
<td>Hong Kong</td>
<td>13/11/2009</td>
<td>2 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12/10/2010</td>
<td>1 hour</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>02/04/2011</td>
<td>1 hour</td>
</tr>
<tr>
<td>16</td>
<td>SUPP-F</td>
<td>Production design manager</td>
<td>Hong Kong</td>
<td>14/11/2009</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

*The three-part interview questionnaire solicited information on supplier contracts, supplier relationships, and management control and cost management practices. The items in each part covered the following areas (their sources are cited in parentheses): (i) contract terms, including safeguards (Chalos & O’Connor, 2004); (ii) supplier relationship criteria (Ittner et al., 1999); and (iii) supplier performance measurement and monitoring practices (Bensaou & Venkatraman, 1995; Ittner et al., 1999). The supplier performance measurement criteria employed for both the supplier selection and purchase order allocation decisions were categorized into financial and non-financial criteria. The latter comprised technology innovation (e.g., new product development, product development cycle time), quality (e.g., product quality, defect rates, refunds/returns), service (supplier proactiveness, fixing problems and sharing information), delivery (e.g., on-time delivery), and cost (e.g., productivity, cycle time). In keeping with the exploratory nature of the study, we asked several open-ended questions. For example, we asked for specific examples of performance measures the interviewees’ firms had employed.*
Appendix C: Data Coding – Sources of Bargaining Power

Panel A: Market dominance – Market position and technological superiority

<table>
<thead>
<tr>
<th>Buyer</th>
<th>MP3-A</th>
<th>USB-C</th>
<th>MOB-D</th>
<th>MOB-E</th>
<th>MOB-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominant position in the market and technological superiority</td>
<td>Low to medium</td>
<td>Low - from having control over local capacity suppliers, but not global supply capacity suppliers.</td>
<td>Strong - from having international brand name. Due to strong bargaining power, we demand that routine suppliers invest first (you invest first)/Innovative (we help you first).</td>
<td>Medium to Strong - from the development of an international brand name and collocation with suppliers. Have the power to monitor and control all but largest critical component suppliers.</td>
<td>Medium - from having international brand name that has matured.</td>
</tr>
</tbody>
</table>

Panel B: Market Dominance - Supplier selection criteria

<table>
<thead>
<tr>
<th>Buyer [Supplier]</th>
<th>MP3-A</th>
<th>USB-C</th>
<th>MOB-D</th>
<th>MOB-E</th>
<th>MOB-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Financial viability</td>
<td>Long-term partnership</td>
<td>Capacity: You invest first</td>
<td>Capacity Financial viability</td>
<td>Certification program in place</td>
<td></td>
</tr>
<tr>
<td>Certification program in place</td>
<td>Good reputation</td>
<td>Production efficiency (2)</td>
<td>Long-term commitment</td>
<td>Certification program in place</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Data as at 2011  
\(^b\) Ranking: 1 = most important; 5 = least important  
\(^c\) Technology includes “New product development” and “Product development cycle time”  
Quality includes “Defect rates,” “Refunds/returns” and “Other”  
Response/Service includes “Service” and “Proactiveness in responding to customer requests”  
Delivery includes “On-time delivery”  
Cost includes “Cost” and “Productivity”
Appendix C: Data Coding – Sources of Bargaining Power con’d.

Panel C: Design Dependence

<table>
<thead>
<tr>
<th>Buyers</th>
<th>MP3-A</th>
<th>USB-C</th>
<th>MOB-D</th>
<th>MOB-E</th>
<th>MOB-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Divide suppliers into routine and critical component suppliers.</td>
<td>Divide suppliers into 3 tiers: flash and DV (suppliers with global</td>
<td>Every component/supplier is considered critical. We consider</td>
<td>Most are routine component suppliers. We consider</td>
<td>Divide suppliers into critical component suppliers who can support</td>
</tr>
<tr>
<td>dependence</td>
<td>Most are routine component suppliers.</td>
<td>supply capacity); standardized (regional supply capacity); mechanical (local capacity). 15% critical, 85% routine component suppliers audited by our R&amp;D, purchase, and quality units.</td>
<td>strategic suppliers as those who have special technology that we will jointly develop.</td>
<td>critical component suppliers as those who help us to develop future product innovation.</td>
<td>new innovative products and routine component suppliers who support existing products or platforms.</td>
</tr>
</tbody>
</table>
