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To the Graduate Council:

I am submitting herewith a dissertation written by Yu Chu entitled "Essays on Size Asymmetry in Supply Chain Disruptions." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

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John E. Bell, Wenjun Zhou

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(Original signatures are on file with official student records.)

Essays on Size Asymmetry in Supply Chain Disruptions

**A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville**

**Yu Chu
August 2021**

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DEDICATION

To my handsome husband, Dr. Andres Cuadros-Menaca, for your comprehension, patient, support, and encouragement throughout this process.

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ABSTRACT

While size asymmetry (e.g., large buyer and small supplier) has been discussed in a no-disruption operation context (Lee & Johnson, 2012), little is known whether, how buyers react differently when different-sized suppliers cause different types of disruptions. Extant research suggests in a supplier-induced disruption supplier's recovery actions yield various effects in a size-unbalancing setting, indicating a need for a deeper understanding of what buyers prefer in order to resolve disruptions caused by facing different sized suppliers and the rationales behind the decisions. Accordingly, this dissertation examines whether and how the supplier size and supplier-induced disruption type impact on commitment (i.e., enduring desire to maintain the relationship) as well as buyers' preferred use of mediated power (i.e., use of extrinsic motivation to influence the target party) in Essay 1, and provides an extensive overview of the literature and a future research agenda on size asymmetry in the buyer-supplier relationship in Essay 2.

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INTRODUCTION

Dissertation Overview

A supply chain represents a network of all the member organizations or individuals and consists of the flows of products, services, information, and finances through upstream and downstream links (Mentzer, DeWitt, Keebler, Min, Nix, & Smith, 2001). One of the critical elements in managing a supply chain is managing interorganizational relationships (Mentzer et al., 2001). Across various business research settings, practical and academic, interorganizational relationships have received significant attention and been examined with a large number of theories and methods employed. However, empirical studies assessing interorganizational relationships under disrupted and asymmetrical situations are still limited (Lee & Johnson, 2011; Cheng, Craighead, Wang, & Li, 2019). Given its nature of complexity and dynamics, a supply chain does not always function as planned or anticipated. When an unplanned and unanticipated event disrupts a supply chain, it may endanger the related firms with operational, financial, and relational risks (Craighead, Blackhurst, Rungtusanatham, & Handfield, 2007).

This dissertation focuses on buyer-supplier relationships particularly under disruption and essay 1 specifically involves in supplier-induced disruptions, which is when the suppliers are responsible for the disruptions. Supplier-induced disruptions occur frequently and lead to different consequences to the buyer-supplier relationships. Apple watch production experienced a defective issue and a consequential delay resulting from the key components from one of two suppliers

(Wakabayashi & Luk, 2015), and Tesla's first U.S. based fatal crash was related to its camera issue embedded in the Autopilot system provided by one of its largest sensor suppliers (Higgins, 2016). In these two cases, Apple kept the relationship with the supplier whereas Tesla ended the partnership. Little is understood what the elements are contributing to various perceptions and resolutions in different type of supplier-induced disruption. Empirical evidence suggests that different disruptions are attributed to different causes of the event and result in different levels of trust loss (Kim, Dirks, Cooper & Ferrin, 2004). These findings encourage us to understand the impact of different disruptions on other perceptions of the buyers and preferred resolutions. Furthermore, supplier size has been examined as a critical factor in interorganizational relationships research with its implication of power and dependence (Gulati & Sytch, 2007; Handley & Benton, 2012). It will be critical to see the role of supplier size in a supplier-induced disruption and how the buyers, the victim, react differently. In summary, this dissertation focuses on contributing to interorganizational relationship research by exploring the effects of supplier-induced disruption on buyer's behavioral actions in consideration of supplier size (essay 1) and synthesizing the literature on size asymmetry, highlighting the future research path for buyer-supplier relationship scholars (essay 2).

Essay 1 (Chapter I) examines the effects of integrity- and competence-based supplier-induced disruption on large buyer's commitment with large and small suppliers. By employing scenario-based experiments, we identify that large buyers react with lower commitment to the suppliers when experiencing an

integrity-based disruption than a competence-based disruption. The findings further suggest that a larger buyer perceives higher commitment and more use of mediated power when facing a larger supplier compare with a small supplier. Moreover, a larger buyer shows more willingness to use the mediated power with a larger supplier than a smaller supplier through its commitment.

Essay 2 (Chapter II) explores the research on size asymmetry in buyer-supplier relationships. Firm size's role in an inter-organizational relationship has been examined with various types of measurement adopted, giving scholars many opportunities to expand the field. An overview of the literature includes what studies offer in terms of research agenda opportunities for scholars to enhance the body of knowledge with an emphasis on incorporating supply chain disruptions.

A brief literature review of supplier-induced disruptions is provided in the next section, followed by discussions concerning the types of disruption, size asymmetry, and power in buyer-supplier relationship areas.

Supplier-induced Disruption Literature Review

Supply chain disruptions, defined as unplanned product flow delays or stoppages (Craighead et al., 2007), can be negatively related to operational outcomes (Stauffer, 2003; Hendricks & Singhal, 2005a), shareholder wealth (Hendricks & Singhal, 2003), and other financial performance (Hendricks & Singhal, 2005b). This dissertation focuses on supplier-induced disruptions, which is when the suppliers are responsible for the disruptions. Supply chain researchers have established a substantial body of knowledge regarding supply chain

disruptions (Craighead et al., 2007; Hendricks & Singhal, 2005a, 2005b; Lumineau, Eckerd, & Handley, 2015), and started switching their attention to supplier-induced disruptions (Cheng et al., 2019; Kaufmann, Esslinger, & Carter, 2018; Reimann, Kosmol, & Kaufmann, 2017; Wang, Craighead, & Li, 2014). Across most studies in supplier-induced disruptions, trust (i.e., firm belief in the reliability, truth, ability, or strength of the other party) is measured as a primary indicator of the effect of the disruptions (Dirks, Kim, Ferrin & Cooper, 2011; Kaufmann et al., 2018; Wang et al., 2014). Although trust contributes to a significant part of the buyer-supplier relationship, there is a need to expand to other behavioral actions in supplier-induced disruptions research.

Integrity- and Competence-based Disruption

The type of disruption is considered a critical factor that can alter interorganizational relationships in supply chain disruptions. This dissertation looks at two types of disruptions pertaining to the buyer-supplier exchange perspective: integrity- and competence-based disruptions. Two types of disruptions are distinguished by their causes of the event. Integrity-based disruptions are defined as suppliers breaching the values, principles, and social orders (Kim, Dirks, Cooper, & Ferrin, 2004). Competence-based disruptions are defined as the supplier's lack of knowledge and technical skills (Kim et al. 2004).

Integrity- and competence-based disruptions are identified from the disruptions of the two well-established dimensions of trust in interorganizational relationships: competence- and integrity-based trust, because competence and

integrity represent two of the critical factors of trustworthiness (Butler & Cantrell, 1984; Kim, Dirks, Cooper, & Ferrin, 2006; Janowicz-Panjaitan & Krishnan, 2009; Mayer, Davis, & Schoorman, 1995). Suggested from the schematic model from Reeder and Brewer (1979), there might be inherent differences lying in people's assessment of the information delivered from competence and integrity disruptions. Extant research suggests that individuals tend to overweigh the negative information about integrity disruption (Dirks et al., 2011; Kim et al., 2006). Moreover, people consider an honest act as a discounted signal of honesty, whereas a dishonest act is perceived as a more reliable signal of dishonesty, therefore low integrity (Dirks et al. 2011; Kim, Diekmann, & Tenbrunsel, 2003; Kim et al., 2006). As a result, an integrity disruption as a critical indicator of low integrity, in general, leads to a more substantial impact on trust loss compared to a competence disruption (Dirks, Lewicki, & Zaheer, 2009).

Trust disruptions may not only violate trust. The individuals exposed to the context assess the negative information and form their perceptions and actions, following a dispositional attribution process (Kim et al., 2006; Reeder & Brewer, 1979). Trust loss and trust repair have received substantial attention in interorganizational exchange disruptions (Kaufmann et al., 2018; Kim et al., 2004; Kim et al., 2006;) whereas another critical indicator of the relationship, commitment, has been largely overlooked in a disruption context. Commitment is defined as one party's desire to maintain the relationship and is considered central to contributing to social exchange beyond economic business (Anderson & Weitz, 1992; Cook & Emerson, 1978; Morgan & Hunt, 1994). Thus, a gap lies in

expanding our understanding of the effects of supplier-induced disruptions on other perceptions and behavioral actions.

Size Asymmetry

Size asymmetry is defined as an imbalance in the size of an inter-organizational relationship, based on the number of employees of the entire organization (Johnsen & Ford, 2008). In this dissertation, we distinguish the firm size based on the threshold suggested by Small Business Administration. SBA demonstrates that 100 is the lowest small business size standard in the number of employees matched to industries described in the North American Industry Classification System (NAICS) (SBA, Small Business Size Regulations, 2019). On the other side of the spectrum, the largest firm size category falls at 5,000 and more for all industries listed in NAICS (SBA, Small Business Size Regulations, 2021). To make the distinction between the large and small firm more salient, we chose the number of employees of 50 and 10,000 to describe for the small and large firms. Among other asymmetric characteristics of a relationship, size asymmetry simplifies the complexity of the interorganizational relationship. It has been found associated with other relationship characteristics, such as mutuality, conflict, interpersonal inconsistency, intensity, power, and dependence (Lee & Johnson, 2012; Ford & Saren, 2001; Gulati & Sytch, 2007; Gundlach, Achrol, & Mentzer, 1995). Moreover, how size asymmetry impacts on opportunism and performance in buyer-supplier relationships has been examined (Villena & Craighead, 2017). Prior studies (Johnson & Ford, 2008; Lee & Johnson, 2012)

primarily focus on one type of the size asymmetric relationship (e.g. larger buyers and smaller suppliers) while all the degree and directions of the size asymmetry are included and studied from both parties (Villena & Craighead, 2017). However, both parties' wide-range behavioral actions on how they perceive and manage this asymmetric relationship are left unknown.

To date, the studies on size asymmetry in the buyer-supplier relationship still focus on the relationship when operating under the normal modes. It is essential for firms to achieve a transparent view of their potential and ability by understanding the nature and influences of a size asymmetric relationship (Lee & Johnson, 2012; Ford & Saren, 2011), but It will be even more critical and informative to understand whether and how firms within a size asymmetric relationship perceive and react differently under a disruption scenario. In this dissertation, the role of size asymmetry in buyer-supplier relationship is explored under a supplier-induced disruption situation.

Power

In this dissertation, we adopted the definition of power: “the ability of one individual or group to control or influence the behavior of another” (Hunt and Nevin, 1974, p. 186). Power dynamics have been discussed in the body of knowledge on buyer-supplier disruptions in mitigating the negative consequences or moderating the effects (Handley & Benton, 2012; Lumineau & Malhotra, 2011). Two dimensions of power have been conceptualized in the literature: mediated power and unmediated power (Maloni & Benton, 2000). Mediated power is defined as

coercive, reward, and legitimate power bases; unmediated power is defined as expert and referent power (Benton & Maloni, 2005). Firms cannot deliberately exert the unmediated power and influence another party, whereas firms can administer the mediated power to influence the target (Benton & Maloni, 2005). Given its actionable nature, mediated power is often adopted by firms and examined in the research. Interestingly, substantial evidence suggests that utilizing mediated power hurts the quality of interorganizational relationships (Handley & Benton, 2012b) with reduced satisfaction (Hunt & Nevin, 1974), less commitment (Brown, Lusch, & Nicholson, 1995), and reduced operational agreements (Frazier & Summers, 1984). It's been missing that how would the firms who possess the mediated power prefer (or not) to exert power in a supplier-induced disruption. Key constructs definitions are summarized in table 1.

Essay 1 and Essay 2 are presented in Chapter I and Chapter II of this dissertation. Each essay includes one independent study. The dissertation concludes with Chapter IV, a brief section that consolidates both studies' findings and proposes a future research path.

CHAPTER I - ESSAY 1 – BUYER’S PERCEPTION OF SUPPLIER-INDUCED DISRUPTIONS BY LARGE VERSUS SMALL FIRMS

Abstract

While size asymmetry (i.e., large buyer and small supplier) has been discussed in a no-disruption operation context (Lee & Johnson, 2012), it is unclear whether and how a large buyer reacts differently when different-sized suppliers cause different types of disruptions. Extant research suggests in a supplier-induced disruption, supplier's recovery actions are less effective when the supplier is more dependent on the buyer (Cheng et al., 2019), indicating a need for deeper understanding of what buyers prefer in order to resolve disruptions caused by facing different sized suppliers. Accordingly, we examine the effect of supplier size and supplier-induced disruption type on commitment (i.e., enduring desire to maintain the relationship) as well as buyers' preferred use of mediated power (i.e., use of extrinsic motivation to influence the target party). Grounded in commitment-trust theory, our test examines the key mediating role of commitment in inter-organizational relationships in supplier-induced disruptions. Conducting scenario-based experiments, we find that a large buyer is more committed to a large supplier than to a small supplier in a supplier-induced disruption. Interestingly, a large buyer prefers to use mediated power strategies with a large supplier than with a small one. Commitment is found to mediate the effect of supplier size and mediated power, particularly with reward and monitor strategies. Although the interaction of supplier size and disruption type does not impact commitment or mediated power, integrity disruption damages buyer commitment more than competence disruption

does. Moreover, only in an integrity disruption does supplier size significantly impact the buyer's preference for using a reward strategy.

Introduction

A large buying firm tends to have a complex supply chain consisting of a network of diversified supply organizations (Johnsen & Ford, 2008). Managing relationships with all kinds of suppliers is critical to managing supply chains. As dynamic and complex as a supply chain can be, disruptions (i.e., unplanned stoppage or delays in a supply chain flow) frequently occur. A supplier-induced disruption can lead to devastating effects, even termination of the existing buyer-supplier relationship (Mir, Aloysius, & Eckerd, 2017). It is critical to understand how buying firms perceive and react to supplier-induced disruptions. It is unclear how large buyers perceive the relationship when facing large versus small suppliers in a supplier-induced disruption.

Small businesses are emerging and contributing to the U.S. economy. Organizations with fewer than 250 employees account for 95% of the nonfarm companies in the United States and more than half of all U.S. manufacturing employees (Arend 2006; Beekman & Robinson 2004; U.S. Bureau of the Census 2018). Supply chain researchers have examined the selection decisions and evaluation of both large and small suppliers (Pearson & Ellram, 1995) as well as the significant effects of size asymmetry (i.e., large buyers and small suppliers; small buyers and large suppliers) on inter-organizational relationships (Johnsen & Ford, 2008; Lee & Johnsen, 2012; Villena & Craighead, 2017). Specifically,

researchers have identified supplier size's effects on buyer-supplier relationships from small suppliers' perspectives (Johnson & Ford, 2008) or from both small suppliers' and large buyers' perspectives (Lee & Johnson, 2012). However, researchers' discussions tend to be limited to no-disruption circumstances. Given the supplier size's critical role in buyer-supplier relationships, it is unclear in a disruption scenario how large buyers perceive the relationship and whether they react differently when facing different-sized suppliers.

Firm size asymmetry implies the existence of power and dependence, which matters in coping with supplier-induced disruptions. Suppliers' recovery actions are less effective when the supplier is more dependent on the buyer (Cheng, Craighead, Wang, & Li, 2019). Suppliers' recovery actions are active initiatives, which are passive for buyers. It would be valuable to identify buyer's preferences for adopting strategies in a supplier-induced incident. When facing a small supplier, a large buyer can exert external influence (i.e., mediated power) on the small supplier. Therefore, we focus on using mediated power as a buyer's preferred resolution in supplier-induced disruptions. This research addresses how the buying firm (i.e., the victim) perceives the situation and which strategies are preferred for dealing with the supplier.

Shaping our conceptual model, our theoretical framework aligns with the key mediating variable model from the commitment-trust theory (CTT). When the supplier causes a disruption, the buyer suffers and may reassess the relationship with the supplier. When dealing with different-sized suppliers, a large buyer faces various levels of relationship termination costs, switching difficulties, and benefits

(Whitten & Wakefield, 2006; Farrell & Shapiro, 1988). A large supplier can provide to a large buyer more relationship benefits, higher relationship termination costs, and more switching difficulties than to a small supplier (Whitten & Wakefield, 2006; Farrell & Shapiro, 1988; Weiss & Anderson, 1992). CTT suggests that higher relationship termination costs and more relationship benefits lead to higher relationship commitment (Morgan & Hunt, 1994). It is unknown whether these factors still hold in a supplier-induced disruption.

At the CTT's core is the key mediating role of commitment, defined as one party's desire to develop and maintain a long-term relationship with another party (Anderson & Weitz, 1992; Morgan & Hunt, 1994). We propose that the buyer's preference for using a mediated power strategy serves as a potential outcome and that commitment mediates supplier size and the mediated power strategy in a supplier-induced disruption. *Mediated power strategy* is defined as the use of extrinsic motivation to exert influence on the target party (Brown, Lusch, & Nicholson, 1995; Handley & Banton, 2012). By examining various types of disruptions, we introduced various causes of the disruptions to examine supplier size's effects. To examine our conceptual framework, we conducted scenario-based experiments with 266 MTurk workers who have working experience in the supply chain area.

This dissertation contributes to the literature and practice in several ways. First, contrary to our hypothesis derived from extant research (Handley & Benton, 2012), we find large buyers prefer to exert mediated power on large suppliers rather than on small ones, providing boundary conditions in using mediated power.

Second, while commitment-trust theory and commitment's mediating role have been examined in buyer-supplier relationships (Morgan & Hunt, 1994; Wu, Weng, & Huang, 2012), we propose a potential antecedent, a moderator, and an outcome in the CTT model and test it in a disruption context. Third, although the disruption type does not interact with supplier size, commitment's mediating effect is only salient with the integrity disruption, which enhances the effect's boundary conditions. Finally, our results provide implications for (a) buyers as they design their supply base and precautionary plans and (b) suppliers as they effectively communicate with buyers in coping with a supplier-induced disruption.

Literature Review

Large Buyer Facing Large and Small Suppliers

A large buyer tends to have a diversified supply base with varying supplier sizes based on the organization's number of employees (Johnsen & Ford, 2008). It is critical to understand the role of supplier size in order to effectively manage buyer-supplier relationships (Adams, Khoja, & Kauffman, 2012). Among a relationship's other characteristics, supplier size simplifies the inter-organizational relationship's complexity and implies various facets of the supplier's attributes. Supplier size has been associated with other relationship characteristics, such as mutuality, conflict, interpersonal inconsistency, intensity, switching costs, termination costs, power, and dependence (Farrell & Shapiro, 1988; Gulati & Sytch, 2007; Gundlach, Achrol, & Mentzer, 1995; Lee & Johnsen, 2012; Ford & Saren, 2001; Weiss & Anderson, 1992;). Small suppliers tend to heavily depend

on large buyers; therefore, large buyers perceive small suppliers as their power targets with lower switching costs compared to large suppliers (Weiss & Anderson, 1992). Supplier size's effect on the inter-organizational relationship has been primarily examined under normal operations in which no disruptions occur. When the supplier causes a disruption, the buyer reassesses the cause and the current relationship. Though the negative effect on the buyer-supplier relationship is almost certain, it is less clear whether the small and large suppliers share the same level of blame. It is interesting to explore whether the large buyer tends to be more comprehensive with higher commitment and less use of mediated power or less tolerant with small versus large suppliers.

Integrity- and Competence-based Disruptions

The disruption type is a critical factor, which can alter inter-organizational relationships in supply chain disruptions. This dissertation identifies both integrity- and competence-based disruptions of the buyer-supplier exchange. Integrity-based disruptions are defined as suppliers breaching values, principles, and social orders while competence-based disruptions result from suppliers' lack of knowledge and technical skills (Kim, Dirks, Cooper, & Ferrin, 2006).

In inter-organizational relationships, integrity- and competence-based disruptions are identified among those of the two well-established dimensions of trust (i.e., competence- and integrity-based), representing two critical factors of trustworthiness (Butler & Cantrell, 1984; Kim et al., 2006; Janowicz-Panjaitan & Krishnan, 2009; Mayer, Davis, & Schoorman, 1995). Based on the schematic

model in Reeder and Brewer's (1979) study, there might be inherent differences in people's assessment of information related to competence and integrity disruptions. Extant research suggests that individuals tend to overemphasize integrity disruptions' negative details (Dirks, Kim, Ferrin, & Cooper, 2011; Kim et al., 2006). Moreover, people tend to assume that high-integrity parties do not behave dishonestly no matter what the circumstances. In contrast, low-integrity parties may display honest or dishonest behaviors. Therefore, people consider a righteous act a discounted signal of honesty, whereas a dishonest act is perceived as a more reliable signal of dishonesty and low integrity (Dirks et al., 2011; Kim et al., 2006).

Power Bases

Power is defined as the ability of one party to influence the target party and has been widely discussed in buyer-supplier relationship management (Hunt & Nevin, 1974; Huo, Flynn & Zhao, 2017; Reimann & Ketchen, 2017) and has been suggested to have mixed effects on buyer-supplier relationships (Caniel & Geldermann, 2007; Zhao, Huo, Flynn, & Yeung, 2008). If in a normal operation, a large buyer hesitates to influence or control suppliers, a supplier-induced disruption would provide a legitimate reason for the buyers to reinforce and guard their benefits. In tackling supply chain disruptions, extant research mainly focuses on power-balanced scenarios and has called for future research on imbalanced distribution of power (Kaufmann et al., 2018). Cheng et al. (2019) found that when a supplier is more dependent on the buyer, the less effective the supplier's

recovery actions are (Cheng et al., 2019). This impact may result from lack of understanding which repair strategies buying firms prefer to use with different-sized suppliers. Two power dimensions have been conceptualized in the literature: mediated and unmediated power (Maloni & Benton, 2000; Benton & Maloni, 2005). *Mediated power* depends on coercive, reward, and legitimate bases; *unmediated power* consists of referent and expert power (Benton & Maloni, 2005). Firms cannot deliberately exert unmediated power and influence another party, whereas firms can exercise mediated ability to control another party (Benton & Maloni, 2005). Given its actionable nature, mediated power is frequently adopted by firms and examined in the research.

This dissertation focuses mainly on the buyer's use of mediated power; the omni construct; and the individual bases: reward, coercive, and legal legitimate (Benton & Maloni, 2005). *Reward power* is defined as the buyer's ability to reward the supplier as promised when the supplier complies. *Coercive (or penalties) power* is the buyer's ability to punish the supplier if failing to meet the agreed upon requirements. *Legal, legitimate power* is defined as contracts and other legal agreements specifying the supplier's obligations. Studies suggest that mediated power bases tend to be implemented collectively instead of separately (Raven & Kruglanski, 1970; Handley & Benton, 2012). In their seminal work, French and Raven (1959) discussed the difficulty of distinguishing between reward and coercive power. For example, an additional bonus is promised to the supplier if he can meet the requirement; that bonus is considered a reward. However, withholding the bonus if the supplier cannot meet the buyer's requirement may be

perceived as coercion (French & Raven, 1959; Handley & Benton, 2012). Furthermore, empirical studies suggest that reward, coercive, and legal legitimate power bases are employed jointly (Brown et al., 1995; Frazier & Summers, 1984;). In the current study, we describe a scenario to distinguish between reward and coercion not only to avoid missing individual effects but also to include mediated power's omni construct in order to identify the joint effects (Handley & Benton, 2012). Therefore, we hypothesize that individual bases' effects would lead to positive or negative effects as a joint construct, and we explore those individual effects. Supplier-induced disruptions are multi-faceted in inter-organizational exchanges, thereby impacting the relationship at varying levels under varying circumstances.

Theoretical Background and Hypotheses Development

This research draws on the premise that the commitment-trust theory (CTT) is critical to the supplier size's impact on buyer-supplier relationships in a supplier-induced disruption. CTT highlights the key mediating role of commitment and trust in an inter-organizational relationship (Morgan & Hunt, 1994). Researchers either consider both trust and commitment as key mediators (Morgan & Hunt, 1994) or treat each one as a critical construct in the relational exchange (Doney & Cannon, 1997; Anderson & Weitz, 1992; Jap & Ganesan, 2000). Within the original key mediating variable (KMV) model proposed in Morgan and Hunt (1994), antecedents include relationship termination costs, shared values, relationship benefits, communication, and opportunistic behavior. Outcomes consist of

acquiescence, propensity to leave, cooperation, functional conflict, and decision-making uncertainty. The KMV model has been empirically examined in a supply chain study involving an ordinary (i.e., no disruption) context (Wu, Weng, & Huang, 2012). In a disruption scenario, trust has been widely used as the central construct of interest (Esslinger et al., 2019). Commitment, another key mediator, is considered central to contributing to social exchange beyond economic business (Anderson & Weitz, 1992; Cook & Emerson, 1978; Morgan & Hunt, 1994); yet, it is discussed primarily in a non-disruption context.

In this study, we focus on commitment's critical mediating role not only in a negative event context but also within a power-imbalanced setting (see Figure 1). A supplier-induced disruption provides the buyer with negative details about the supplier, thus giving the buyer reasons to reassess the relationship with a reduced level of willingness in order to maintain the relationship (Mir et al., 2016). Therefore, we posit that a supplier-induced disruption would negatively impact a buyer's commitment.

Supplier size reflects the level of dependence differentials and associated switching costs. An undefined element of termination costs (Morgan and Hunt, 1994), switching costs include perceived economic costs (Jones, Mothersbaugh, & Beatty, 2002), benefit loss costs, brand relationship loss costs, monetary loss costs (Burnham, Frels, & Mahajan, 2003; Whitten & Wakefield, 2006), and perceived time and effort (Jones et al., 2002). Dealing with a large supplier, a large buyer perceives greater associated costs involved in terminating the exchange relationship and switching to another large supplier. In contrast, terminating the

relationship with a small supplier and switching to another small supplier would cost the large buyer less time, effort, and money. Higher termination and switching costs involved with a large supplier contribute to greater switching difficulty and the large buyer's increased dependence, and vice versa. In a supplier-induced disruption, buyers as the victims naturally have a legitimate reason to assert their rights. When supplier switching difficulties are lower, buying firms seek opportunities to exert power to influence the supplier in buyer-favored directions (Handley & Benton, 2012). Therefore, when facing a large supplier, a large buyer would prefer to use less mediated power than when facing a small supplier (Handley & Benton, 2012).

H1. A large buyer prefers to use less mediated power— coercive, legal legitimate, and reward strategies—with a large supplier than with a small supplier.

Rather than supplier size differential directly affecting the use of mediated power as proposed in Hypothesis 1, the relationship between supplier size and mediated power is arguably a function of the commitment's impact. As previously discussed, supplier size influences termination and switching costs. A large buyer uses the magnitude of these costs to assess the relationship's importance, thus determining the relationship commitment (Morgan & Hunt, 1994). Aligning with CTT, supplier size is associated with relationship termination costs and relationship benefits, which are key antecedents and positively related to commitment (Morgan & Hunt, 1994).

Aligning CTT, commitment serves as a key mediator in an inter-organizational relationship. Specifically, in the CTT's KMV model, relationship commitment is negatively correlated with the propensity to leave (i.e., the likelihood to terminate the relationship) (Morgan & Hunt, 1994). The propensity to leave, perceived as a level of instability, represents a costly performance outcome. In a supplier-induced disruption, mediated power as a preferred resolution strategy can be considered a potential outcome of a supplier-induced disruption as a result of the buyer's commitment to the supplier.

H2. A large buyer's preference for mediated power— coercive, legal legitimate, and reward strategies—is mediated by the buyer's commitment to the supplier.

In this dissertation, we focus on two types of disruption: integrity- and competence-based (hereafter, expressed as integrity and competence disruptions). *Integrity disruptions* are related to the supplier's values and principles, whereas *competence disruptions* are due to a lapse in skill and performance. Based on the supplier-induced disruption's cause, large buyers analyze the rationale behind the disruption and reassess the exchange relationship with the supplier. Competence disruptions are perceived as indicators of the supplier's competence level (Reeder & Brewer, 1979). Thus, the buyer believes that the supplier with greater ability will be able to perform competently, while the supplier with less ability will perform less competently (Dirks et al., 2011). Conversely, buyers not only attribute the integrity disruption's cause to the supplier's low

integrity and questionable values and principles but also perceive that the supplier will be dishonest (Dirks et al., 2011). Thus, this disruption will happen again when the supplier deems it necessary. As a critical indicator of low integrity that generally leads to damaging the buyer's trust in the supplier, integrity disruption—in contrast to competence disruption—will, in turn, diminish the buyer's commitment to the supplier and substantially deteriorate the relationship (Dirks, Lewicki, & Zaheer, 2009).

Given the nature of competence and integrity disruptions, the buyer's trust in and, thus, commitment to the supplier are damaged differently. If a supplier-induced disruption motivates the large buyer to exert power, the buyer will have a stronger motivation to exert mediated power when faced with integrity disruptions because the buyer will perceive such disruptions as evidence of the supplier's dishonesty, lower integrity, and untrustworthiness. In contrast, the buyer would perceive the supplier as less capable in a competence disruption and, therefore, be less motivated to exert power over the supplier. Thus, we posit the following:

H3a. Integrity disruption diminishes the commitment of a large buyer to its supplier more than competence disruption does.

H3b. Integrity disruption leads to a large buyer's using more mediated power than competence disruption does.

Suppliers' size differential is also an indicator of levels of information sharing and uncertainty. A large buying firm is clearly aware that the size leverage and associated dependence and power advantage can deter a small supplier from

taking advantage of the relationship (Casciaro & Piskorski, 2005). In contrast, large firms are more likely to hide their agenda and, therefore, be less transparent in terms of sharing information compared to small firms (Villena & Craighead, 2017).

Although in a general context, large buyer would be more committed to the large supplier than to the small one (Morgan & Hunt, 1994), in a disruption the buyer's suspicion of the reason behind the disruption would not be decreased facing with a large supplier. With larger suppliers' greater uncertainty and greater intention to hide information, large buyers will use the supplier-induced disruption as an opportunity to evaluate their suppliers. In a supplier-induced disruption situation and primarily when the supplier's unethical purpose causes the disruption, the buyer's concerns about the large supplier are confirmed. Therefore, in an integrity disruption, a large buyer may suspect a large supplier, more than a small supplier, of being the disruption's cause, thus leading to more devastating damage to the buyer's relationship commitment and greater use of mediated power with a large supplier.

H4a. Integrity disruption is more damaging to a large buyer's commitment to a large supplier than to a small supplier.

H4b. Integrity disruption strengthens a large buyer's willingness to exert mediated power- coercive, legal legitimate, and reward strategies—on a large supplier than on a small supplier.

Research Methods

Using a vignette-based experiment to collect the data for this research, we asked participants to assume the role of a buying firm's representative and to handle a buyer-supplier relationship issue (Eckerd, 2016; Rungtusanatham, Wallin, & Eckerd, 2011). Vignette-based experiments engage participants with immersive scenarios commonly found in inter-organizational relationships (Rungtusanatham et al., 2011). In such experiments, participants are free to reveal their behaviors, thoughts, and decisions after being presented a scenario.

A 2 (large vs. small supplier) x 2 (competence vs. integrity disruption) between-subject scenario-based experiment was conducted to determine a large buyer's perspective of the relationship after experiencing a supplier-induced disruption. As with Rungtusanatham et al. (2011), we included a common module (constant statements) and an experimental module (varied statements). Participants were first assigned the role of the large buyer, which has a relationship with a large or small supplier in a general buyer-supplier exchange. The scenarios were presented sequentially, with the first scenario describing the supplier's size as either large or small. The second scenario involved a type of disruption, either

competence- or integrity-based. The buying and supplying firms' sizes were categorized based on the number of employees; a large supplier has more than 10,000 employees while a small supplier has fewer than 50 employees. The Small Business Administration (SBA), an autonomous U.S. government agency assisting small businesses, suggests the criteria for defining a small firm based on employee size, which can range from fewer than 100 to fewer than 1500 depending on the industries (SBA, Small Business Size Regulations, 2021). Consistent with the definition and to make the difference more salient for participants to identify the size difference, we chose employee numbers fewer than 50 for small firms and more than 10,000 for large firms. The participants were presented with the following scenario: a supplier caused a disruption by shipping a batch of defective products to a plant, resulting in the company's experiencing delays to its customers. The reason for the disruption can be attributed to either integrity disruption or competence disruption. *Integrity disruption* is caused by the supplier's purposefully purchasing low-quality materials to inflate margins. In contrast, *competence disruption* is caused by lack of knowledge and expertise. This experiment's scenarios are presented in Appendix A. A counterbalancing approach of manipulation checks was used (Perdue & Summers, 1986). Participants in the main test were asked the manipulation check question after being exposed to manipulated scenarios but before being asked the question about the dependent measures. Participants in the pilot test were asked the manipulation check question after being asked the dependent measures questions. For the dependent

measures, participants were asked to describe their perceived commitment and preferred power strategy.

Pilot Test, Sample, Manipulation, and Realism Checks

A pilot test with 56 subjects recruited from Amazon Mechanical Turk (MTurk, 73.2 percent male, $M_{age}=33.25$) provided room for improvement in the experiment design, and minor changes were made to enhance the clarity before collecting the main study's data. We then recruited 266 MTurk workers (65.5 percent male, $M_{age}=35.51$) for the main study. MTurk has been identified as providing reliable results (Goodman, Cryder, & Cheema, 2013), generalizability beyond the contextual settings (Kaufmann et al., 2018; Paolacci & Chandler, 2014), and even more attentive compared to the traditional subject pool samples (Hauser & Schwarz, 2016). Given the nature of the disruption event, participants anonymously recruited from online survey platform are free from confidential concerns and more willing to reveal their thoughts (Porter, Outlaw, Gale, & Cho, 2019). To achieve adequately qualified participants for this study we conducted several screening methods. In the recruiting message, it is clearly stated that only participants have working experience in the supply chain will be qualified for participating the study and paid. In addition, a qualifier of job function with "management" provided by MTurk was implemented to narrow down the manager role of the participants. Furthermore, industries the participants work in and length of working experience in the supply chain area were collected as control variable. With the use of attention check, recruiting requirement and qualification settings

as screening methods, proper panel of participants from MTurk can be by and large achieved (Sharpe Wessling, Huber, & Netzer, 2017).

Manipulation checks were performed, and manipulated factors were confirmed. For the first scenario, a question ("What is the size of the supplier?") was used to assess the supplier's perceived size. Response to the large supplier scenario was significantly higher ($M = 6.04$, $SD = 1.00$) than to the small supplier scenario ($M = 2.71$, $SD = 1.93$, $F(1,265) = 305.45$, $p < 0.001$). For the second scenario, the average of three items was used to assess competence as the perceived cause of failure: lack of skill, a competency issue, and insufficient knowledge. The average of three items was used to measure integrity as the cause: intentional, dishonest, and a disruption of principles. Response on the competency scale was significantly higher in the competence treatment ($M = 5.34$, $SD = 1.03$) than in the integrity treatment ($M = 4.58$, $SD = 1.54$, $F(1,265) = 21.82$, $p < 0.001$). Response on the integrity scale was significantly higher for the integrity treatment ($M = 5.49$, $SD = 1.21$) than for the competence treatment ($M = 4.48$, $SD = 1.63$, $F(1,265) = 33.88$, $p < 0.001$). All items used in the manipulation checks were assessed on a seven-point Likert scale.

A realism check assesses the extent to which participants find the scenarios provided to be realistic and believable and whether participants can relate the scenarios to real life (Rungtusanatham et al., 2011). More specifically, participants were asked to assess their agreement or disagreement with the three statements: "I found the situation described in the scenario to be realistic", "I believe the situation described in the scenario could happen in real life", and "I took my

assumed role seriously while conducting the survey”. The average of three items was used to assess the perceived level of realism on a seven-point Likert scale. Based on the realism check question, our participants agreed that the study's design was realistic ($M = 5.84$, $SD = 0.85$).

Measurement and Model Assessment

In addition to the manipulation and realism checks, several multi- and single-item variables were included in this study. To determine size asymmetry's and disruption type's impact on buyer-supplier relationships, we measured buyers' commitment to the supplier causing the disruption and the buyers' preferred resolution strategies. The multi-item variable was used to measure commitment and was adopted from previously validated scales from Gray and Handley (2011). The single-item variable for measuring mediated power was adapted from the multi-item scales from Handley and Benton (2012). The items for the multi-item scales are presented in Appendix B, and single-item variables are summarized below.

As each of the power bases was measured by a single-item question, common method bias could exist and threaten the analysis (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To minimize the likelihood of such bias, we ensured all the participants' confidentiality, randomized the order of specific questions, located measurement of independent and dependent variables separately within the survey, and clarified the scales via a pilot test (Podsakoff et al., 2003). Moreover, we conducted a supplementary CFA incorporating an additional, unmeasured

methods factor and the hypothesized factors (Podsakoff et al., 2003) to estimate the possibility of common method bias. As a result, each item continued to load significantly on its intended construct ($p < .001$). While we cannot conclude that our analysis is entirely free from common method bias, these designs and assessments leave us with less concern about such bias in this research.

Control variables were included in the model to account for their potentially confounding influence on the analysis. *Length of working experience* was measured by a single-item question asking the amount of time (in years) the participants had worked in the supply chain area. Demographic information such as age, gender, education level were collected. Descriptive statistics and correlations among all study variables are presented in Table 2.

To evaluate the multi-item scales used in the model (commitment), a confirmatory factor analysis (CFA) was conducted in Mplus 8.5. Overall, measurement model fit is acceptable based on several model fit indices (RMSEA=0.10 with 90% CI:0.051, 0.159; $\chi^2/df=7.30$; CFI=0.99; TLI=0.98; SRMR=0.01) after eliminating 36 attention check failures (N=230). Convergent validity was reflected by the significant loadings of all the construct commitment's items (see Appendix B). Reliability for our multi-item construct commitment was strongly confirmed by Cronbach's alpha value (0.94>0.70), composite reliability (0.96>0.60), and average variance extracted (AVE: 0.85>0.50) (Bagozzi & Yi, 1988; Carmines & Zeller, 1979; Fornell & Larcker, 1981).

Analysis and Results

Linear regression analysis and PROCESS Model 4 and Model 1 with 5,000 bootstrap samples were used to test our hypotheses (Hayes & Little, 2018). PROCESS macros from Hayes (2018) are often used to estimate simple and advanced statistical models, such as moderating and mediating models used in research. Supplier size (binary variable: 1=large buyer with large supplier/0=large buyer with a small supplier) was used as the independent variable. Commitment, mediated power (average of all bases), and individual power bases were used as dependent variables. Table 3 summarizes the regression results.

Results in Table 3 suggest that supplier size positively affects a large buyer's preference for mediated power, particularly reward, in a supplier-induced disruption, which is the opposite result of what is predicted in Hypothesis 1. We predict in H1 that the large buyer would prefer more to use mediated power with small suppliers than with large suppliers whereas we find that large buyer would prefer more to use mediated power with large suppliers than small suppliers. Thus, Hypothesis 1 is not supported.

In H2, we predict that the commitment mediates the relations between supplier size and buyer's preference for mediated power, measured jointly and individually. To test H2, we ran the supplier size's indirect effects on the preference for mediated power through commitment using PROCESS Model 4. Results suggest that supplier size (large vs. small) significantly impacts a large buyer's preferred use of mediated power with an effect size of 0.18 with 95% CI [.07,.31] through this buyer's commitment to its supplier. Specifically, the supplier size's

indirect effects on both reward and monitor are significant with an effect size of 0.46 and 0.10 with 95% CI [.18,.74] and [.01,.23], respectively. However, the supplier size's indirect effect on the use of coercive power is not significant (-.019, 95% CI [-.10,.08]). Therefore, Hypothesis 2 is partially supported.

Linear regression results of disruption type's effect on commitment and mediated power bases are summarized in Table 4. In H3a, we predict that integrity disruption damages more to the larger buyer's commitment than competence disruption does. The finding confirms that integrity disruption damages the commitment significantly more than competence disruption does at a p-value level of 0.05. In H3b, we predict that integrity disruption strengthens the large buyer's preference of mediated power than competence disruption does, but the regression analysis is not significant. Hypothesis 3a is supported, but 3b is not.

In H4a and H4b, we test the interaction between supplier size and disruption type and predict that Integrity disruption damage more to a large buyer's commitment to a large supplier than to a small supplier (H4a), and integrity disruption strengthens a large buyer's willingness to exert mediated power—coercive, legal legitimate, and reward strategies—on a large supplier than on a small supplier (H4b). To test H4a and H4b, we ran PROCESS Model 1. Summarized in Table 5, regression results suggest that the interaction does not significantly affect commitment or preferred mediated power. H4a and H4b are not supported. However, supplier size's conditional effects on preferred use of mediated power with effect size of .34 and 95% CI [.02,.66], particularly reward

with effect size of 1.12 and 95% CI [.49,1.75], are significant in an integrity disruption but not in a competence disruption.

Discussion

Implications

While size asymmetry has been discussed in managing buyer-supplier relationships, discussions tend to be limited to one pair (large buyer and small supplier *or* small buyer and large supplier) of the relationship and under a normal (i.e., no disruption) circumstance (Lee & Johnson, 2012). Large buying firms often have a complex supply chain network including diversified supplying organizations. We enhanced the discussion of supplier size's effect by including both large and small suppliers. Furthermore, we identified the boundary conditions (i.e., supplier-induced disruption type) by which supplier size's effect would or would not hold. Grounded in commitment-trust theory, our scenario-based experiments tested commitment's key mediating role in buyer-supplier relationships in supplier-induced disruptions.

Our findings provide several interesting insights. First, while Handley and Benton (2012) suggested that the buyers would exert less mediated power on large suppliers (thus posing greater switching difficulties), we show that large buyers prefer to rely on more of the mediated power when dealing with large suppliers compared to small ones in a supplier-induced disruption. In a non-disrupted day, buyers would be more concerned with the large suppliers' commitment due to higher dependence, thus reducing the use of mediated power,

which often negatively affects commitment (Benton & Maloni, 2005; Hunt and Nevin, 1974). In fact, we confirmed that buyers remain more committed to large suppliers (compared to small suppliers) even when those suppliers cause disruptions; such commitment can be the result of dependence and switching difficulties (Handley & Benton, 2012). However, when a supplier-induced disruption occurs, buyers may attribute cause to the suppliers' opportunistic behaviors. Compared to small suppliers, large suppliers tend to share less information and are perceived as being more opportunistic (Villena & Craighead, 2017). Large buyers may be well aware of that tendency and suspect that large suppliers' opportunistic behaviors are behind the disruption; thus, those buyers prefer to exert mediated power on large suppliers. Furthermore, large buyers are also more dependent on large suppliers; therefore, a reward strategy may be adopted to influence and control the large suppliers but not to be punitive. We believe this result reveals boundary conditions in exerting mediated power and also indicates the need for further examining the psychological rationale behind those boundaries.

Second, while firm size has been suggested to be associated with many buyer-supplier relationship characteristics, such as trust, power, dependence, commitment, or knowledge in smooth operations (Gundlach, Achrol, & Mentzer, 1995; Johnson & Ford, 2008; Lee & Johnson, 2012; Morgan & Hunt, 1994), the literature is largely silent about firm size's impact when buyer-supplier exchanges are disrupted. One exception in the literature is Cheng et al. (2019, demonstrating that in a supplier-induced event, the effectiveness of supplier's recovery actions is

related to the buyer's perception of supplier dependence. Based on commitment-trust theory, we used supplier size as the antecedent and mediated power as the outcome to examine commitment's mediating role in a disruption context. Our finding confirms that the positive connection between a supplier firm's size and a buyer's commitment to the relationship still holds in a disrupted situation (Holmlund & Kock, 1996). Furthermore, we found that the positive connection between a supplier firm's size and the use of mediated power is effective, mediated by buyer commitment. Complementing the discussion about the resolutions' effectiveness, we show that the preference of the buyer (i.e., the victim) in resolving the disruption is dependent on supplier size, mediated by buyer commitment.

Third, while the disruption type has been studied as a critical factor that deteriorates to varying degrees the buyer-supplier relationship (Dirks et al. 2009), we took an additional step in investigating the disruption type's interaction with supplier size. Our results show that integrity disruption has stronger negative effects on commitment than competence disruption does, thus providing empirical evidence of the effects of disruption types (Dirks et al., 2011). Although the interaction between disruption type and supplier size is not significant in testing the effect of supplier size, the conditional effect of supplier on mediated power only holds in an integrity disruption. On the one hand, this finding confirms that large buyers perceive integrity disruption as a more severe event (compared to competence disruption) and attribute the cause to dishonesty and low integrity, thus significantly reducing commitment. Moreover, the connection between supplier size and mediated power only holds true in an integrity disruption, thus

strengthening that disruption's salient role. On the other hand, the buyer would not have a different preference regarding the use of mediated power under a different type of disruption. The disconnect between the disruption type's impact on the buyer's commitment and preferred use of mediated power needs to be further researched.

Finally, our research provides managerial insights for both suppliers and buyers. Given the diversity of a large buyer's supply base and the frequency of supplier-induced disruptions, both buyers and suppliers should work to be aware of and manage their relationships. Large suppliers should recognize that although buyer's commitment to them may remain relatively higher than to small suppliers in a supplier-induced disruption, buyers may prefer to use mediated power strategies, particularly rewards, with them. Although they may not be true "rewards," their selection could indicate that the buyer intends to exert influence and control over large suppliers and that an integrity disruption's effect is more salient. Small suppliers should be aware of their disadvantages in terms of lower buyer commitment compared to large suppliers' when both small and large suppliers cause disruptions. Given the knowledge of the perceptions of buyers and the resolution they may initiate, both large and small suppliers should be able to more effectively communicate with buyers in coping with a supplier-induced disruption. In addition, our research offers large buyers insights for designing their supply base and resilience plans based on their supply chain's risk levels.

Limitations and Future Research

Our findings' limitations should also be considered. First, although our experiment design may be internally valid with controls and manipulated scenarios, the scenarios' general description cannot fully capture all the characteristics in real cases, which would lose external validity and generalizability in specific industries. Observational or archival data regarding buyers' real actions after supplier-induced disruptions can be used to complement our study. Second, using a single individual to represent the buying firm's decision-making manager is one limitation. This approach has been largely adopted in SCM research to evaluate interpersonal trust, interorganizational trust, and psychological contract over-fulfilment (Bachrach & Bendoly, 2011; Esslinger et al., 2019; Kaufmann et al., 2018). We acknowledge our design's shortcomings and encourage future researchers to replicate real decision-making processes by incorporating team-oriented discussions. Third, providing participants two descriptive scenarios may not have eliminated or captured the responses' potential bias. Future researchers could use visualization techniques (e.g., video of simulated scenarios) in their experiment design to help participants place themselves in the designed scenario. Fourth, while we presented the scenarios sequentially, we were unable to capture all the changes in perception before, during, and after the disruption. Future studies could use longitudinal designs with multistage experiments to better infer causality. Fifth, we used binary variables to measure supplier size and disruption type which may result in potential oversimplification. Future research can use continuous variables for measuring supplier size and disruption type to ensure the

depth of the information captured by the participants. Finally, we provided a one-sided opinion (i.e., of a large buyer) and disregarded the opinions of three potential parties (large supplier, small buyer, and small supplier) in a dyad relationship. The voices from all sides are worth hearing to achieve a comprehensive understanding of all parties' reactions.

We believe several other research paths could be developed based on this current research. Future studies could extend commitment-trust theory in a disruption setting by incorporating other psychological constructs to enrich the understanding of decision-making processes and psychological reasons leading to the outcomes. This approach could contribute to not only the theory but also the supply chain field. Incorporating other related psychological constructs could better bridge the antecedents by capturing more psychological changes, thus better explaining the reason behind various outcomes and performances in various contexts. Specifically, dynamic contexts are common in the supply chain world; thus, a deeper understanding of the potential reactions in a supplier-induced disruption would be insightful for both researchers and practitioners. Furthermore, while our study has captured certain psychological reasons and behaviors in a disruption context, much more research is needed before we can fully understand the rationale involved. Therefore, we encourage researchers to consider qualitative studies that would capture rich data in interpreting real supply chain managers' perceptions and decision-making processes, thus providing a deeper and wider understanding of the inter-organizational relationships in a supplier-induced disruption.

**CHAPTER II - ESSAY 2 – SIZE ASYMMETRY IN BUYER-SUPPLIER
RELATIONSHIPS: LITERATURE OVERVIEW, CHALLENGES, AND
OPPORTUNITIES**

Abstract

While firm size has often been included as a default control variable for inter-organizational relationship studies, little is known about the role of a firm's size, particularly size asymmetry, in affecting buyer-supplier relationships. This essay evaluates current literature on firm size's role in buyer-supplier relationships. We first discuss size asymmetry's effect as discussed in supply chain literature. Second, we offer an overview of literature on size asymmetry in buyer-supplier relationships. Third, we provide suggestions for future research on size asymmetry, particularly involving supply chain disruptions. Last, we discuss challenges associated with measuring the firm size and collecting data in size asymmetry settings and provide recommendations to address related issues.

Introduction

Size asymmetry is a critical indicator in analyzing buyer-supplier relationships (BSRs). For an individual firm, firm size directly implies a firm's access to internal and external resources, constraints, capacities, and growth strategy resulting from managerial decisions; it indirectly moderates the firm's inventory leanness, operational efficiency, and sustainability development (Cao & Zhang, 2011; Chuang, Oliva, & Heim, 2019). For different size firms in a buyer-supplier exchange, size asymmetry simplifies the complexity of the inter-organizational relationship. In the research on BSRs, size asymmetry has been associated with other relationship characteristics, such as mutuality, conflict, interpersonal inconsistency, intensity, power, and dependence (Lee & Johnson,

2012; Ford & Saren, 2001; Gulati & Sytch, 2007; Gundlach, Achrol, & Mentzer, 1995). Moreover, Villena and Craighead (2017) examine how size asymmetry impacts opportunism and performance in BSRs. With only a few exceptions, the size asymmetry's degree and directions are included and studied for buyers and suppliers (Villena & Craighead, 2017; Wang & Gerchak, 2003). Prior studies (Avittathur & Swamidass, 2007; Johnson & Ford, 2008; Lee & Johnson, 2012) primarily focus on one type of the size asymmetric relationship (e.g., larger buyers and smaller suppliers). In a size asymmetrical study, researchers often merely use size asymmetry as a context setting due to the convenience of available data (Devalkar & Krishnan, 2019; Lee & Klassen, 2008). Therefore, size asymmetry, one of the most simple but indicative factors, largely exists in BSRs yet is also surprisingly overlooked.

It is important to understand (a) the concept of asymmetry because asymmetric relationships are considered highly risky with inherent instability (Kumar, Scheer, & Steenkamp, 1995; Thomas & Esper, 2010) and (b) the different ways that asymmetries are captured and examined in the literature. Power imbalance (a) exists when firm A is more dependent on firm B than B on A and (b) influences sustainability development, supply chain collaboration, adaptation, and other buyer-supplier relationship performance and qualities (Casciaro & Piskorski, 2005; Nyaga, Lynch, Marshal, & Ambrose, 2013; Touboulic, Chicksand & Walker, 2012). While Brinkhoff, Ozer, and Sargut (2014) have suggested that asymmetric dependence negatively affects trust and has no effect on supply chain project success, Gulati and Sytch (2007) recommend considering the overall value

generated through power and dependence asymmetry. *Asymmetric trust*, the dyadic level of each party's trust depending on the degree and direction, is suggested to disrupt the joint performance of the inter-organizational relationship (Tomlinson, Dineen, & Lewicki, 2009). Information asymmetry between two parties can significantly impact one party's choice of contracts, such as quantity discount and wholesale price contracts, managing supplier quality, and delivery efficiency (Biwas, Avittathur, & Chatterjee, 2016; Cachon & Zhang, 2006; Corbett, Zhou, & Tang, 2004; Corbett & De Groote, 2000; Nikoofal & Gumus, 2018). *Demand asymmetry*, defined as a buyer's biases in assessing the offering from different suppliers (i.e., incumbent challenger suppliers) and caused by the buyer's switching inertia, significantly affects the buyer's supplier selection decisions (Li, Madhok, Plaschka, & Verma, 2006). Yet, one of the most simple and salient asymmetries – size – in BSRs is oftentimes overlooked. Therefore, this essay's two primary objectives are (a) to synthesize the extant body of literature on size asymmetry in BSRs and highlight the importance of scholarly inquiry and (b) to systematically identify key empirical, methodological, and theoretical opportunities and challenges in order to enhance our understanding size asymmetry's role in BSRs.

Overview of the Literature

Rather than providing an extensive literature review, this essay highlights the salient distinctions of firm size's measurements and size asymmetry's role in BSRs studies. First, we focus on the measurement methods researchers refer to

when they discuss size asymmetry (i.e., large vs. small firms). Moreover, we identify the following roles of size asymmetry discussed in BSRs literature: context-setting element, moderating variable, control variable, and main indicator. In Table 6, we provide an overview of seminal papers (from the leading journals in supply chain management suggested by SCM Journal List) discussing size asymmetry in BRSs.

Measurement of firm size.

The measurement of firm size speaks to the criteria used to distinguish large, medium, and small buyer and supplier firms. More than half the studies about size asymmetry use the number of employees when assessing size; but the threshold adopted in the research varies across industries, regions, and methodologies. For example, Soundararajan and Brammer (2018) selected small sub-suppliers operating in the South Indian garment industry with fewer than 100 workers. Nassimbeni (2003) follows the Italian regulation on the eyewear district and defines small suppliers as those with fewer than 22 employees. When the number of suppliers is enormous in a certain setting (e.g., overall manufacturing sector), researchers tend to bundle the small and medium firms together for analysis. For example, firms with fewer than 500 employees are considered small- and medium-size enterprises in Canada (Larson, Carr, & Dhariwal, 2005), whereas 300 are considered the cut-off point for small- and medium-size enterprises in South Korea (Kim, Hur, & Schoenherr, 2015). To improve the quality of key informants likely possessing substantial knowledge of the focal firm's BSRs,

Schoenherr, Griffith and Chandra (2014) categorized the firms with fewer than 50 employees as small- and medium-size enterprises. Moreover, while a firm's size is often measured as a continuous variable in modelling studies (Wang & Gerchak, 2003), a more salient threshold was adopted in the vignette-based experimental work with a small firm of 70 employees and a large firm of 15,200 employees in the chemical industry to distinguish firm size (Hartmann & Moeller, 2014). By assessing firm size's rudimentary characteristic (i.e., the number of employees), the aforementioned papers offer valuable insights into potential room for unifying the firm-size category based on the number of employees for research and regulation purposes.

While the number of employees is the most frequently used measurement of firm size in BSRs literature, sales and revenue, order quantity, capacity and cost structure, and various combinations are often adopted to distinguish between large and small firms. Using firm sales, often represented by the calculated sales' logarithmic value given the objective measure's right-skewness, is the second-most frequent approach (Wagner, 2003; Villena & Craighead, 2017). A combination of number of employees and annual sales is suggested as a safer approach (Lee & Klassen, 2008). Interestingly, Avittathur and Swamidass (2007) categorize large and small suppliers based on the buyer's annual purchase, with a cut-off point at \$2 million. Different from the general employee number and/or sales approaches, studies employing mathematical modelling methodologies tend to distinguish between large and small firms by assessing a firm's capacity, production costs, operating costs, and other cost structures (Ozer and Raz, 2011;

Wang and Gerchak, 2003). The choice of criteria for firm size serves well for the choice of industry, region, and methodology for the research. Clearly, there is room for researchers to examine the validity of the use of criteria by replicating the extant research or comparing the influence of firm size's effect using various measurement methods.

Role of size asymmetry.

The firm size's role determines how size asymmetry is positioned and researched in BSRs studies. As noted in Table 6, size asymmetry in general serves as one of the following roles: context-setting element, moderating variable, control variable, or main indicator. When size asymmetry only serves as one of the context-setting elements, the firm size of buyers and suppliers is pre-determined and generally not analyzed. Having a size asymmetrical context setting is usually because (a) the data's availability (e.g., from Office Depot, a large supplier) required the authors to research small-size customers in Boyer and Olson (2003); (b) the industry's main structure (e.g., small and medium suppliers) represents most of the large buyers' customers (Kim et al., 2015); (a) suitable to the topic's focus, e.g., the important role of small- and medium-size enterprises in environmental performance is missing (Lee & Klassen, 2008). While authors usually justify the selection of the size asymmetric setting, they more often recognize the limitation of losing sight of BSRs' omitted size combinations (Kim et al., 2015). Furthermore, some papers control for firm size. In some situations, controlling for firm size does not yield statistical significance (Schoenherr et al.,

2014); however, more often it does (Cao & Zhang, 2011; Kim et al., 2015; Leung, Li, & Sun, 2020). This significance demonstrates that accounting for firm size is important and that more work should focus on it. Across the literature's hypotheses, firm size is tested for both main and moderating effects. For the main effect, supplier size is associated with differences in relationship exchanges (Larson et al., 2005). A firm's financial performance after its implementation of total quality management (TQM) (Hendricks & Singhal, 2001) and decentralized channel performance (Wang & Gerchak, 2003) are related to firm size. For the moderating effect, firm size conditions a firm's inventory leanness and operational efficiency (Chuang et al. 2019), supply chain collaboration, collaborative advantage, and firm performance (Cao & Zhang, 2011). These streams provide examples of the role firm size can play in an asymmetric BSR and, more importantly, emphasize that BSRs scholars should endeavor to expand understanding of size asymmetry's role. Moreover, almost all the conversations involving size asymmetry in BSRs are under a normal operation setting (i.e., no disruptions). It is even more critical to understand firm size's role in an asymmetric relationship when the supply chain is disrupted, the complexity is exponentially boosted, and the consequences can be devastating.

Suggestions for Future Research

Research opportunities emerge from our literature overview. In this section, we provide an agenda for future research paths by discussing three sets of

challenges and opportunities. Furthermore, we propose a series of research questions noteworthy for researchers to consider in addressing each topic.

Unifying the measurement of firm size.

It is surprising to observe the variety of criteria BSRs scholars use to distinguish between large and small firms in the literature. The number of employees as firm size's measurement is widely used by government administrations, such as the U.S. Small Business Administration. Even for studies using the number of employees, the cut-off point varies across studies and, mostly, regions. For example, one firm with 22 workers in Italy and one with 500 in Canada can both be considered referred "small firms" (Nassimbeni, 2003; Larson et al., 2005). Understandably, small and large firms can be relative concepts in different regions and industries. However, it is confusing to call a firm with 500 employees "small" when the company must have established a systematic management system compared with one that has 10 employees and the owner makes almost all the decisions.

The total assets, total sales, or median sales are the common measures widely used in corporate finance and adopted in many size asymmetry studies in BSRs (e.g., Villena & Craighead, 2017). Similar to using the number of employees, different thresholds of these financial values are employed in distinguishing between large and small firms. It is unrealistic to require all the researchers to follow one rule to identify size asymmetry, but the divergence of firm size's measurement and the importance of developing a unified handbook must be

recognized and addressed. Otherwise, we will create more issues when we discuss size asymmetry and mean different things. To assess and address this issue, we suggest that researchers examine the following question: *Do the effects hold when the extant literature is tested by using a different measurement of firm size?*

Firm size is indicative of a firm's structure and hierarchical system. While a small firm with a few employees only listens to one voice for most of its decisions, a large firm often has a purchasing or supplying team along with three managers to approve a single change. Efficiency of decision-making process can be largely related to the complexity level of the firm structures. Team-based supplier or buyer decision-making scenarios can often be found in practice; however, research has mostly focused on the organizational or personal level while tackling team-based interactions. As such, a study of inter-organizational buyer-supplier teams in a size asymmetrical relationship would offer tremendous insight.

Incorporating supply chain disruptions.

To date, the BSRs literature involving size asymmetry is limited in the operational context without disruption. Size asymmetry's role as a context element, moderator, control variable, and main indicator in BSRs has been largely studied in a non-disrupted condition; but little is known when the exchange is disrupted. Given the firm size's critical role in BSRs, especially when asymmetry exists, it is unclear how different-size buyers in a disruption scenario perceive the relationship and whether they react differently when facing different-size suppliers. Firm size

asymmetry implies the existence of power, dependence, and asymmetry in switching costs and difficulties, which all matter in coping with supply chain disruptions. Therefore, it is critical for researchers and practitioners to understand how the firms perceive, react, and resolve the supply chain disruption when size asymmetry is involved. Thus, we propose two questions to examine size asymmetry's effect in supply chain disruptions: (a) *How do different-sized buyers (suppliers) perceive, react to, and resolve working with different-size suppliers (buyers) in supply chain disruptions (supplier-induced disruption/buyer-induced disruption)?* (b) *What are the contingencies and their influence on firm size's effect in supply chain disruptions?*

Furthermore, a buyer-supplier relationship often involves more than just two parties: the buyer and the supplier. Specifically, supply chain disruptions are often caused by other forces, such as third-party logistics services, banks, intermediaries, and government. For example, a small supplier often has a small order and has to use a Less-Than-Truckload method to complete it. When a shortage of labor capacity occurs, the distribution center often prioritizes the Full-Truckload orders from large suppliers. In that situation, the delivery's delay is in fact caused by the distribution center, not the small supplier. It is important to understand how the buyer and the supplier in this scenario perceive and resolve this type of disruption. In a similar fashion, it is relevant how the buyer-supplier relationship is affected in a disruption when banks or government regulations are involved. Moreover, an intermediary plays a critical role of coordinating and harmonizing the buyer-supplier relationship by serving both a buyer and a supplier.

In a disrupted situation, intermediaries often proactively resolve the issue and sometimes absorb the loss to guard and secure the exchange. However, little is known about the intermediary's importance in a size asymmetric buyer-supplier relationship, especially when the supply chain is disrupted. We suggest that scholars investigate the roles of the aforementioned third parties involved in BSRs, both in a normal and a disrupted operation.

Seizing the empirical opportunities.

Extant literature involving size asymmetry tends to use case study and survey data with very few archival and modelling approaches. Mainly focusing on the case study and the survey limits the researchers' options due to the data access, one of the reasons the firm size's various criteria are used. Moreover, most of the studies, except a few modelling papers, focus only on one-sided size asymmetry, i.e., large buyers and small suppliers or large suppliers and small buyers. Villena and Craighead's (2017) study is the only one to date that has empirically examined all types of size asymmetry.

Despite the increasing number of empirical studies involving size asymmetry, researchers face empirical challenges. Experiments are suitable for tackling these empirical challenges. However, the experimental approach has been largely overlooked in the size asymmetrical BSRs field except for Hartmann and Moeller's (2014) paper. Experimental work enables authors to examine the validity of different measures of firm size and is particularly suitable for behavioral research in supply chain. Experiments allow researchers to overcome the

challenges of data collection, thus achieving academic goals with a complete data set containing all types of asymmetries to investigate the research topic holistically.

Conclusions

Although one of the basics of a firm's characteristics, firm size has been surprisingly overlooked in BSRs but is often assessed by scholars using various criteria. Moreover, size asymmetry's importance has been recognized as affecting the decisions and qualities of inter-organizational relationships, but it can be problematic and even misleading when people use the same term but refer to different measurements. Although size asymmetry's rudimentary role has been examined in terms of power and dependence, BSRs have evolved into an increasingly dynamic and complex stage. There is no longer a simple dyadic relationship between one buyer and one supplier; instead, the relationship involves more parties and often disrupted conditions. COVID as a major disruption is a reminder that the supply chain will always be disrupted and that researchers have plenty of opportunities to advance understandings of size asymmetry and how it affects BSRs in both a normal operation day and a disrupted situation. Therefore, we encourage scholars across disciplines to join in this discussion and contribute to build this body of knowledge.

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APPENDICES

Figure 1
Conceptual Framework

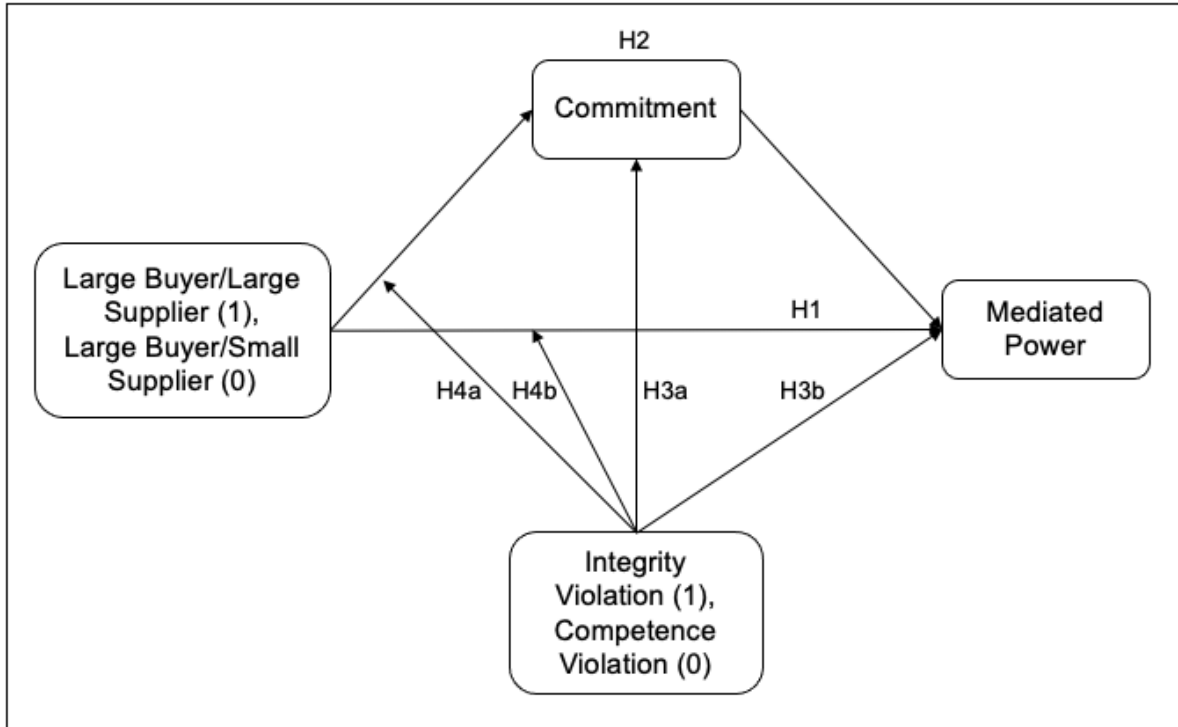


Table 1
Key Constructs Definitions

Construct	Definitions	Resources
Supplier size	<ul style="list-style-type: none"> Number of employees of the suppliers 	U.S. Small Business Administration
Disruption Type	<ul style="list-style-type: none"> Integrity: suppliers breaching values, principles, social norms Competence: supplier's lack of knowledge and technical skills 	(Kim, Dirks, Coopers, & Ferrin, 2004)
Commitment	<ul style="list-style-type: none"> Enduring desire to maintain the relationship 	Dwyer, Schurr, and Oh 1987; Morgan & Hunt, 1994
Mediated power	<ul style="list-style-type: none"> Using extrinsic motivation to exert influence on the target party Collaborative use of individual bases: coercive, reward, legal legitimate 	Benton & Maloni, 2005

Table 2
Descriptive Statistics and Correlations

	Mean	Std Dev	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
[1] Supplier size	.48	.50	1.00									
[2] Disruption type (1=integrity)	Manipulated		.06	1.00								
[3] Commitment	4.59	1.63	.21**	-.11	1.00							
[4] Reward	4.65	1.81	.21**	.02	.58**	.55**						
[5] Monitor	5.49	1.19	.02	.12	.22	.16**	1.00					
[6] Coercive	5.49	1.21	.02	.13*	.03	.04	.11	1.00				
[7] Gender	1.66	.48	.17**	.07	.13*	.12*	-.02	.03	1.00			
[8] Age	35.51	10.42	-.05	-.05	-.03	-.01	.08	.14*	-.17**	1.00		
[9] Work experience	10.45	8.91	-.18**	.03	-.36**	-.33**	.02	.06	-.14*	.68**	1.00	
[10] Education	4.04	.78	.07	-.14*	.36**	.32**	.04	.08	.02	-.00	-.26**	1.00

Note:

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.005 level (2-tailed).

Table 3
Linear Regression Results

	DV: Mediated power	p-value	DV: Reward	p-value	DV: Monitor	p-value	DV: Coercive	p-value
Constant	5.02(.08)	.000	4.15(.16)	.000	5.45(.11)	.000	5.46(.11)	.000
Large buyer/ large supplier (1)	.29(.12)	.017	.85(.24)	.000	.04(.16)	.807	-.02(.16)	.921
F-value (df)	5.76 (1,228)	.017	12.81 (1,228)	.000	.06 (1,228)	.807	.10 (1,228)	.921
R ²	.03		.05		.00		.00	

Note: Standard errors are presented in parentheses.

Table 4
Linear Regression Results

	Model c		Model d		Model e		Model f		Model g	
	DV: Commitment	p-value	DV: Mediated power	p-value	DV: Reward	p-value	DV: Monitor	p-value	DV: Coercive	p-value
Constant	4.73(.16)	.000	5.06(.09)	.000	4.54(.18)	.000	5.32(.12)	.000	5.31(.12)	.000
Integrity disruption (1)	-.49(.22)	.026	.17(.12)	.160	.01(.24)	.970	.26(.16)	.101	.25(.16)	.128
F-value (df)	5.02 (1,228)	.026	1.99 (1,228)	.160	.00 (1,228)	.970	2.71 (1,228)	.101	2.33 (1,228)	.128
R ²	.02		.01		.00		.01		.01	

Note: Standard errors are presented in parentheses.

Table 5
PROCESS Model 1 Regression Results

	Model e		Model f		DV:	p-	DV:	p-	DV:	p-
	Commitment	value	Mediated power	value	Reward	value	Monitor	value	Coercive	value
Constant	4.41(.21)	.000	5.02(.08)	.000	4.31(.23)	.000	5.28(.16)	.000	5.31(.16)	.000
Large buyer/ large supplier (1)	.71(.31)	.024	.21(.18)	.238	.52(.35)	.140	.11(.24)	.650	.01(.24)	.971
Integrity disruption (1)	-.54(.28)	.060	.10(.16)	.540	-.30(.32)	.362	.32(.22)	.136	.27(.22)	.215
Supplier size*disruption type	.08(.42)	.858	.13(.24)	.585	.60(.48)	.209	-.14(.32)	.660	-.06(.32)	.853
F-value (df)	6.02 (3,226)	.000	2.62 (3,226)	.051	4.79 (3,226)	.003	.97 (3,226)	.407	.78 (3,226)	.502
R ²	.07		.03		.06		.01		.01	

Note: Standard errors are presented in parentheses.

Table 6
Overview of Representative Papers about Size Asymmetry in BSRs

Authors, Year	Journal	Supplier size	Buyer size	Size measure	Theoretical Lens / Literature Bases	Context	Role of Firm Size
Touboulic, Chicksand, & Walker, 2014	DS	Small and Medium	Large	# of employees and annual turnover	Power, RDT	Single-case study on a power imbalance's effect on supplier sustainability adoption	Context setting (i.e., firm size pre-selected or pre-determined but not analyzed in the paper)
Schoenherr, Griffith, & Chandra, 2014	JBL	Small and Medium	Small & Medium	# of employees		195 surveys on SC knowledge management	Controlled for firm size, not significant
Kim, Hur, & Schoenherr, 2015	JSCM	Small and Medium	Large	Natural logarithm of the # of employees	Motivation– Opportunity– Ability (MOA)	137 surveys on the effectiveness of buyer-driven knowledge-transfer activities	Controlled for buyer firm size, significantly improved the model
Larson, Carr, & Dhariwa, 2005	JSCM	Small vs. Large		# of employees	Relational Exchange	Literature review and 183 surveys	Main effect: the differences in relational exchange are due to supplier size.
Wagner, 2003	JSCM		Large	Natural logarithm of the firms' annual sales		173 surveys on supplier integration	Main effect: firm size positively related to supplier integration efforts, not significant (only large firms included)
Avittathur & Swamidass, 2007	JOM	Small	Large	Revenue		26 surveys about the flexibility of manufacturers and their small suppliers	Context setting: profitability associated with small supplier's flexibility
Cao & Zhang, 2011	JOM	Small, Medium, and Large		# of employees	TCE, RBV, Relational View,	Web-survey of U.S. manufacturing firms conducted	Moderation effect of firm size on the relationships among supply chain

					Extended RBV		collaboration, collaborative advantage, and firm performance
Hartmann & Moeller, 2014	JOM	Small and large		# of employees	Attribution Theory	Vignette-based experiments and surveys on responsibility attribution for unsustainable supplier behavior	Controlled for firm size, not significant
Hendricks & Singhal, 2001	JOM	Small vs. Large		Median sales		435 quality award winners are investigated in the effectiveness of total quality management (TQM)	Main effect: significantly and negatively associated with a financial performance from TQM
Koufteros, Cheng, & Lai, 2007	JOM	Small vs. Large		# of employees	Social Network Theory	Firm size's moderating role	Moderation effect: significant negative effect of small firms on black-box integration but no effect of large firms
Nassimbeni, 2003	JOM	Small	Large	# of employees		Interviews with 5 buyers and 49 surveys from suppliers	Controlled for firm size, not significant Differences in opportunities are observed. Large suppliers are favored in new technologies and the global economy.
Soundararajana & Brammer, 2018	JOM	Small	Large	# of employees	Theory of Bounded Self-interest	A longitudinal multiple case study about sub-supplier responses to social sustainability requirements of intermediaries	Context setting: small sub-supplies selected The study focuses on the influence of framing social sustainability requirements on small sub-supplier behaviors.
Wang & Gerchak, 2003	MSOM	Small and Large	Small and Large (Asymmetry)	Capacity	Modelling	Centralized and decentralized equilibrium capacities under game settings	Main effect: decentralized channel performance associated with firm size
Boyer & Olson, 2002	POM	Large	Small	# of employees		416 surveys from the small customers revealing the buyer-supplier relationships	Context setting
Chuang, Oliva, & Heim, 2019	POM		Small vs. Large	# of employees	Microeconomic Theory	Firm size as a moderator in inventory leanness and efficiency	Moderation effect on inventory leanness and operational efficiency
Devalkar & Krishnan, 2019	POM	Small	Large		Modelling	Trade credit's role in mitigating supply chain moral hazard	Context setting
Lee & Klassen, 2008	POM	Small and Medium	Large	# of employees and annual sales		Case studies about factors that improve environmental capabilities in SME over time	Context setting
Leung, Li, & Sun, 2020	POM	Small	Large	Mean total assets		Labor unions' bargaining power	Controlled for supplier firm's size, statistically significant

Ozer & Raz, 2011	POM	Small vs. Large			Modelling	SC sourcing contracts under information asymmetry, dealing with different-sized suppliers	Main effect: buyers' contracting decisions
Villena & Craighead, 2017	POM	Small and Large	Small and Large (Asymmetry)	Annual sales (sales' logarithmic value)	TCE and RDT	Surveys and archival from 106 buying firms	Main effect: perceived opportunism and performance

Footnote: *Decision Sciences (DS)*, *Journal of Business Logistics (JBL)*, *Journal of Supply Chain Management (JSCM)*, *Journal of Operations Management (JOM)*, *Management Science (MS)*, *Manufacturing & Service Operations Management (MSOM)*, and *Production & Operations Management (POM)*.

Appendix A

Treatment Vignettes

Scenario (Introduction)

Imagine you work as a buyer for a large company, which has more than 10,000 employees. The next pages will walk you through a business situation with one of your suppliers.

Scenario (Large vs. Small supplier)

Large Supplier

You have a large supplier who has more than 10,000 employees. In the past, this supplier has been reliable and competent. The products and services this supplier provides could be purchased from alternative suppliers that have already been approved.

Small Supplier

You have a small supplier who has less than 50 employees. In the past, this supplier has been reliable and competent. The products and services this supplier provides could be purchased from alternative suppliers that have already been approved.

Scenario (Competence vs. Integrity disruption)

Competence Disruption

Suppose the following situation has unfolded between you and the existing supplier. Recently, this supplier shipped a batch of defective products to your plant, resulting in your firm experiencing delays to your customers. It is the first time within the contractual history that this supplier created such an issue. The cause of this failure was traced back to the supplier's incorporation of raw materials that did not meet your specifications for the product. It has been conclusively determined that the supplier purchased lower-quality materials due to a lack of knowledge and expertise. Please answer the following questions regarding this issue.

Integrity Disruption

Suppose the following situation has unfolded between you and the existing supplier. Recently, this supplier shipped a batch of defective products to your plant, resulting in your firm experiencing delays to your customers. It is the first time within the contractual history that this supplier created such an issue. The cause of this failure was traced back to the supplier's incorporation of raw materials that did not meet your specifications for the product. It has been conclusively determined that the supplier purchased lower-quality materials in order to inflate their own margins by using this insufficient material. Please answer the following questions regarding this issue.

Appendix B

Multi- and Single- item Measures

Construct	Items	Std Loading
Commitment	1. We are committed to this supplier.	0.88
	2. Our firm is dedicated to this supplier.	0.92
	3. We are committed to the preservation of a good relationship	0.85
	4. We are devoted to this supplier.	0.92
Mediated Power		
Reward	5. Offer rewards if this supplier does not make similar mistakes again within the remaining contract period.	
Monitor	6. Ask only that your supplier fulfill their obligation to compensate for the costs involved strictly based on the contract.	
Coercive	7. Institute penalties against this supplier if they make similar mistakes again within the remaining contract period.	

Measures of overall model fit: $\chi^2/df = 7.30$; RMSEA=0.10, 90% CI [0.051, 0.159]; SRMR = 0.01; CFI = 0.99; TLI = 0.98.

Note:

1. *The anchor for each item is : 1 = Strongly disagree; 7 = Strongly agree.*
2. *All factor loadings are significant at $p < 0.001$.*

CHAPTER III – CONCLUSION

This dissertation contains two essays investigating the inter-organizational relationship. The purpose of this dissertation is to better understand the decision-making in buyer-supplier relationships contingent on various circumstances. Essay 1's findings enrich our understanding of perceptions of buyers dealing with large and small suppliers in a supplier-induced disruption. Buyers prefer to use mediated power with large suppliers than with small ones. This positive connection between the supplier's firm size and the buyer's preference in resolving the disruption is mediated by the buyer's commitment to the supplier. In addition, the type of disruption plays critical roles in affecting buyers' perceptions directly and influencing the supplier size's effectiveness. In response to the discussion of buyers' different reactions to the large and small suppliers in Essay 1, Essay 2 provides an overview of the literature about buyer-supplier relationships in a size asymmetric context. Synthesizing the literature, Essay 2 identifies the challenges in the size asymmetry literature and highlights the research opportunities presented in a research agenda. Evidence of the firm size in supplier-induced disruptions is provided in Essay 1, and a literature overview along with challenges and opportunities related to size asymmetry are offered for buyer-supplier relationship scholars. The following must be addressed: gaps in the studies of size asymmetry in a non-disruptive context and size asymmetry in a disrupted supply chain.

VITA

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