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*Dealing with Power in Buyer–Supplier Relationships – Perspectives on a Classic Topic*

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## **Preface**

*The measure of a man is what he does with power.*

*Plato (5<sup>th</sup>-4<sup>th</sup> century BC)*

Power is a natural aspect of human society. Human society is based on collaboration. Collaboration creates dependence. Dependence lends power to those on whom others are dependent.

In our twenty-first century context, human society is based on complex collaborations on a large scale. Almost every product we use is a result of collaborations of a network of organizations, which in turn are results of collaborations among individual organization members. Thus, the power of organizations emerges from others' dependence, resulting from collaboration.

Whereas power is a ubiquitous phenomenon, the exercise of power is an intentional act. An organization can use its power to influence another organization's behavior, to obtain favorable outcomes. In some cases, the use of power helps organizations capture or even create value; in other cases, the use of power leads to mistrust and a vicious circle of retaliation.

For more than half a century, marketing and supply chain management scholars have studied power among organizations that are involved in business relationships. Whereas the concept of inter-organizational relationships has been well established, the antecedents and consequences of the use of power are still underexplored.

This thesis tries to contribute to the power research in supply chain management by explaining organizations' decisions about the use of different types of power in different contexts. This thesis was written at the Chair of International Business & Supply Management at the WHU – Otto Beisheim School of Management in Vallendar, Germany.

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**Table of Contents**

<b>Preface</b> .....	<b>i</b>
<b>Acknowledgement</b> .....	<b>ii</b>
<b>Table of Contents</b> .....	<b>iii</b>
<b>List of Figures</b> .....	<b>vi</b>
<b>List of Tables</b> .....	<b>vii</b>
<b>List of Abbreviations</b> .....	<b>viii</b>
<b>1 Introduction</b> .....	<b>1</b>
<b>2 Multimarket Contact and the Use of Power in Buyer-Supplier Relationships</b> .....	<b>5</b>
2.1 Introduction .....	6
2.2 Theory and hypotheses .....	9
2.2.1 Resource advantage and the use of power .....	10
2.2.2 Multimarket contact and the use of power .....	11
2.2.2.1 A supplier perspective .....	12
2.2.2.2 A buyer perspective .....	14
2.3 Methodology .....	16
2.3.1 Vignette design and validation .....	17
2.3.1.1 Design and validation process .....	17
2.3.1.2 Manipulation treatments and checks.....	19
2.3.2 Sampling and data collection.....	19
2.3.2.1 Sampling process .....	19
2.3.2.2 Nonresponse biases .....	20
2.3.2.3 Sample characteristics.....	20
2.3.2.4 Realism check.....	21
2.3.2.5 Social desirability bias .....	21
2.3.3 Measurements.....	22
2.4 Results.....	24
2.5 Discussion .....	29
2.5.1 Theoretical implications .....	29
2.5.2 Managerial implications .....	30
2.5.3 Limitations and opportunities for further research.....	32
<b>3 Coercion and Retaliation in Supply Chain Relationships</b> .....	<b>35</b>

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3.1	Introduction .....	36
3.2	Theoretical foundation .....	41
3.2.1	The use of coercive power in supply chain relationships .....	41
3.2.2	The interdependence of coercive power use and retaliation .....	42
3.2.2.1	Economic motivations of retaliation .....	43
3.2.2.2	Social motivations of retaliation .....	44
3.2.3	The level of tolerance for the use of coercive power .....	45
3.3	The decision-making model of coercive power use .....	47
3.4	Implications of model results.....	52
3.4.1	Theory development by simulating the model .....	52
3.4.2	Practical implications .....	57
3.5	Conclusion, limitations, and future research .....	60
3.5.1	Considerations for empirical testing of the model.....	60
3.5.2	Refinement and extension of the model .....	61
3.5.3	Application of the newsvendor problem beyond supply chain management research .....	62
<b>4</b>	<b>Effectiveness of Power Use in Buyer–Supplier Negotiations: The Moderating Role of Negotiator Agreeableness.....</b>	<b>63</b>
4.1	Introduction .....	64
4.2	Theoretical background and hypotheses development.....	69
4.2.1	Value appropriation in buyer–supplier negotiations .....	69
4.2.2	The deliberate use of coercion and reward power in buyer–supplier negotiations.....	70
4.2.3	Moderating effects of negotiator agreeableness on the effectiveness of the use of power.....	71
4.3	Research methodology .....	76
4.3.1	Research design.....	76
4.3.2	Sample and data collection.....	76
4.3.3	Construct measures and control variables .....	77
4.4	Discussion and implications .....	88
4.5.1	Theoretical implications .....	88
4.5.2	Managerial implications .....	89
4.5	Limitations and future research opportunities.....	91

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<b>5</b>	<b>Closing Remarks</b> .....	<b>93</b>
<b>6</b>	<b>Bibliography</b> .....	<b>96</b>
<b>7</b>	<b>Appendix</b> .....	<b>116</b>
	Appendix 1: Buyer version of the vignette: scenario and manipulations .....	116
	Appendix 2: Supplier version of the vignette: scenario and manipulations .....	120
	Appendix 3: Affirmation – Statutory Declaration .....	124

**List of Figures**

**Figure 1:** ANOVA results: Comparison between buyer and supplier behavior of power use at different levels of multimarket contact. .... 26

**Figure 2:** Relationship between the focal firm's intensity of coercive power use and the partner firm's probability of retaliation. .... 43

**Figure 3:** The relationship between the probability of the partner firm's retaliation and the intensity of the focal firm's use of coercive power. .... 48

**Figure 4:** Simulated results of the focal firm's expected payoff<sup>a</sup>. .... 53

**Figure 5:** The focal firm's optimal intensity of coercive power use depending on varying means of the estimated tolerance level<sup>a</sup>. .... 54

**Figure 6:** The focal firm's optimal intensity of coercive power use depending on varying standard deviations of the estimated tolerance level<sup>a</sup>. .... 57



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**List of Tables**

<b>Table 1:</b> Industry distribution of the sample.....	21
<b>Table 2:</b> Measurement of the use of power.....	22
<b>Table 3:</b> Descriptive statistics .....	24
<b>Table 4:</b> ANOVAs for both supplier and buyer versions of the vignette <sup>a</sup> .....	25
<b>Table 5:</b> ANCOVA for the supplier vignette version <sup>a</sup> .....	27
<b>Table 6:</b> ANCOVA for the buyer vignette version <sup>a</sup> .....	27
<b>Table 7:</b> Summary of managerial implications.....	32
<b>Table 8:</b> Empirical findings on the outcomes of coercive power use in supply chains....	37
<b>Table 9:</b> A cumulative distribution function of tolerance level in a sample calculation..	58
<b>Table 10:</b> Measurement items, reliability, and validity.....	79
<b>Table 11:</b> Mean comparison between professional manager sample and student sample .....	81
<b>Table 12:</b> Mean, standard deviations, and mean comparison between buyer and supplier data.....	81
<b>Table 13:</b> Mean, standard deviations, and correlations of constructs.....	82
<b>Table 14:</b> Hierarchical regression results for negotiators on the buyer side.....	83
<b>Table 15:</b> Hierarchical regression results for negotiators on the supplier side .....	85

## List of Abbreviations

AGFI	Adjusted Goodness-of-Fit Index
ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
AVE	Average Variance Extracted
CFI	Comparative Fit Index
e.g.	Exempli Gratia
GFI	Goodness-of-Fit Index
i.e.	Id Est
NFI	Normed Fit Index
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
TLI	Tucker-Lewis Index

## 1 Introduction

Power has been a classic topic in sociology, economics, and business for decades (Weber, 1947; Emerson, 1962; Pfeffer & Salancik, 1978). Generally defined, power refers to one's ability to influence the behavior of another (Weber, 1947). In the context of buyer–supplier relationships, power can be understood as the ability of one firm (hereafter, the focal firm) to influence the behavior of another firm (hereafter, the partner firm) (Benton & Maloni, 2005; Handley & Benton, 2012b). A focal firm can use its power to influence a partner firm's behavior to obtain favorable outcomes, such as favorable terms, conditions, and delivery schedules of exchanged goods (Bastl, Johnson, & Choi, 2013).

Power researchers widely accept the concept that the power of a focal firm over a partner firm results from the dependence of the partner firm on the focal firm (Emerson, 1962; Brass & Burkhardt, 1993; Narasimhan, Nair, Griffith, Arlbjørn, & Bendoly, 2009). Such dependence usually results from the focal firm's control of resources that are important to the other firm, and for which the other firm lacks alternative sources (Emerson, 1962; Pfeffer & Salancik, 1978). Such resources can include access to markets (usually on the buyer's side) or to raw materials (usually on the supplier's side), or possession of patents or technologies. Because of differences in size, expertise, and availability of alternative business partners, firms in a buyer–supplier relationship might depend on each other to varying degrees (Nyaga, Lynch, Marshall, & Ambrose, 2013). This variation can lead to power asymmetry between a buyer and a supplier (Emerson, 1962; Belaya, Gagalyuk, & Hanf, 2009). The more powerful firm in a buyer–supplier relationship typically has greater potential to use its power on the less powerful firm than the less powerful firm has to do so (Gaski & Nevin, 1985).

Power researchers have focused on six major types of power that a focal firm can hold to influence a partner firm: reward, coercion, legal legitimate, referent, expert, and traditional legitimate powers (French & Raven, 1959; Maloni & Benton, 2000; Benton & Maloni, 2005). The first three types of power are often classified as mediated power because their effects on a partner firm are mediated by intentional actions of a focal firm, such as granting incentives (reward), threatening punishment (coercion), and initiating legal complaints (legal legitimate) (Maloni & Benton, 2000). In contrast, the effects of the latter three types of power are not mediated; rather, they result from a partner firm's own

desire for identification with this focal firm (referent power), by its perception of this focal firm's level of expertise (expert power), or by its perception of this focal firm's legitimation (legitimate power) (Benton & Maloni, 2005).

Although the concept of power has been well understood in the extant literature (e.g., Emerson, 1962; Brass & Burkhardt, 1993; Benton & Maloni, 2005; Nyaga et al., 2013), the antecedents and consequences of the use of power have received less attention thus far. This quasi-cumulative thesis aims to fill this void. The following three chapters apply a variety of methodologies to support theory development in the field of power in supply chain management research.

Following this introductory chapter, Chapter 2 addresses a structural antecedent of the use of power. Buyers and suppliers often have multiple business relationships with each other across different geographical and product markets, forming a potentially complex web of connections (Homburg, Workman Jr, & Jensen, 2002; Zupancic & Müllner, 2008; Trautmann, Turkulainen, Hartmann, & Bals, 2009). Prior research in strategic management has found that similar multimarket contact in horizontal relationships between competitors has important consequences for the firms' use of market power (Yu, Subramaniam, & Cannella, 2009; Ciliberto & Williams, 2014; Skilton & Bernardes, 2015). Chapter 2 tries to answer these research questions: Does multimarket contact influence buyers' and suppliers' use of mediated power? Does such influence differ for different types of mediated power, and does it differ depending on whether a firm is the buyer or supplier in the relationship?

Building on resource-advantage theory (Hunt & Davis, 2008; Hunt & Davis, 2012), this study proposes that multimarket contact between buyers and suppliers is linked to their respective propensity to use three types of mediated power in their relationships (i.e., reward, coercion, and legal legitimate) and that the effects of multimarket contact differ between buyers and suppliers. A vignette study with 143 purchasing managers and 137 business-to-business sales managers tests the developed hypotheses. The findings show that a higher level of multimarket contact encourages suppliers to use legal legitimate power to a greater extent and encourages buyers to use reward power to a greater extent but legal legitimate power to a lesser extent. This study extends the scope of resource-advantage theory from explaining and predicting differences in

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organizational performance (Hunt & Davis, 2008; Golicic, Fugate, & Davis, 2012) to explaining and predicting differences in organizational behavior.

Chapter 3 addresses the effectiveness of the use of coercive power. Literature on the use of coercive power in supply chain relationships remains inconclusive about whether coercion is an effective means for capturing value in the supply chain (e.g., Benton & Maloni, 2005; McCarter & Northcraft, 2007; Zhao, Huo, Flynn, & Yeung, 2008; Nyaga et al., 2013; Pulles, Veldman, Schiele, & Sierksma, 2014). This chapter suggests that this debate could be resolved by moving away from the predominant assumption of a linear relationship between coercion and its outcomes. Building on social exchange theory (Emerson, 1976; Cropanzano & Mitchell, 2005), this work posits that the relationship between the use of coercive power and the value captured by the power-using firm has an inverted U-shape.

Based on a mathematical model developed to analyze this decision-making problem and using an analogy to the well-known newsvendor problem, Chapter 3 shows how firms can determine the optimal intensity of coercive power use in supply chain relationships. The model suggests that this optimum level depends on a focal firm's estimation of a partner firm's tolerance level for the use of coercive power.

Chapter 4 addresses the role of individual personality in the effectiveness of the use of power. In any buyer–supplier relationship, negotiations are an important form of resource coordination and conflict resolution (Zachariassen, 2008; Bowles & Flynn, 2010; Thomas, Thomas, Manrodt, & Rutner, 2013; Thomas, Manrodt, & Eastman, 2015). A widely acknowledged means to appropriate value in buyer–supplier negotiations is the use of power (Kim, Pinkley, & Fragale, 2005; Williams & Moore, 2007; Daugherty, 2011). This chapter uses social exchange theory (Emerson, 1976; Cropanzano & Mitchell, 2005) and dual-system theory (Lieberman, Gaunt, Gilbert, & Trope, 2002; Hodgkinson & Healey, 2011; Welsh & Ordóñez, 2014; Healey, Vuori, & Hodgkinson, 2015) to investigate how a particular personality trait—agreeableness—moderates the effectiveness of using coercion and reward power to appropriate value in buyer–supplier negotiations.

Analyzing the results of negotiation simulations with 78 professional managers and 74 business school students, this study confirms that negotiators' agreeableness has significant moderating effects on the effectiveness of the use of coercion and reward power to appropriate value in buyer–supplier negotiations. Negotiators on both sides of

the dyad with high agreeableness use reward power more effectively than negotiators with low agreeableness. Supplier-side negotiators with low agreeableness use coercion power more effectively than those with high agreeableness. This study introduces dual-system theory to the supply chain management literature and suggests that supply chain management research can benefit from examining simultaneously the conscious decision processes of supply chain managers and the processes emanating from individual, subconscious differences among these managers.

Lastly, Chapter 5 summarizes the key findings and major contributions of this thesis and provides an overview of promising future research areas dealing with power in supply chain management research.

## 2 Multimarket Contact and the Use of Power in Buyer–Supplier Relationships <sup>1</sup>

Buyers and suppliers often have multiple business relationships with each other across different geographical and product markets, forming a potentially complex web of connections. What happens between the firms in one geographical or product market may influence their interactions in others. Prior research in strategic management has found that similar multimarket contact in horizontal relationships between competitors has important consequences for the firms' use of market power. However, the consequences of multimarket contact in vertical buyer–supplier relationships remain unexplored. Building on resource-advantage theory, this study proposes that multimarket contact between buyers and suppliers is linked to their respective propensity to use three types of mediated power in their relationships (i.e., reward, coercion, and legal legitimate) and that the effects of multimarket contact differ between buyers and suppliers. A vignette study with 143 purchasing managers and 137 business-to-business sales managers tests the developed hypotheses. The findings show that a higher level of multimarket contact encourages suppliers to use legal legitimate power to a greater extent and encourages buyers to use reward power to a greater extent but legal legitimate power to a lesser extent.

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<sup>1</sup> This chapter is based on the unpublished working paper “*Multimarket Contact and the Use of Power in Buyer–Supplier Relationships*” by Felix Reimann, Pei Shen, and Lutz Kaufmann. The article has been accepted by the *Journal of Business Logistics*.

## 2.1 Introduction

Large firms in the supply chain are frequently linked by multiple business relationships, across different geographical and product markets, forming a potentially complex web of connections between the two firms (Homburg et al., 2002; Zupancic & Müllner, 2008; Trautmann et al., 2009). Despite many firms' efforts to centralize their purchasing and marketing/sales activities, these buyer–supplier relationships are still often managed on the business-unit level (Wengler, Ehret, & Saab, 2006; Hartmann, Trautmann, & Jahns, 2008), making the exchanges on individual markets organizationally distinct but interconnected (Martin & Eisenhardt, 2010). What happens in the relationship between one of the firm's business units and a particular supplier or buyer may also influence the firm's interactions in other markets. For example, when a business unit considers using power to pressure a supply chain partner, to capture a larger share of value (Crook & Combs, 2007; Terpend & Krause, 2015), it also needs to take into account the other firm's potential reactions in other markets and the consequences for the overall relationship between the two firms.

The literature has investigated similar interdependencies between competitors, on a *horizontal* level under a concept called “multimarket contact” (for a comprehensive review, see Yu & Cannella, 2013). Studies in the strategic management literature have found that multimarket contact between competing firms has important consequences for competitive behavior, in that it reduces firms' propensity to use market power in each of the markets in which both firms do business (e.g., Yu et al., 2009; Ciliberto & Williams, 2014; Skilton & Bernardes, 2015). The reason, according to multimarket theory, is that fear of retaliation in other markets deters firms from aggressively using their power in any one market (Yu & Cannella, 2013).

For *vertical* buyer–supplier relationships, however, potential links between multimarket contact and power use still remain unexplored, even though the use of power is a common practice for claiming value in buyer–supplier relationships and an extensive field of literature has explored antecedents and consequences to the use of power in the supply chain (e.g., Maloni & Benton, 2000; Zhao et al., 2008; Handley & Benton, 2012a; Pulles et al., 2014). Given that multimarket contact is an important antecedent of power use in horizontal relationships between competitors, neglecting its potential impact on the use of power in the supply chain may limit understanding of how buyers and suppliers deal with each other and how their interactions evolve as their relationships become



more complex. Addressing this void, this study aims to introduce the notion of multimarket contact to the literature on power in the supply chain. In particular, it explores the following research questions: Does multimarket contact influence buyers' and suppliers' use of mediated power? Does such influence differ for different types of mediated power, and does it differ depending on whether a firm is the buyer or supplier in the respective relationship?

For this study, multimarket contact between buyers and suppliers refers to a situation in which at least two business units of a firm have business relationships with the same supply chain partner. A higher level of multimarket contact reflects a higher number of business unit relationship dyads between a buying firm and a supplying firm (Yu & Cannella, 2013). Power in buyer–supplier relationships represents the ability of one partner to influence the behavior of the other partner as a result of the latter's dependence on the former (Emerson, 1962; Narasimhan et al., 2009; Pulles et al., 2014). This study focuses on mediated power, such as reward, coercion, and legal legitimate power, because only these types of power can be consciously used by the involved firms (Handley & Benton, 2012b; Pulles et al., 2014).

An intuitive approach to predict the relationship between multimarket contact and power use in buyer–supplier relationships would be to draw analogies to previous findings on multimarket contact between competitors. From this analogy, one would expect that *both* buyers and suppliers reduce their power use uniformly when they share relationships on more markets. However, such an approach would neglect the structural differences between buyers and suppliers that cannot be captured with extant (horizontal) multimarket theory. Notably, buyers and suppliers usually have access to different resources and therefore also seek different, complementary resources from their supply chain partners (Priem & Swink, 2012), which in turn may lead to different considerations between the partners with regard to power use.

A perspective that acknowledges these differences is resource-advantage theory (Hunt & Morgan, 1995; 1996). Resource-advantage theory considers both product and factor markets (Hunt & Davis, 2012) and therefore can be the basis for a differentiated theorizing depending on whether the firm is in the position of a buyer or supplier in the respective relationship. By grounding the hypotheses in resource advantage theory, this research is novel in providing a theoretical explanation for differences in power use

between buyers and suppliers. Such differences have been reported empirically but not yet been integrated in theory development (e.g., Heide & Miner, 1992; Nyaga et al., 2013).

The developed hypotheses were tested using a vignette methodology, which is particularly suitable for investigating subtle decision-making processes, such as buyer–supplier interactions, and their influencing factors (e.g., Adams, Licht, & Sagiv, 2011; Hora & Klassen, 2013). The vignette approach helps isolate the effect of the investigated antecedent—in this case, the level of multimarket contact—and better control hypotheses testing (Rungtusanatham, Wallin, & Eckerd, 2011; Siemsen, 2011; Thomas et al., 2013).

In summary, this study aims to make three contributions to the study of power and the advancement of resource-advantage theory in the supply chain management literature. First, it makes inroads into understanding how *multimarket* contact can influence the relationship between buyers and suppliers, particularly with regard to the use of power. Second, this study advances resource-advantage theory, in that it can be used as a theoretical foundation to explain structural *differences* between buyer behavior and supplier behavior. Third, the study extends the scope of resource-advantage theory from explaining and predicting differences in organizational performance (Hunt & Davis, 2008; Golicic et al., 2012) to explaining and predicting differences in organizational *behavior*.

## 2.2 Theory and hypotheses

Resource-advantage theory stipulates that firms create and acquire comparative resource advantages in their efforts to gain competitive advantage and, ultimately, to achieve superior financial performance (Hunt & Morgan, 1995; Hunt & Davis, 2008). Resources here refer to “the tangible and intangible entities available to the organization that enable it to produce efficiently and/or effectively a market offering that has value for some market segment(s)” (Hunt & Davis, 2008, 13). Tangible resources are concrete, specific, and measurable (Cropanzano & Mitchell, 2005); intangible resources are less specific, are difficult to codify, and typically involve interpersonal exchanges (Pulles et al., 2014). A key tenet of resource-advantage theory is that firms demand their supply chain partners to allocate superior resources (i.e., better or more resources) to them rather than to their competitors (Pulles et al., 2014). If a supply chain member receives similar or even inferior resources from the supply chain relationship, these resources may still have value for the firm, in that they allow continued operations. However, only superior resource allocation is differentiating and thus can lead to competitive advantage (Hunt & Davis, 2012).

Research in the supply chain literature has so far primarily used resource-advantage theory to explain organizational performance differences. For example, Hunt and Davis (2008) argue that firms can achieve comparative advantage through a superior purchasing strategy, and Golicic et al. (2012) suggest that informational advantage can increase brand image and brand awareness. Although resource-advantage theory embraces both the resource-based view (Barney, 1991) and the demand-side perspective (Priem, 2007) by considering both product- and factor-market competition (Hunt & Davis, 2012), the core resource advantage literature has not yet clearly attributed which specific resources buyers and suppliers tend to seek in their respective supply chain relationships. However, these can be inferred from the broader supply chain management literature: Because the basic form of a buyer–supplier relationship is the exchange of physical products and services for financial revenues (Carter, Rogers, & Choi, 2015b), a common tangible resource that suppliers seek from buyers is financial revenues. Because quality, time to delivery, and cost are key performance measures in a buyer–supplier relationship (Kannan & Tan, 2002; Mahapatra, Das, & Narasimhan, 2012; Tanskanen & Aminoff, 2015), tangible resources that buyers usually seek from suppliers include parts

and services with a certain quality and delivery time. With regard to intangible resources, buyers typically have better access to downstream, product-market information, whereas suppliers have better access to upstream, factor-market information (Priem, Li, & Carr, 2012). Thus, intangible resources that buyers seek from suppliers can include factor-market information, part and process innovation, and contacts with lower-tier suppliers, whereas intangible resources that suppliers seek from a buyer can include product-market information, product innovation, and relationships with end customers (Pulles et al., 2014).

### **2.2.1 Resource advantage and the use of power**

One way for a firm to obtain superior resources from a supply chain partner is to deliberately use mediated power (Pulles et al., 2014). That is, a supply chain member can influence its partner by granting incentives (reward power), threatening punishment (coercion power), or executing its judiciary rights (legal legitimate power) (Nyaga et al., 2013). Although reward, coercion, and legal legitimate power all “rely on extrinsic forms of pressure to gain compliance from the power target” (Handley & Benton, 2012a, 58), recent studies have found that their use has different effects (Nyaga et al., 2013). The use of reward power is positively related to outcomes such as commitment (Zhao et al., 2008), collaborative and adaptive behavior (Nyaga et al., 2013), and relationship strength (Maloni & Benton, 2000; Benton & Maloni, 2005), while the use of coercion and legal legitimate power is negatively associated with these outcomes.

The use of reward power can “reinforce the relationship by enhancing the notion of reciprocity as stipulated in social exchange theory—the recipient of the reward will feel obligated to perform according to the expectations of the partner” (Nyaga et al., 2013, 49). As a result, such use can also increase the partner firm’s willingness to “invest financial, physical or relationship-based resources in a relationship” (Zhao et al., 2008, 370). Therefore, when a supply chain partner makes resource allocation decisions, it most likely allocates resources according to the expected benefits in return (Griffith, Harvey, & Lusch, 2006). As such, the use of reward power can help a supply chain member obtain superior allocation of both tangible and intangible resources from the partner (Pulles et al., 2014).

Despite potentially negative effects of the use of coercion and legal legitimate power, they are widely used in real-life buyer–supplier relationships (Maloni & Benton, 2000;

Benton & Maloni, 2005; Handley & Benton, 2012a; Nyaga et al., 2013; Pulles et al., 2014). Extant supply chain management literature provides two explanations for this phenomenon. First, the use of coercion and legal legitimate power can be deemed alternative means to contractual safeguards and monitoring mechanisms to exert control over supply chain partners (Handley & Benton, 2012b). Second, the use of coercion and legal legitimate power may be considered an escalation step if the use of reward power has not led to compliance (Gelderman, Semeijn, & De Zoete, 2008). As such, coercion and legal legitimate power can serve as means to enforce at least short-term compliance by the other party, while in the long run, they are likely to lead to a deterioration of the relationship (Kumar, 1996; Handley & Benton, 2012a). Therefore, when a partner business unit is confronted with coercion or legal legitimate power, it is likely to comply but not go beyond what is immediately necessary (Zhao et al., 2008). Because such compliance needs to be observable and measurable for both parties involved, the use of these two types of power can mostly achieve superior allocation of *tangible* resources. However, the use of coercion and legal legitimate power can reduce the partner firm's willingness to engage in voluntary and interpersonal exchanges (Zhao et al., 2008), which typically involve the allocation of *intangible* resources (Pulles et al., 2014).

Regardless of which type of power a firm uses to obtain comparative resource advantages, a trade-off between marginal costs of power use and benefits is required because the use of power is not for free. A major cost of using reward power is the provision of attractive incentives (Nyaga et al., 2013), whereas the cost of using coercion and legal legitimate power is the risk of reciprocation—not only in the same market but also in other markets of a buyer–supplier relationship (Cropanzano & Mitchell, 2005; Yu & Cannella, 2013).

### **2.2.2 Multimarket contact and the use of power**

Much of the literature on the use of power has treated the firms in a buyer–supplier relationship as two *monolithic* entities connected by a single point of contact (e.g., Zhao et al., 2008; Handley & Benton, 2012a; Pulles et al., 2014). This assumption is not fully in line with the reality that firms are often organized as loosely coupled business units, each focusing on different markets and supply chains (Martin & Eisenhardt, 2010; Enz & Lambert, 2014; Carter et al., 2015b). From the tenets of resource-advantage theory, it can be concluded that firms choose their use of power in a way that leads to superior

allocation of exactly the desired resources by the supply chain partner. As such, different levels of multimarket contact should lead to differences in power use, if the types of resources that buyers and suppliers seek in the relationship also vary with the level of multimarket contact. In the following, hypotheses on the relationship between multimarket contact and respective power use by suppliers and buyers are developed.

### **2.2.2.1 A supplier perspective**

When only a few business units of a supplying firm and a buying firm have relationships with each other, decision makers in the individual supplier business units may view the overall relationship as in an early stage, with substantial possibility for growth and expansion in the other markets (Guesalaga, 2014). According to the tenets of resource-advantage theory, the supplying firm may be able to increase the scope of superior tangible resource allocation by the buyer (e.g., higher purchasing volume at relatively high margins) if it can achieve a lock-in of the buying firm by building strong relational resources (Narasimhan et al., 2009; Hunt & Davis, 2012). Assuming that sales managers are incentivized to behave in the best interest of the supplying firm, they may offer a high level of rewards as an investment in the relationship resource, hoping for higher financial resources in the future. As Hunt and Davis (2008, 18) note, “it is not uncommon for suppliers to make short-term sacrifices in order to preserve profitable, long-term relationships with customers.” Given that reward power is effective in capturing intangible resources (e.g., relational resources) while coercion and legal legitimate power tend to be ineffective in this regard, it is likely that in low-multimarket situations, suppliers use more *reward power* and restrain the use of *coercion* and *legal legitimate power*.

A reverse assumption, in which each supplier business unit is driven more by self-interest than by the firm’s interests as a whole, still leads to similar conclusions on power use. If the supplying firm has only a few links with the buying firm overall, it might consider the acquisition of relational resources a priority in the buyer–supplier dyad (Hunt & Davis, 2012). Therefore, each supplier unit doing business with the buying firm will be careful not to endanger the existing relationship and be held accountable for a potential breakup. Furthermore, from a demand-side perspective, valuable information about product-market needs and preferences is a major driver of supplier innovation, which in turn creates competitive advantage for the supplier business unit (Priem et al.,

2012). Because “good relationships take time to develop” (Hunt, 1997, 440), relational and informational resources obtained from the buyer–supplier relationship are difficult or, at least, time consuming for rival suppliers to imitate or substitute and therefore can be of superior value. Thus, the supplier business unit is likely to restrain its use of *coercion* and *legal legitimate power* when the level of multimarket contact is low, so as not to impede the buyer’s willingness to invest in the relationship (Zhao et al., 2008). At the same time, it is likely to use *reward power* to obtain superior allocation of intangible resources, such as relational and informational resources, and to strengthen the relationship in the interests of the supplier business unit and the supplier firm as a whole.

When a supplying firm and a buying firm share manifold relationships across their business units, decision makers in the supplier business units might view the overall buyer–supplier relationship as in a more mature and secured stage, with substantial interdependencies between the two firms (Jayachandran, Gimeno, & Varadarajan, 1999). Therefore, the major concern of the business units will likely shift from securing and expanding the relationship to getting a fair share of the value generated (i.e., financial and other tangible resources) (Hunt & Davis, 2008). Again, this logic holds regardless of whether the supplier business units are more self-optimizing or concerned about the supplier firm as a whole—trying to capture an adequate share of the generated value in a mature, stable relationship is reasonable from both perspectives. Thus, the supplier business units are likely to be more willing to use *coercion* and *legal legitimate power* (which are particularly effective in securing tangible resources) than in a setting with a low level of multimarket contact. Gelderman et al. (2008, 226) find that suppliers prefer using available coercion and legal legitimate power when financial stakes are high because “especially hard coercive strategies [are considered as] very effective.”

Predicting how supplier business units’ use of reward power develops with increasing multimarket contact is more complex because opposing mechanics are conceivable. On the one hand, the need to invest in relational resources with the buying firm diminishes, suggesting a reduction of the relatively costly use of reward power. On the other hand, the expected use of coercion and legal legitimate power bears the risk of negative reciprocation (Heide & Miner, 1992; Cropanzano & Mitchell, 2005; Yu & Cannella, 2013). With a higher level of multimarket contact, a negative experience in one market is more likely to spoil the business relationship in other markets (Yu et al., 2009;

Skilton & Bernardes, 2015). The use of reward power, in addition to an increased use of coercion and legal legitimate power, may help mitigate this risk because it strengthens the relationship (Benton & Maloni, 2005), and the prospect of losing future rewards would be an opportunity cost to negative reciprocation (Heide & Miner, 1992). In addition, the supplier business units rely on the buying firm business units to obtain superior informational resources with regard to product markets, regardless of the level of multimarket contact (Pulles et al., 2014), which is facilitated by a higher level of reward power use. In summary, increasing multimarket contact may actually increase a supplier's use of *reward power* to protect the relationship from negative effects of the use of *coercion* and *legal legitimate power*. Thus:

**Hypothesis 1:** Increased multimarket contact leads to higher use of coercion power by suppliers.

**Hypothesis 2:** Increased multimarket contact leads to higher use of legal legitimate power by suppliers.

**Hypothesis 3:** Increased multimarket contact leads to higher use of reward power by suppliers.

#### 2.2.2.2 A buyer perspective

When only a few business units of a buying firm and a supplying firm have relationships with each other, purchasing managers in the individual buying firm units may view the links between the two firms as weaker and familiarity between the two firms as lower than when the two firms share many business relationships (Gulati, 1995). This situation may cause the buying business unit to have less confidence in the supplier's performance and adherence to the agreed-on standards (Liu, Li, Tao, & Wang, 2008). In addition, a lack of tight control might set precedence for future interactions between the buying firm and the supplying firm in both the current and other markets (Gelderman et al., 2008). Note that this need to establish strict standards in the relationship is much greater for buyers than for suppliers, because the tangible resources the buyers seek (e.g., parts, services) are usually more complex than the tangible resources the suppliers seek (e.g., financial revenues). Such complexity can provide suppliers with more opportunities for behavioral hazards (Handley & Benton, 2012a) and can cause buyers to rely more on the use of power (Handley & Benton, 2012b). Therefore, the buyer business unit might strive to set clear



guidelines and sanction mechanisms, so as not to give the impression of being a less demanding customer (Handley & Benton, 2012b). Thus, when the level of multimarket contact is low, the buying business unit might primarily be concerned about securing the allocation of superior tangible resources, thus employing relatively high levels of *coercion* and *legal legitimate power* (Pulles et al., 2014).

However, when a buying firm already sources from a supplier in many of the possible markets, it is likely that the supplier has already proved its competence and reliability and solid relational resources between the two firms have been developed (Hunt & Davis, 2012). The relatively broad scope of sourcing from the same supplier may lead the buyer business unit to perceive the supplier business unit as more familiar and thus increase trust in it (Gulati, 1995; Liu et al., 2008). Furthermore, the risk of reciprocation on the use of coercion and legal legitimate power increases with the level of multimarket contact (Yu & Cannella, 2013). At the same time, with increased confidence in obtaining superior allocation of tangible resources, the buyer business unit may turn its focus to obtaining superior allocation of more complex, intangible resources, such as innovative technologies or co-development (Pulles et al., 2014). Thus, the buyer business unit is likely to use less coercion and legal legitimate power when the level of multimarket contact is higher but more *reward power* to maintain the level of influence despite the reduced use of *coercion* and *legal legitimate power*. Thus:

**Hypothesis 4:** Increased multimarket contact leads to lower use of coercion power by buyers.

**Hypothesis 5:** Increased multimarket contact leads to lower use of legal legitimate power by buyers.

**Hypothesis 6:** Increased multimarket contact leads to higher use of reward power by buyers.

### **2.3 Methodology**

The hypotheses were tested with a vignette methodology among both purchasing managers and sales managers. The vignette methodology is—along with laboratory and field experiments—a form of behavioral experiment that can “provide a valuable opportunity to supplement findings from alternative empirical methods more prominent in the history of the field [of supply chain management], such as surveys, case studies and interviews” (Eckerd & Bendoly, 2011, 3). Vignettes, or scenario-based role-playing experiments, are short narratives that contain precise descriptions of a decision-making problem that invite respondents to step into the role of realistic characters and respond to hypothetical circumstances (Finch, 1987; Hora & Klassen, 2013). The vignette methodology is a frequently used approach to assess decision-making behavior in the operations and supply chain management field (e.g., Tangpong, Hung, & Ro, 2010; Rungtusanatham et al., 2011; Hora & Klassen, 2013). It was chosen for this research because it has three specific characteristics. First, because the scenarios are assigned randomly to respondents, it ensures that any omitted variables do not correlate with the manipulation (Siemsen, 2011; Thomas et al., 2013). Thus, the relationship between multimarket contact and the use of power can be tested isolated from other antecedents of power use. Second, it allows better control of hypotheses testing by providing standardized stimuli to all respondents, thus maximizing internal validity (Adams et al., 2011; Siemsen, 2011). Third, it allows for a more effective investigation of subtle, sensitive topics, such as the use of power in buyer–supplier relationships, than surveys on real-life behavior because “managers are often unwilling to share specific details of actual business relationships” (Thomas et al., 2013, 100).

Criticism of the vignette methodology is often directed at its simulated context (which is inherently a simplification of complex reality), the fact that non-representative respondents are frequently sampled (many vignettes resort to undergraduate students as respondents), and the design and wording of the vignettes when presented to respondents (being either too vague to provide sufficient context or too specific to leave room for unbiased responses) (Adams et al., 2011; Siemsen, 2011). All these issues were carefully addressed in this research. First, the vignette design and validation strictly followed Rungtusanatham et al. (2011) suggested process, in which elements of existing vignettes describing a buyer–supplier context were adopted and tested for external

validity with academic scholars and practitioners from the field of supply chain management. Second, experienced managers working in the relevant functions (purchasing and sales) served as respondents, to ensure that the responses to the simulated scenario closely resemble what decision makers would do in real-life settings. Third, realism and manipulation checks (Bachrach & Bendoly, 2011; Thomas et al., 2013) were applied to ensure that respondents actually received enough context to assess the scenarios, while not leading them to behave in one way or another (Adams et al., 2011).

### **2.3.1 Vignette design and validation**

#### **2.3.1.1 Design and validation process**

Because no vignettes existed on the use of power in buyer–supplier relationships, the vignettes used in this research were newly developed following Rungtusanatham et al.'s (2011) suggested three-stage approach: pre-design, design, and post-design. In the pre-design stage, extant literature on buyer–supplier relationships was reviewed to “get to know the context,” and empirical studies on the use of power and multimarket contact were reviewed to “get to know the factors of interest” (Rungtusanatham et al., 2011, 11).

In the design stage, elements from existing, proven vignettes in buyer–supplier relationship contexts were adopted (e.g., Tangpong et al., 2010; Thomas et al., 2013) to build the vignette story. In particular, the described scenarios gave respondents a relatively high power potential: The business unit they represented could rather easily switch to alternative supply chain partners, despite potential stickiness between a buyer and a supplier when exchanging complex and dynamic items (Bonner & Calantone, 2005). Because the use of power is limited by the power potential of a firm (Gaski & Nevin, 1985; Brass & Burkhardt, 1993), the scenarios gave respondents more freedom to decide, leaving room for greater variance. Furthermore, an established and proven set of measurements on the use of power from Maloni and Benton (2000) was used to assess the dependent variables. In the introduction of the vignette, respondents were asked to imagine themselves as a purchasing manager (for respondents who worked as purchasing managers in real life) or as a sales manager (for respondents who were actual sales managers in real life) in a business unit of a firm from the industry in which the respective respondents were working. In their roles, they were responsible for the business unit's procurement or sales of a product with which they were familiar. Following common practice in vignette studies to attain organizational-level constructs by asking

respondents to assume managerial roles (e.g., Tangpong et al., 2010; Agarwal, Anand, Bercovitz, & Croson, 2012; Hora & Klassen, 2013; Thomas et al., 2013), the wording from Thomas et al. (2013) was adopted to attain business unit–level answers from respondents, ensuring consistency with the level of theorizing. The respondents answered behavioral questions, such as “how [they] think [their] business unit actually would act, rather than should act” (for the vignettes, see Appendices 1A and 1B), after reading the respective scenario.

In the post-design stage, several steps were taken to validate the vignettes. First, academic scholars and practitioners from the field of supply chain management were asked to assess the face validity of the vignettes and to suggest any changes that would increase their identification with the described role and situation (Wallenburg & Schäffler, 2014). As a result, several parts of the vignette were rephrased to more accurately describe business reality. For example, the available power potential was described more explicitly in the vignette. In addition, the scenario for high multimarket contact was set to include five business unit–level interactions between the two firms, because participants perceived this value as high but still realistic. Second, a pilot study among 78 business school students was employed to further test the clarity of the vignettes and survey items, to evaluate the effectiveness of the manipulations, and to determine the time needed to complete the surveys (Tangpong et al., 2010). The participants were able to use their business acumen when trying to understand the vignettes and to provide their feedback. They were asked if they found the scenario realistic and if they were able to imagine themselves in the situation (Dabholkar, 1994). The average scores of 5.76 for buyer participants and 5.49 for supplier participants on a 7-point Likert-type scale indicate that the scenarios were perceived as realistic (Wagner, Hennig-Thurau, & Rudolph, 2009; Thomas et al., 2013; Thomas, Davis-Sramek, Esper, & Murfield, 2014). Furthermore, participants were asked to assess their perceived level of multimarket contact and coordination. A series of *t*-tests compared the different manipulation levels. The results showed significant differences in the assessments ( $p < .01$ ), indicating successful manipulations. However, the responses from the pilot study were not used in the final sample, because purchasing and sales practitioners are more suitable to provide the most realistic answers. Finally, manipulation checks, vignette realism checks, and social desirability checks were incorporated into the main study (Bachrach & Bendoly, 2011).

### **2.3.1.2 Manipulation treatments and checks**

The level of multimarket contact was manipulated by informing the respondents that contact with the other firm occurs in either “two” or “at least five” product markets. Two markets are logically the smallest number of markets constituting multimarket contact, while the figure representing the high level of multimarket contact resulted from discussions with experienced managers in the validation stage. Although perceived importance of a market might play a role in the measurement of the level of multimarket contact (Baum & Korn, 1999), equal importance of the markets was indicated to simplify the vignette survey.

To enrich the vignette and allow for further explorative analyses, two additional manipulations were incorporated: the level of coordination among business units in the focal firm (focal firm coordination) and the level of coordination among business units in the partner firm, as perceived by the focal business unit (perceived partner firm coordination). Providing context on the level of coordination is important for respondents to assess multimarket scenarios (Yu & Cannella, 2013) because coordination among business units may influence the perception of the multimarket situation and thus affect the investigated relationships. To describe the level of coordination, coordination mechanisms for purchasing organizations from Rozemeijer (2000) and Trent (2004) and coordination mechanisms for marketing and sales organizations from Homburg et al. (2002) were used. These mechanisms are well established and tested in the literature. Because coordination was not at the center of the study and to keep the description brief, three mechanisms that apply to both buyers and suppliers were selected: centralization, formalization, and incentivization. The same wording was used for both versions whenever possible to ensure comparability.

Manipulation checks for the different levels of multimarket contact, focal firm coordination, and perceived partner firm coordination were applied using a series of *t*-tests. The results show significant differences ( $p < .01$ ) for all three manipulations.

## **2.3.2 Sampling and data collection**

### **2.3.2.1 Sampling process**

Purchasing managers and business-to-business sales managers served as respondents for this research. Each purchasing manager in the sample was provided with one of the

scenarios in which the focal business unit is buying a product from the partner business unit. Each sales manager in the sample was provided with one of the scenarios in which the focal business unit is supplying a product to the partner business unit. Thus, all respondents reviewed only scenarios that corresponded to their own professional background. In total, 3,807 purchasing managers and 8,192 sales managers were contacted by e-mail. The respective contact information was provided by a leading international business contact service company. Of these, 687 contacts started the survey (6% initial response rate), and 280 completed it (41% completion rate; 143 for the buyer version, and 137 for the supplier version). Checks for large numbers of identical consecutive responses or unusually short completion times revealed no careless responses (Meade & Craig, 2012); therefore, the analysis used all completed surveys (2.3% final response rate). The relatively low response rate may be due to the generally low willingness of practitioners to participate in web-based surveys (Ellis, Henry, & Shockley, 2010; Ralston, Blackhurst, Cantor, & Crum, 2015) and the relatively demanding and time-consuming nature of this vignette-based survey.

#### **2.3.2.2 Nonresponse biases**

To check for potential nonresponse bias, a multivariate *t*-test was conducted to compare the answers of early and late respondents (Armstrong & Overton, 1977); no significant differences ( $p > .05$ ) were found. The final sample was also compared with 19 respondents who did not complete the full survey but did assess the measures for the dependent variables (Pulles et al., 2014). Again, no significant differences were found in the *t*-tests. Therefore, it is unlikely that nonresponse bias posed a serious threat to the findings.

#### **2.3.2.3 Sample characteristics**

The final sample consisted of 280 managers from diverse industries (see **Table 1**). Of the 143 purchasing managers who completed the buyer version of the vignette, 27 were women (19%). On average, these managers had worked in the area of procurement for 14 years (with a standard deviation of 9 years) and rated themselves as very experienced in managing supplier relationships (an average of 6.36 on a 7-point Likert-type scale, with a standard deviation of 0.99). Of the 137 sales managers who completed the supplier version of the vignette, 12 were women (9%). On average, sales managers had worked in this functional area for 17 years (with a standard deviation of 9 years) and also rated

themselves as very experienced in managing customer relationship (an average of 6.32 on a 7-point Likert-type scale, with a standard deviation of 0.88).

**Table 1:** Industry distribution of the sample

Industry	Purchasing managers		Sales managers		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Retail	31	21.7	24	17.5	55	19.6
Consumer goods	21	14.7	17	12.4	38	13.6
Automotive and automotive supply	22	15.4	15	10.9	37	13.2
Others	19	13.3	14	10.2	33	11.8
Electronics and high-tech	12	8.4	7	5.1	19	6.8
Machine and plant engineering	14	9.8	5	3.6	19	6.8
Information and communication	3	2.1	15	10.9	18	6.4
Chemicals	3	2.1	8	5.8	11	3.9
Constructions	5	3.5	6	4.4	11	3.9
Pharma and healthcare	1	.7	9	6.6	10	3.6
Financial services	3	2.1	5	3.6	8	2.9
Travel, transport, and logistics	3	2.1	5	3.6	8	2.9
Utilities	1	.7	5	3.6	6	2.1
Raw materials production	3	2.1	1	.7	4	1.4
Aerospace	2	1.4	1	.7	3	1.1

#### 2.3.2.4 Realism check

Respondents were asked if they found the scenario realistic and if they were able to imagine themselves in the situation (Dabholkar, 1994). With an average score of 5.38 for buyer respondents and 5.19 for supplier respondents on a 7-point Likert-type scale, the realism check indicates that perceptions of the scenario were adequate to evoke authentic responses (Wagner et al., 2009; Thomas et al., 2013; Thomas et al., 2014).

#### 2.3.2.5 Social desirability bias

Social desirability can lead to biased responses regarding power-using behavior and on respondent cooperativeness, so to rule out such effects, the 10-item scale from Strahan

and Gerbasi (1972) was used. The results showed no significant effect of social desirability on the responses.

### 2.3.3 Measurements

All constructs were measured on 7-point Likert-type scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). All items used were based on previously employed measurements. The use of reward, coercion, and legal legitimate power was measured with a set of items developed by Maloni and Benton (2000), all of which have been extensively validated (e.g., Benton & Maloni, 2005; Handley & Benton, 2012a; Nyaga et al., 2013; Pulles et al., 2014). The construct items of reward power asked the respondents to assess the extent to which they believed their business unit would actually provide incentives to influence the partner business unit. The construct items of coercion power asked the respondents to assess the extent to which they believed their business unit would actually threaten to punish the partner business unit in the scenario. The construct items of legal legitimate power asked the respondents to assess the extent to which they believed their business unit would actually refer to legal actions to influence the partner business unit. A confirmatory factor analysis tested the validity and reliability of the measures. One item measuring the use of reward power was dropped because of high internal correlation (see **Table 2** for all items, their factor loadings, and reliability indicators). The remaining measurement model showed good goodness-of-fit values ( $\chi^2/\text{d.f.} = 1.686$ , CFI = .981, TLI = .968, GFI = .975, AGFI = .947, NFI = .955, RMSEA = .050) (Hu & Bentler, 1999). Constructs proved to be sufficiently valid. All average variance extracted (AVE) values were greater than .50 (Hair, Black, Babin, & Anderson, 2013), and Cronbach's alpha values were greater than .70 (Kline, 2013), except for some deviation in the use of reward power (.639). Thus, discriminant validity is established: The AVE for each construct is greater than the squared correlations between every pair of constructs (Fornell & Larcker, 1981).

**Table 2:** Measurement of the use of power

My business unit would ask the SELR Group [ <i>BYER Group</i> ] to cooperate with our new program, and it ... <i>The use of reward power (Cronbach's alpha = .639, AVE = .994)</i>
(REW_1) ... would offer them some incentives for doing so. ( <i>dropped</i> )
(REW_2) ... would tell them that it would favor them on other occasions if they do so. ( <i>1.18</i> )



(REW\_3) ... would offer rewards for doing so. (.40)

*The use of coercion power (Cronbach's alpha = .727, AVE = .666)*

(COE\_1) ... would threaten that they would not receive preferential treatment from us if they do not do so. (.73)

(COE\_2) ... would make things difficult for them if they do not do so. (.61)

(COE\_3) ... would make it clear that failing to comply with our requests would result in penalties against them. (.69)

*The use of legal legitimate power (Cronbach's alpha = .818, AVE = .798)*

(LLM\_1) ... would refer to the terms of our contract to gain their compliance on this particular request. (.78)

(LLM\_2) ... would refer to our legal agreement to try to influence them. (.73)

(LLM\_3) ... would use sections of our formal agreement as a “tool” to persuade them to agree to our demand. (.82)

*Note:* Standardized factor loadings after each item.

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Although the respondents were asked to provide answers at a business unit level, their personal traits might still influence their responses. To isolate the main effect of interest, different scenarios were randomly assigned to the respondents, and data on their personal traits were collected. These traits served as covariates to enrich the analysis. In addition to gender, respondents' level of cooperativeness was assessed, because it might influence the use of power as a form of self-interest seeking (Williamson, 1975; Tangpong et al., 2010). Respondent cooperativeness was measured with a 12-item composite measurement based on the work of Tangpong et al. (2010).

## 2.4 Results

**Table 3** shows the means, standard deviations, and correlations for both buyer and supplier versions of the vignette survey. An analysis of variance (ANOVA) tested each of the hypotheses (Hora & Klassen, 2013); **Table 4** reports the results. For the supplier scenario, the level of multimarket contact was hypothesized to be positively related to the supplier business unit's use of coercion power (H<sub>1</sub>), legal legitimate power (H<sub>2</sub>), and reward power (H<sub>3</sub>). For H<sub>1</sub>, the findings show that the supplier business unit tends to use slightly but insignificantly more coercion power in the high multimarket contact condition than in the low multimarket contact condition ( $M = 3.10$  vs.  $2.73$ ;  $F = 1.95$ ,  $p = .165$ ). Thus, H<sub>1</sub> was not supported. For H<sub>2</sub>, the findings shows that suppliers significantly increase the use of legal legitimate power with a higher level of multimarket contact ( $M = 4.31$  vs.  $3.86$ ;  $F = 2.92$ ,  $p = .090$ ). Thus, H<sub>2</sub> was supported. For H<sub>3</sub>, the findings show that the average extent to which suppliers use reward power in both high and low multimarket contact conditions was not significantly different from each other ( $M = 4.52$  vs.  $4.59$ ;  $F = .71$ ,  $p = .791$ ). Thus, H<sub>3</sub> was not supported.

For the buyer scenario, the level of multimarket contact was hypothesized to be negatively related to the buying business unit's use of coercion power (H<sub>4</sub>) and legal legitimate power (H<sub>5</sub>) but positively related to the use of reward power (H<sub>6</sub>). For H<sub>4</sub>, the findings show no significant difference between the use of coercion power in the high and low multimarket contact condition ( $M = 3.80$  vs.  $3.69$ ;  $F = .21$ ,  $p = .647$ ). Thus, H<sub>4</sub> was not supported. For H<sub>5</sub>, the findings show that buyers significantly decreased the use of legal legitimate power with a high level of multimarket contact ( $M = 4.51$  vs.  $5.07$ ;  $F = 5.84$ ,  $p = .017$ ). Thus, H<sub>5</sub> was supported. For H<sub>6</sub>, the findings show that buyers significantly increased the use of reward power with a high level of multimarket contact ( $M = 3.92$  vs.  $3.36$ ;  $F = 4.12$ ,  $p = .044$ ). Thus, H<sub>6</sub> was supported. **Figure 1** illustrates the effects of multimarket contact on the supplier's and buyer's respective use of mediated power.

**Table 3:** Descriptive statistics

	Supplier version								
	COE	LLM	REW	MMC	FFC	PPC	RCO	SDS	GEN <sup>a</sup>
Mean	2.95	4.13	4.55	.59	.49	.48	5.32	5.97	1.09

Buyer version	Mean	SD	1.52	1.51	1.53	.49	.50	.50	.71	1.67	.28
Coercion power (COE)	3.74	1.41		.53**	.08	.12	-.11	.11	-.13	.01	.10
Legal legitimate power (LLM)	4.79	1.40	.35**		.13	.15	-.01	-.07	-.13	-.02	.12
Reward power (REW)	3.64	1.67	.21*	.01		-.02	.07	.07	.07	-.09	-.10
Multimarket contact (MMC)	.50	.50	.04	-.20*	-.17*		.04	.06	.07	.16	-.01
Focal firm coordination (FFC)	.49	.50	.09	.10	-.10	.09		.02	.01	-.04	.01
Perceived partner firm coordination (PPC)	.50	.50	-.02	-.06	.07	.01	-.09		.01	.04	.12
Respondent cooperativeness (RCO)	5.22	.82	-.26**	-.04	.06	.03	.05	.04		.20*	.04
Social desirability (SDS)	6.29	1.68	-.11	-.06	-.10	-.17*	-.05	.02	.24**		-.08
Gender <sup>a</sup> (GEN)	1.19	.39	-.25**	-.09	-.11	-.09	.03	.01	.10	.13	.13

\*  $p < .05$ ; \*\*  $p < .01$ .

<sup>a</sup> Male was coded as 1; female was coded as 2.

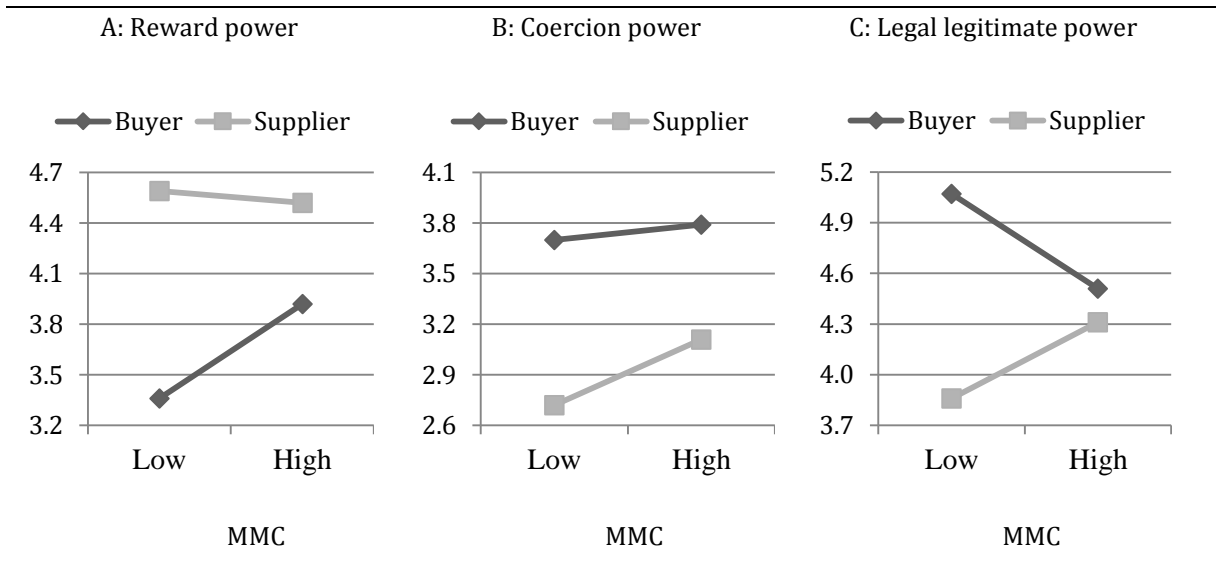
**Table 4:** ANOVAs for both supplier and buyer versions of the vignette <sup>a</sup>

	Coercion power			Legal legitimate power			Reward power		
	<i>F</i>	<i>p</i>	$\eta^2$	<i>F</i>	<i>p</i>	$\eta^2$	<i>F</i>	<i>p</i>	$\eta^2$
Supplier version									
MMC	1.95	.165	.014	2.92	.090	.021	.07	.791	.001
	MM <sub>L</sub> = 2.73 (.20)			MM <sub>L</sub> = 3.86 (.20)			MM <sub>L</sub> = 4.59 (.21)		
	MM <sub>H</sub> = 3.10 (.17)			MM <sub>H</sub> = 4.31 (.17)			MM <sub>H</sub> = 4.52 (.17)		
Buyer version									
MMC	.21	.647	.001	5.84	.017	.040	4.12	.044	.028
	MM <sub>L</sub> = 3.69 (.17)			MM <sub>L</sub> = 5.07 (.16)			MM <sub>L</sub> = 3.36 (.20)		
	MM <sub>H</sub> = 3.80 (.17)			MM <sub>H</sub> = 4.51 (.16)			MM <sub>H</sub> = 3.92 (.20)		

<sup>a</sup> MM<sub>L</sub> and MM<sub>H</sub> are marginal means for low and high levels of multimarket contact, respectively.

Note: Standard deviations are shown in parentheses. See Table 3 for abbreviations.

**Figure 1:** ANOVA results: Comparison between buyer and supplier behavior of power use at different levels of multimarket contact.



To enrich the analysis, an explorative investigation of contextual and individual-level effects was performed (inter-business-unit coordination and personal traits) using analyses of covariance (ANCOVAs) (Bendoly & Swink, 2007). **Table 5** and **Table 6** report the results of the ANCOVAs for the buyer version and the supplier version of the vignette surveys, respectively. Despite the adjustment for the effects of these covariates, all main effects remained unchanged. The findings show that respondent cooperativeness was significantly and negatively related to the focal business unit's use of coercion power in both buyer and supplier surveys (supplier:  $F = 3.02$ ,  $p = .084$ ; buyer:  $F = 8.69$ ,  $p = .004$ ) and was significantly and negatively related to the use of legal legitimate power in the supplier survey ( $F = 2.77$ ,  $p = .098$ ). This finding is consistent with prior findings of a negative effect of respondent cooperativeness on opportunism (Tangpong et al., 2010)—a strong form of self-interest seeking (Williamson, 1975)—because coercion and legal legitimate power are “harder” power bases than reward power (Blois & Hopkinson, 2013). The findings also show that female purchasing managers used coercion power to a significantly lower extent than their male counterparts ( $F = 7.88$ ,  $p = .006$ ). Neither focal firm coordination nor perceived partner firm coordination was significantly related to the

use of any type of power. This suggests that the main findings are valid regardless of how well coordinated the involved firms are.

**Table 5:** ANCOVA for the supplier vignette version <sup>a</sup>

	Coercion power			Legal legitimate power			Reward power		
	<i>F</i>	<i>p</i>	$\eta^2$	<i>F</i>	<i>p</i>	$\eta^2$	<i>F</i>	<i>p</i>	$\eta^2$
<b>Main</b>									
MMC	2.21	.139	.017	3.61	.060	.027	.05	.819	.000
	MM <sub>L</sub> = 2.72 (.20)			MM <sub>L</sub> = 3.83 (.20)			MM <sub>L</sub> = 4.58 (.21)		
	MM <sub>H</sub> = 3.11 (.17)			MM <sub>H</sub> = 4.33 (.17)			MM <sub>H</sub> = 4.52 (.17)		
<b>Covariates</b>									
FFC	1.93	.168	.015	.02	.883	.000	.48	.491	.004
PPC	1.14	.288	.009	1.23	.269	.009	.92	.340	.007
RCO	3.02	.084	.023	2.77	.098	.021	1.14	.287	.009
SDS	.02	.877	.000	.00	.949	.000	1.59	.209	.012
GEN	1.36	.246	.010	2.67	.105	.020	1.80	.183	.014

<sup>a</sup> MM<sub>L</sub> and MM<sub>H</sub> are marginal means for low and high levels of multimarket contact, respectively.

*Note:* Standard deviations are shown in parentheses. See Table 3 for abbreviations.

**Table 6:** ANCOVA for the buyer vignette version <sup>a</sup>

	Coercion power			Legal legitimate power			Reward power		
	<i>F</i>	<i>p</i>	$\eta^2$	<i>F</i>	<i>p</i>	$\eta^2$	<i>F</i>	<i>p</i>	$\eta^2$
<b>Main</b>									
MMC	.03	.864	.000	7.39	.007	.052	3.27	.073	.023
	MM <sub>L</sub> = 3.72 (.16)			MM <sub>L</sub> = 5.11 (.17)			MM <sub>L</sub> = 3.39 (.20)		
	MM <sub>H</sub> = 3.76 (.16)			MM <sub>H</sub> = 4.47 (.17)			MM <sub>H</sub> = 3.90 (.20)		
<b>Covariates</b>									
FFC	1.66	.200	.012	1.78	.185	.013	2.02	.158	.015

Multimarket Contact and the Use of Power in Buyer–Supplier Relationships

PPC	.01	.921	.000	.31	.582	.002	.48	.489	.004
RCO	8.69	.004	.060	.02	.893	.000	1.06	.306	.008
SDS	.02	.904	.000	.68	.422	.005	1.16	.283	.008
GEN	7.88	.006	.055	1.44	.232	.010	1.18	.279	.009

<sup>a</sup> MM<sub>L</sub> and MM<sub>H</sub> are marginal means for low and high levels of multimarket contact, respectively.

*Note:* Standard deviations are shown in parentheses. See Table 3 for abbreviations.

## 2.5 Discussion

This study finds support for the hypotheses that buyers and suppliers adjust their use of power *differently* when confronted with multimarket contact. As discussed previously, this notion is counterintuitive because it contrasts prevailing perspectives in the field of strategic management, which suggest symmetric behaviors of all involved firms (on a horizontal level).

Furthermore, it was unexpected that the hypotheses about the use of *legal legitimate* power were supported, while those about the use of *coercion* power were not. This is surprising because the literature has so far treated the two types of power as highly similar, given that both involve a threat of causing negative outcomes for the target (Nyaga et al., 2013). As such, prior research suggests that coercion and legal legitimate power share similar antecedents and consequences (e.g., Maloni & Benton, 2000; Benton & Maloni, 2005; Gelderman et al., 2008; Nyaga et al., 2013). However, the findings of this study (especially the ANCOVA results) suggest that the variance in the use of coercion power is explained more by individual-level factors, such as cooperativeness and gender, whereas the variance in the use of legal legitimate power is explained mainly by organizational-level factors, such as multimarket contact. One reason might be that decision makers take the use of coercion power more personal than the use of legal legitimate power. Such consideration might tie in with the work of Zhao et al. (2008), which finds that the perception of coercion power of a supply chain partner is based largely on the interpersonal relationship between the individual managers involved.

### 2.5.1 Theoretical implications

This study contributes to research on the use of power in buyer–supplier relationships and to the development of resource-advantage theory in the supply chain management literature in three ways. First, the study helps lay the foundation for understanding how business units use power in *vertical multimarket* buyer–supplier relationships. When analyzing buyer–supplier interactions such as the use of power, extant literature on buyer–supplier relationships has mostly conceptualized buyers and suppliers as two monolithic firms connected by a single point of contact. The current study broadens this view by acknowledging that the relationship between supply chain partners is frequently

more complex. The findings suggest that business units that focus on particular product, customer, or geographical markets take the potential consequences of their decisions in other markets into account when dealing with their business partners.

Second, this study provides a theoretical foundation for *differentiating* between *buyers and suppliers* when theorizing about their behaviors. Extant studies on power in the supply chain management literature, based on game theory, social exchange theory, and/or transaction cost economics, have also made no distinction between buyers and suppliers when predicting their behaviors (e.g., Heide & Miner, 1992; Nyaga et al., 2013). The findings of the current study, based on resource-advantage theory, show that buyers and suppliers react differently to multimarket contact in terms of how they adapt their power use behavior. Therefore, applying the lens of resource-advantage theory sheds more light on how and why buyers and suppliers behave differently, thus providing complementary insights to studies on how buyers and suppliers commonly behave.

Third, this study uses resource-advantage theory as a theoretical foundation to explain and predict variations in power-using *behavior*. As such, it extends prior studies in the supply chain management literature that mainly use resource-advantage theory to explain variations in organizational *performance* (e.g., Hunt & Davis, 2008; Golicic et al., 2012). The current study suggests that while buyers and suppliers enter a business relationship to each seek superior resources (Hunt & Davis, 2008), their focus on resources may vary depending on the scope of their existing business relationship. Because the use of power serves as a means for both the buyer and the supplier to obtain superior resources, their power-using behavior may vary as well. These findings extend the scope of resource-advantage theory by underscoring its usefulness as a framework for explaining and predicting differences in the power-using behavior in multimarket buyer–supplier relationships that were difficult to explain using other theoretical lenses.

### **2.5.2 Managerial implications**

The findings of this study hold important implications for managers in both buying and supplying firms. Understanding the motives behind business partners' use of power can help managers better anticipate such use and make better decisions in their supply base/customer base strategy as well as in negotiations with individual business partners.



For managers in a buying firm, the following implications can be derived from this study: When a buying firm sources from a supplying firm in only a *few markets*, the supplier relationships in the individual business units are likely to be relatively easy to manage, with suppliers willing to invest in the relationship and without much legal complication. Such experience might tempt managers in the buying firm to increase the scope of the relationship with the supplier to supply other business units as well. However, this study's findings suggest that with increasing *multimarket contact*, suppliers are likely to become more demanding and increasingly resort to legal legitimate power to increase their share of the generated value. Therefore, purchasing managers should use caution when deciding to expand the scope of business relationships with individual suppliers and not simply extrapolate the previous positive experiences from the relationship. Rather, they need to trade off the potential benefits of expanding the relationship with the risk of increasing power use by the supplier to ensure that the supply base configuration really allows for capturing superior value. One approach in this regard could be to consciously limit the scope of the relationship with individual suppliers, or at least continuously screen for alternative supplying firms as a backup in case a supplier becomes too demanding. The findings also suggest that in buyer–supplier relationships with many business relationships across different business units, managers in a buying firm should be aware of the tendency to put relatively light pressure on the supplier, using little legal legitimate and ample reward power. This approach might, however, lead to the supplier capturing a disproportionate share of the value generated in the relationship. To protect the interests of the buying firm and ultimately support their firm's financial performance, managers would be well advised to critically monitor the relationships.

Conversely, managers in a supplying firm should be prepared for potential (threats of) legal actions from the buyer in a *narrowly focused* multimarket contact situation. Such preparation can include drafting more detailed contractual agreements and better informing account managers about their firm's rights and obligations in the contractual agreements to protect their firm from potentially undue claims by the buyer. In contrast, for suppliers in *broad-based relationships*, the findings suggest that they should be self-aware of the tendency to increase the use of legal legitimate power, because doing so might damage the relationship with the buyer in the long run (Benton & Maloni, 2005; Zhao et al., 2008; Nyaga et al., 2013). Considering that purchasing managers decreased

their use of legal power and increased their use of reward power in this study, it seems a generally recommendable strategy for suppliers to try to serve buyers across business units. Doing so would likely allow the supplier to increase both its revenue and its profitability because the pressure from the buyer would be reduced. In deciding on their own use of power, managers in a supplying firm need to strike a fine balance between capturing adequate value for their firm (potentially also recuperating earlier investments in the relationship) and not putting so much pressure on the buyer that the latter begins critically scrutinizing the increase in scope of the supply relationship. **Table 7** presents a summary of the managerial implications.

**Table 7:** Summary of managerial implications

Multimarket contact	Findings	Implications for supplying firms	Implications for buying firms
Low level of multimarket contact	<ul style="list-style-type: none"> <li>- Suppliers use legal legitimate power to a lower extent</li> <li>- Buyers use legal legitimate power to a higher extent</li> </ul>	<ul style="list-style-type: none"> <li>- Be prepared for (the threats of) legal actions, for example, through more detailed contractual agreements and more transparency on the details of the contractual agreements</li> <li>- Try serving buyers on multiple markets</li> </ul>	<ul style="list-style-type: none"> <li>- Carefully review scope of relationship and continuously screen for alternative supplying firms</li> <li>- Be cautious when reducing supply bases to more single or dual sourcing</li> </ul>
High level of multimarket contact	<ul style="list-style-type: none"> <li>- Suppliers use legal legitimate power to a higher extent</li> <li>- Buyers use legal legitimate power to a lower extent but use reward power to a higher extent</li> </ul>	<ul style="list-style-type: none"> <li>- Reconsider whether the use of legal legitimate power is endangering long-term relationship with buyer</li> </ul>	<ul style="list-style-type: none"> <li>- Monitor that suppliers' are not taking undue advantage from increased incentives provided by the buying firm</li> </ul>

### 2.5.3 Limitations and opportunities for further research

This study's findings should be viewed in light of several limitations, which also provide opportunities for further research. First, in an initial effort to make inroads in exploring the effects of multimarket contact in vertical buyer–supplier relationships, the study's focus was on the main relationship between multimarket contact and the use of power.

Prior research indicates that various other factors may influence the use of power, both on the organizational level—such as the power-dependence structure in the buyer–supplier relationship (Brass & Burkhardt, 1993; Handley & Benton, 2012b), the nature of the buyer–supplier relationship (Heide & Miner, 1992), and the context of the relationship (Handley & Benton, 2012b)—and on the individual level—such as the interpersonal relationships among managers (Zhang & Zhang, 2013). To evaluate these factors comprehensively and delve into potential interactions between them, future studies might resort to *multilevel* methodologies (Carter, Meschnig, & Kaufmann, 2015a). With regard to exploring the specific influence of individual-level factors, research could connect with the research stream of *behavioral* supply management (Carter, Kaufmann, & Michel, 2007; Knemeyer & Naylor, 2011; Croson, Schultz, Siemsen, & Yeo, 2013), which has begun clarifying how behavioral aspects, such as biases, influence decision making in the supply chain. Given that the exploratory analyses in the study at hand suggest that factors such as decision makers’ personality influence power use, a deeper investigation of how behavioral aspects relate to power seems warranted.

Second, this study was premised on the existence of low and high levels of multimarket contact. However, multimarket contact can emerge both intentionally and unintentionally (Yu & Cannella, 2013). For example, a buyer business unit might source from a supplier without knowing that a sister business unit has been sourcing from the same supplying firm. At the same time, multimarket contact can emerge both willingly and unwillingly. For example, a supplier might be forced by its major buyer to set up a new business unit in a remote geographic area where the buyer is about to open a new plant. Further research could explore the *antecedents* of multimarket contact between buyers and suppliers and investigate whether multimarket contact emerging under different conditions has different consequences.

Third, the vignette study that constitutes the empirical base of this research inherently has limitations regarding generalizability. As explained in the methodology section, the vignette offered a scenario in which participants were able to switch to other suppliers/customers relatively easily, to allow for a high power potential and thus more possibility for variance in the responses on the use of power. While this scenario is reflective of many real-life buyer–supplier relationships (Zachariassen, 2008; Tangpong et al., 2010), there are also different relationship structures in which one or both parties

have limited or no alternatives and available power is therefore limited (e.g., in relationships with strategic or bottleneck suppliers (Kraljic, 1983; Gelderman & Semeijn, 2006), in situations of buyer or supplier dominance as described by Cox (2001). Additional research could supplement this study by exploring the role of multimarket contact in such high-dependence situations. Alternative empirical methodologies such as *surveys* could also be employed. Although an examination of actual multimarket buyer–supplier relationships might increase the external validity of the results, a major challenge for such an inquiry can be (1) obtaining the actual level of multimarket contact between a buying firm and a supplying firm and (2) isolating the effects of interest from a large number of factors that may influence power-using behaviors.

Finally, this study calls for caution when “borrowing” theories from a horizontal, strategic management context to a vertical, supply chain management context. The findings underscore the importance of the specific role in a supply chain relationship. There is an opportunity for researchers to develop and advance *theories specific to supply chain management* by taking role difference into account.

### 3 Coercion and Retaliation in Supply Chain Relationships<sup>2</sup>

Literature on the use of coercive power in supply chain relationships remains inconclusive about whether coercion is an effective means for capturing value in the supply chain. We suggest that this debate could be resolved by moving away from the predominant assumption of a linear relationship between coercion and its outcomes. Building on social exchange theory, we posit that the relationship between the use of coercive power and the value captured by the power-using firm has an inverted U-shape. Because the use of coercive power depends on the expected reaction of the partner firm, which in turn depends on the actual use of coercive power, firms face a recursive problem when deciding on the use of coercive power. We develop a mathematical model to analyze this decision-making problem and, using an analogy to the well-known newsvendor problem, we show how firms can determine the optimal intensity of coercive power use in supply chain relationships. The model suggests that this optimum level depends on the power-using firm's estimation of the partner firm's tolerance level for the use of coercive power.

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<sup>2</sup> This chapter is based on the unpublished working paper "*Coercion and Retaliation in Supply Chain Relationships*" by Pei Shen, Lutz Kaufmann and, Felix Reimann. The manuscript is currently in the second round of revision at the *Decision Sciences*.

### 3.1 Introduction

In supply chain relationships, firms use power to claim a higher share of the value created by the exchange of goods and services with partner firms (Crook & Combs, 2007; Klein, Rai, & Straub, 2007; Nair, Narasimhan, & Bendoly, 2011). Although a large body of supply chain management literature has taken a collaborative perspective on buyer–supplier relationships (e.g., Saeed, Malhotra, & Grover, 2011; Cao & Lumineau, 2015), the primary concern of all supply chain members is to enhance their own competitive advantage and ultimately to improve their financial performance (Nair et al., 2011). Although firms frequently use power to achieve these goals (Crook & Combs, 2007), the literature is still inconclusive with regard to the effectiveness of different types of power.

One type of power that has sparked particular controversy is coercive power—a form that relies on the threat of punishment, such as poor treatment or withholding valuable resources (Handley & Benton, 2012b). Some studies have found that coercive power is an effective means of attributing value (e.g., Zhao et al., 2008; Pulles et al., 2014), whereas others have argued that it is detrimental to the power-using firm (e.g., Benton & Maloni, 2005; McCarter & Northcraft, 2007; Nyaga et al., 2013). The disagreement stems from two very different perspectives on the effectiveness of using coercive power: On the one hand, the use of coercive power can deteriorate the net value payoff to the power-using firm—in particular through a decrease in relationship strength (Benton & Maloni, 2005), commitment (Zhao et al., 2008), and collaborative behavior (Nyaga et al., 2013) and through an increase in supply chain partner opportunism (Handley & Benton, 2012a). At worst, it might lead to direct retaliation by the other party, defined as the deliberate effort to make the power-using firm pay for the loss it has caused the target firm through its use of coercive power (Blau, 1964; Johnson, Sakano, Cote, & Onzo, 1993; Kumar, Scheer, & Steenkamp, 1998; Seggie, Griffith, & Jap, 2013; Vidal, 2014). On the other hand, the use of coercive power is found to be particularly effective in putting pressure on partner firms, thus enforcing fast and rigid compliance (Molm, 1994; Zhao et al., 2008; Pulles et al., 2014). Firms also sometimes resort to coercive power when the use of non-coercive power has failed to achieve the desired compliance (Payan & McFarland, 2005; Gelderman et al., 2008). **Table 8** provides an overview of empirical findings on the use of coercive power and its consequences.

**Table 8:** Empirical findings on the outcomes of coercive power use in supply chains

Authors	Operationalization of coercive power use	Sample	Key outcome variables	Effect of the use of coercive power on the outcome variable
Lusch (1976)	Perceived likelihood of a manufacturer's using coercive power (e.g., slow delivery of vehicles, slow payment on warranty work)	567 car dealers in the U.S.	Supply chain conflict	Positive
Frazier and Summers (1984)	Perceived frequencies of a manufacturer's using coercive power (e.g., providing poor service)	435 car dealers in the U.S.	Supply chain agreement	Negative
Frazier, Gill, and Kale (1989)	Perceived frequencies of a manufacturer's using coercive power (e.g., providing poor service)	51 tungsten carbide tool dealers in India	Supply chain conflict	Positive
Frazier and Rody (1991)	Perceived frequencies of a manufacturer's using coercive power (e.g., providing poor service)	300 industrial distributors in the U.S.	Supply chain conflict Supply chain conflict resolution	Positive Negative
Skinner, Gassenheimer, and Kelley (1992)	Perceived magnitude of a manufacturer's using coercive power (e.g., reducing a dealer's profit, cancelling or refusing to renew contact)	226 farm and power equipment dealers in the U.S.	Supply chain conflict Supply chain cooperation	Positive Negative
Molm (1994)	Frequency of punishment, which results in money losses	120 undergraduate students in the U.S.	Partner firm compliance	Positive
Maloni and Benton (2000)	Perceived magnitude of a manufacturer's using coercive power (e.g., imposing penalties, making things difficult)	180 automotive suppliers in the U.S.	Supply chain relationship strength	Negative
Benton and Maloni (2005)	Perceived magnitude of a manufacturer's using coercive power (e.g., imposing penalties, making things difficult)	180 automotive suppliers in the U.S.	Supply chain relationship strength	Negative
Zhao et al. (2008)	Perceived magnitude of a major customer's using coercive power (e.g., reducing a manufacturer's profit, withdrawing services)	617 manufacturers in China	Partner firm's normative commitment Partner firm's instrumental commitment	Negative Positive

Yeung, Selen, Zhang, and Huo (2009)	Perceived magnitude of a major supplier's using coercive power (e.g., reducing a manufacturer's profit, withdrawing services)	609 manufacturers in China	Supply chain integration	Positive
Nyaga et al. (2013)	Perceived magnitude of a partner firm's using coercive power (e.g., imposing penalties, making things difficult)	121 buyers and 121 suppliers in the high-tech industry	Partner firm's adaptation	Negative
			Partner firm's collaboration	Negative
Pulles et al. (2014)	Perceived magnitude of a partner firm's using coercive power (e.g., imposing penalties, withdrawing services)	185 suppliers in the retail industry	Partner firm's superior allocation of physical resources	Positive
			Partner firm's superior allocation of innovation resources	Not significant

The aim of this paper is to develop theory that helps to resolve these differing perspectives. We address the controversy over the effectiveness of using coercive power by conceptually and analytically linking the potential retaliation of a partner firm with the focal firm's decision to use coercive power. In particular, we build on social exchange theory and develop a mathematical model of how a focal firm decides on the intensity with which it uses coercive power, which takes a partner firm's potential reaction into account. We analyze the model with the help of a series of Monte Carlo simulations. Based on theoretical considerations and the simulations' results, we suggest that the relationship between the use of coercive power and the value captured by the power-using firm is non-linear and follows an inverted U-shape. This suggestion is in contrast to the extant literature, which so far has assumed the relationship to be linear—either positive (Zhao et al., 2008; Pulles et al., 2014) or negative (Benton & Maloni, 2005; McCarter & Northcraft, 2007; Nyaga et al., 2013).

Social exchange theory has been widely used to explain the use of power in supply chain relationships (Zhao et al., 2008; Nyaga et al., 2013; Pulles et al., 2014). It suggests that firms enter into a supply chain relationship because they seek benefits from the exchange with their partner firms and try to avoid punishments (Nyaga et al., 2013), and they interact according to social norms, such as reciprocity and fairness (Blau, 1964; Emerson, 1976; Cropanzano & Mitchell, 2005; Narasimhan et al., 2009). We chose social



exchange theory as the conceptual lens for our study because it provides a consistent theoretical foundation to address both positive and negative effects of the use of coercive power: On the one hand, social exchange theory suggests that a partner firm might tolerate the use of coercive power if it receives above-expectation benefits from the supply chain relationship with the focal firm (Cowan, Paswan, & Van Steenburg, 2015); on the other hand, it also suggests that the use of coercive power can lead to retaliation, such as dissension, resentment, and conflict (Blau, 1964; Nyaga et al., 2013; Vidal, 2014).

Extant literature has used both frequency (i.e., how often a focal firm coerces a partner firm) and magnitude (i.e., how much value, on average, the focal firm intends to appropriate from the partner firm) operationalize the use of coercive power. (See Belaya et al., 2009, for a comprehensive review.) The use of coercive power of either high frequency or high magnitude would be expected to allow a focal firm to appropriate high value from a partner firm. Thus, to reduce the complexity in our theory development work, we define the intensity of coercive power use as the product of the frequency and the magnitude of power use. The model developed in this paper reveals surprising analogies between the decision-making problem at hand and the well-known newsvendor problem discussed in the operations management and decision-making literature (e.g., Eeckhoudt, Gollier, & Schlesinger, 1995; de Véricourt, Jain, Bearden, & Filipowicz, 2013; Qin, Rao, Gurnani, & Bollapragada, 2014; Cheong, Goh, & Song, 2015). This analogy allows for deriving an optimal intensity of coercive power use from the focal firm's perspective.

Following the model development, we use a series of Monte Carlo simulations (generated by the computer program, MatLab) to illustrate the theoretical implications of the developed model. Although simulation analyses may oversimplify reality, their use to support theory development is increasingly popular in the management literature for several reasons (Zott, 2003): (1) They help researchers to gain insights into complex organizational phenomena that are otherwise limited by data availability; (2) they allow researchers to control for certain variables while systematically varying others; and (3) they force researchers to make some assumptions explicit that would otherwise remain implicit.

In sum, this paper aims to make three contributions to the literature on power in supply chain relationships. First, it breaks new ground by showing that the relationship between the intensity of coercive power use and its outcome for the focal firm is non-

linear because of the recursive nature of the decision-making problem. Second, it advances social exchange theory in two ways: by explaining the specific mechanisms behind a focal firm's decision to use coercive power and by introducing the partner firm's anticipated retaliation as a key factor in this regard. Third, the developed model links mechanisms behind the decision-making problem of coercive power use to the concept of the newsvendor problem. By further leveraging this analogy, future research on the use of coercive power might benefit from the mature research stream of the newsvendor problem (Whetten, Felin, & King, 2009). With regard to management practice, the conceptual proposal in this paper can help power-using firms determine the optimal intensity in their use of coercive power, thus making more effective decisions possible. Moreover, it can help firms on which coercive power has been used to develop strategies for reducing the use of such power by their supply chain partners.

## 3.2 Theoretical foundation

### 3.2.1 The use of coercive power in supply chain relationships

Power researchers in the supply chain management literature have identified different types of power that a focal firm can hold to influence a weaker partner (French & Raven, 1959). These forms of power are usually grouped into two broader categories: mediated power and non-mediated power (e.g., Benton & Maloni, 2005; Handley & Benton, 2012b). Mediated power can be deliberately used: A focal firm can decide to use its available power to influence the partner firm by granting incentives (reward power) or by threatening punishment (coercion power) (Nyaga et al., 2013). In contrast, with non-mediated power, a focal firm cannot control the effects of such power on the behavior of its partner; rather, these effects are created by the partner's own desire for identification with this focal firm (referent power), by its perception of this focal firm's level of expertise (expert power), or by its perception of this focal firm's legitimation (legitimate power) (Benton & Maloni, 2005).

Notably, mediated coercion power is the only one that involves punishment, or the threat thereof, which implies losses to partner firms (Hunt & Nevin, 1974; Zhao et al., 2008; Cowan et al., 2015). For example, a buyer might threaten to move from a direct negotiation process to a reverse auction process (Carter & Kaufmann, 2007; Setia & Speier-Pero, 2015), which entails extreme price pressure, if the supplier does not agree to reduce prices voluntarily (Giampietro & Emiliani, 2007).

According to social exchange theory, firms enter into a supply chain relationship because they seek benefits from the exchange with their partner firms and try to avoid punishments (Nyaga et al., 2013). When the interests of the supply chain partners conflict (e.g., with regard to the distribution of the value generated in the supply chain relationship), the more powerful firm in the relationship often uses its power to coerce the weaker firm and to decide the conflict in their favor (Crook & Combs, 2007; Gelderman et al., 2008). Molm's (1994, 1997) theory of coercion, which is rooted in social exchange theory, maintains that the focal firm's use of coercive power with the partner firm is based on its *ability* to control negative outcomes for the partner firm (i.e., its coercive power potential), while its *willingness* to use it is based on a tradeoff between the gains from the partner firm's compliance and the losses from potential retaliation.

The ability of a focal firm to use coercive power on a partner firm is mainly determined by the power asymmetry in the dyadic supply chain relationship, which is the difference between the partner firm's dependence on the focal firm and the focal firm's dependence on the partner firm (Emerson, 1962). The presence of power asymmetry is both ubiquitous—because firms differ in size, expertise, switching costs, etc. (McCarter & Northcraft, 2007; Nyaga et al., 2013)—and dynamic—because of the varying causes of dependence, such as the availability of alternatives and changes over time (Cowan et al., 2015). Power asymmetry constitutes the upper limit for coercive power use (Gaski & Nevin, 1985), and the use of coercive power is a deliberate decision by the focal firm to serve its self-interest (Brass & Burkhardt, 1993; Handley & Benton, 2012b). Pulles et al. (2014) find that buyers use coercive power to make sure that suppliers allocate better physical resources to them (e.g., production capacity) than to their competitors. Gelderman et al. (2008) find that suppliers use coercive power “when compliance from the buying organizations cannot be expected without pressure” (p. 224).

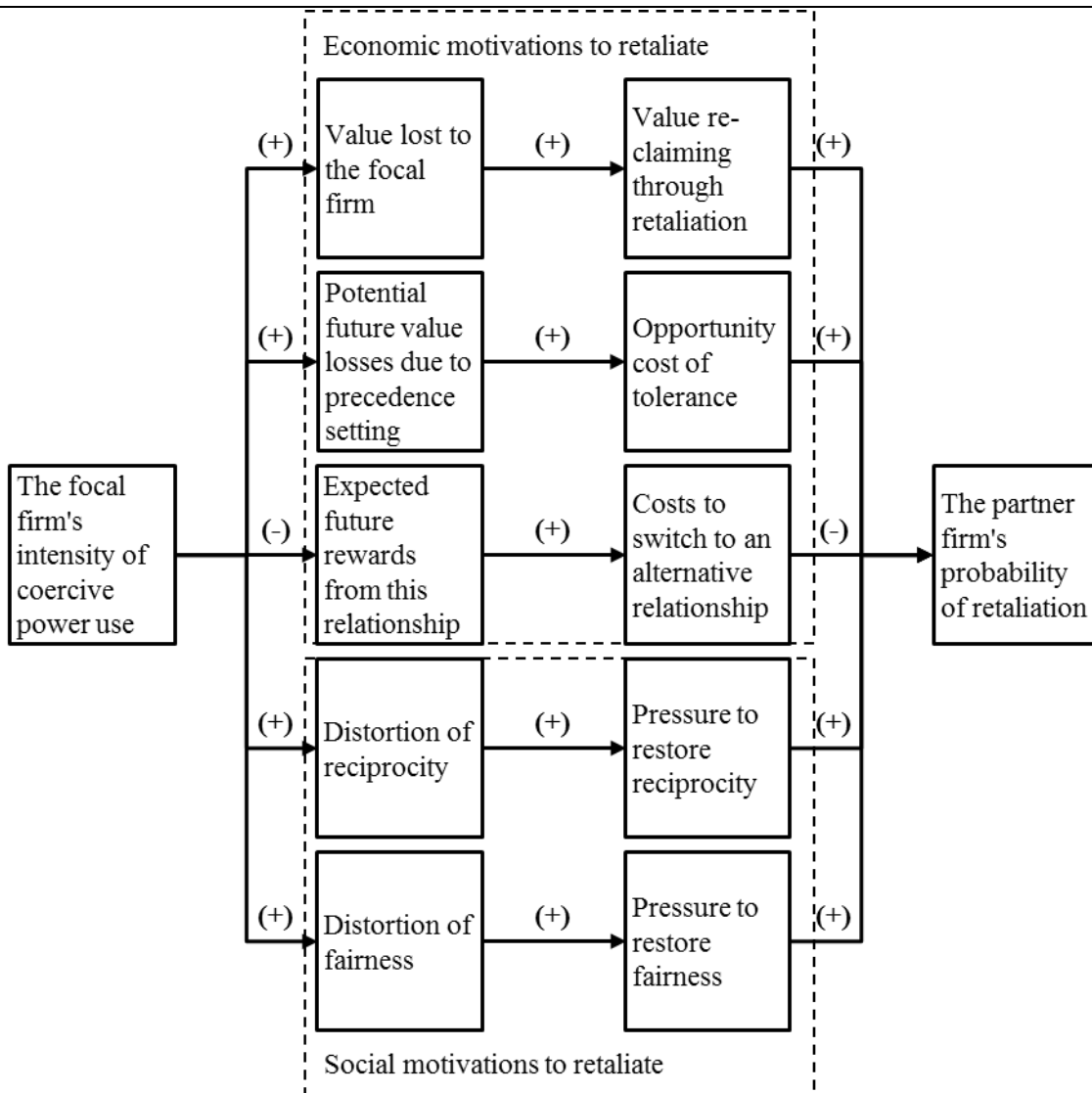
### **3.2.2 The interdependence of coercive power use and retaliation**

The literature has discussed partner firms' negative reactions to the use of coercive power under the notion of retaliation. Retaliation can be both overt and subtle: Overt retaliation involves the use of coercive power in return, if the chance arises (Johnson et al., 1993); subtle retaliation involves causing damage to the focal firm in a way that does not necessarily lead to immediate open conflict. Subtle retaliation can include shirking, hiding information, and making hollow promises (Handley & Benton, 2012a; Yan & Kull, 2015). Both overt retaliation and subtle retaliation usually involve some form of punishment of the focal firm (Vidal, 2014). However, recent research shows that a partner firm might tolerate the use of coercive power if it receives above-expectation benefits from the supply chain relationship with the focal firm (Cowan et al., 2015), or if the switching cost to the partner firm is too high to retaliate (Habib, Bastl, & Pilbeam, 2015).

Thus, the assessment of a partner firm's propensity (i.e., probability and intensity) of retaliation plays a key role in a focal firm's decision to use coercive power (Molm, 1997). Extant literature (e.g., Heide & Miner, 1992; Kumar et al., 1998; Scheer, Kumar, & Steenkamp, 2003; Colquitt, Scott, Rodell, Long, Zapata, Conlon, & Wesson, 2013) has discussed both economic and social motivations for retaliation, suggesting that the propensity to retaliate is positively related to the intensity of the coercive power used.

**Figure 2** illustrates the mechanics linking a focal firm's intensity of coercive power use and the partner firm's probability of retaliation.

**Figure 2:** Relationship between the focal firm's intensity of coercive power use and the partner firm's probability of retaliation.



### 3.2.2.1 Economic motivations of retaliation

When deciding whether to retaliate following a focal firm's use of coercive power, a partner firm likely employs an economic cost-benefit tradeoff. In doing so, it weighs the potential benefits and costs of retaliating against the potential costs and benefits of tolerating (i.e., not retaliating against) the use of coercive power. In the short run,

retaliation can be an effective way to reclaim some of the value that has been lost to the focal firm through its initial use of coercive power (Kumar et al., 1998). Therefore, the value the partner firm aims to reclaim through retaliation is likely to be determined by such loss of value, which in turn is likely to be determined by the intensity of the initial use of coercive power by the focal firm.

In the long run, retaliation might serve as a deterrent to future coercive power use and thus help the partner firm to reduce potential losses from the use of such power in the future. Timely retaliation can signal the partner firm's ability to strike back and reduce the focal firm's expected or potential payoff from the use of coercive power in the future, thus casting a shadow over the future (Axelrod, 1984; Parkhe, 1993). Conversely, if the partner firm tolerates the use of coercive power, the focal firm might interpret this reaction as a sign of weakness and use coercive power on a more regular basis in the future. Thus, a high tolerance level in response to coercive power use is likely to lead to high potential losses from future uses of coercive power. The long-term benefit of retaliation, then, is to reduce such future losses, and the level of benefit depends on the intensity of the coercive power used by the focal firm.

Because mutual coercion might undermine the economic basis of a supply chain relationship (Heide & Miner, 1992), the costs of retaliation compared with the costs of tolerance are likely to be determined by the dependence of the partner firm on its relationship with the focal firm. Such dependence usually rests on the additional benefits the partner firm expects to receive from this relationship, relative to alternative relationships (Emerson, 1962; Pfeffer & Salancik, 1978; Touboulic, Chicksand, Walker, Touboulic, Chicksand, & Walker, 2014). Therefore, the fear of losing these additional benefits in the future is likely to be the major cost driver in the retaliation versus tolerance decision. However, a more intense use of coercive power also is likely to reduce the partner firm's expectation of receiving future benefits from its relationship with the focal firm, thus reducing the potential costs of retaliation compared with tolerance.

### **3.2.2.2 Social motivations of retaliation**

Social exchange theory postulates that supply chain partners interact according to social norms, such as reciprocity and fairness (Blau, 1964; Emerson, 1976; Cropanzano & Mitchell, 2005; Narasimhan et al., 2009). Reciprocity refers to "repayment in kind" (Cropanzano & Mitchell, 2005, p. 875) and has been widely applied to explain the use of

power in supply chain relationships (e.g., Zhao et al., 2008; Nyaga et al., 2013). According to the norm of reciprocity, those who receive benefits feel obligated to repay the benefits, and those who have provided benefits expect repayment in kind (Blau, 1964; Nyaga et al., 2013). When the focal firm claims value at the expense of the partner firm through the use of coercive power (i.e., through punishment rather than compensation), reciprocity is distorted. Such distortion might motivate the partner firm to retaliate to force the focal firm to fulfill its social obligation. The higher the intensity with which the focal firm has used coercive power, the higher is the pressure on the partner firm to retaliate.

Fairness captures the fit between a firm's actual outcome and the outcome it believes it deserves according to its contribution (Frazier, 1983; Kumar, Scheer, & Steenkamp, 1995; Colquitt et al., 2013). The use of coercive power likely shifts the value distribution to the focal firm, which the partner firm might perceive as unfair (Hoppner, Griffith, & Yeo, 2014). Extant research on fairness in supply chain relationships shows that perceived unfairness causes retaliatory actions, such as punishment, hostility, mistrust, and relationship termination (Kumar et al., 1998; Scheer et al., 2003). The higher the intensity with which the focal firm uses coercive power, the larger is the gap between the actual value the partner firm can claim and what it deems to be fair, which in turn increases the pressure on the partner firm to retaliate to restore the social norm of fairness.

### **3.2.3 The level of tolerance for the use of coercive power**

Because social exchanges, such as supply chain relationships, are motivated by the expectation of receiving benefits, a partner firm that has been coerced might tolerate the coercion if it still receives benefits from the supply chain relationship that meet or exceed its expectation (Cowan et al., 2015), or if switching to another supply chain relationship seems to be too costly (Habib et al., 2015). In fact, the partner firm faces the same tradeoff with regard to retaliation as the focal firm faces in its decision to use coercive power because retaliation resembles the use of coercive power, in that it relies on punitive approaches (Vidal, 2014). Furthermore, social exchange theory predicts tolerance for coercive power use when its intensity is low relative to the benefits that a partner firm receives (Cowan et al., 2015; Habib et al., 2015), and it predicts retaliation when the intensity of coercive power use is relatively high (Kumar et al., 1998; Hoppner et al., 2014). Therefore, the two predictions together suggest the existence of a maximum

intensity level of coercive power use that a partner firm will tolerate. We define this intensity level of coercive power use as the tolerance level of the partner firm for the use of coercive power by a focal firm.

Following this line of argumentation, the relationship between the intensity with which the focal firm uses coercive power and its effectiveness in terms of the expected payoff to the focal firm should be non-linear. Based on the arguments given, we expect the effectiveness to increase with the intensity as long as the intensity is lower than a certain threshold marked by a partner firm's tolerance level, and to decrease when the intensity breaches this threshold.

Because the focal firm does not have complete information about the partner firm (Schmidt, 2015) and because retaliation by the partner firm is ultimately based on the behavior of individual decision makers (Vidal, 2014), the focal firm can only estimate the tolerance level from observation and experience. Thus, the tolerance level adds an uncertain variable to the focal firm's decision-making problem, resulting in a tradeoff between too little use—thus leaving value on the table—and too much use—thus running into a high risk of retaliation—for a given power symmetry in a supply chain relationship.



### 3.3 The decision-making model of coercive power use

Despite advances in the understanding of retaliation and tolerance (e.g., Seggie et al., 2013; Vidal, 2014; Cowan et al., 2015; Habib et al., 2015), how a focal firm could anticipate potential reactions during its decision of whether and how much to use coercive power has not yet been fully understood. In this paper, we develop a mathematical model that describes the recursive decision-making problem of a focal firm regarding the use of coercive power, which takes a partner firm's potential reaction into account.

We assume that the focal firm aims to maximize the effectiveness of its use of coercive power by choosing an optimal intensity ( $\alpha^*$ ) that it expects will lead to a maximum payoff, which is the difference between the gains  $G(\alpha)$  from the partner firm's compliance and the losses  $L(\alpha)$  from potential retaliation. As discussed previously, the intensity of coercive power use ( $\alpha$ ) is limited by the focal firm's coercive power potential and therefore can be normed from zero (i.e., no use of coercive power) to one (i.e., claiming the maximum amount of value possible given the focal firm's coercive power potential over the partner firm). Thus, we can formulate the payoff function of the focal firm as:

$$Z(\alpha) = \begin{cases} Z_+(\alpha) = G(\alpha), & \text{in case of tolerance} \\ Z_-(\alpha) = G(\alpha) - L(\alpha), & \text{in case of retaliation.} \end{cases} \quad (1)$$

Assuming that the probability of retaliation ( $P$ ) is determined solely by the power asymmetry in a supply chain relationship, it is an exogenous, constant factor. We can formulate the objective function of the focal firm as:

$$\max_{\alpha} E[Z(\alpha)] = G(\alpha) - P \cdot L(\alpha), \quad (2)$$

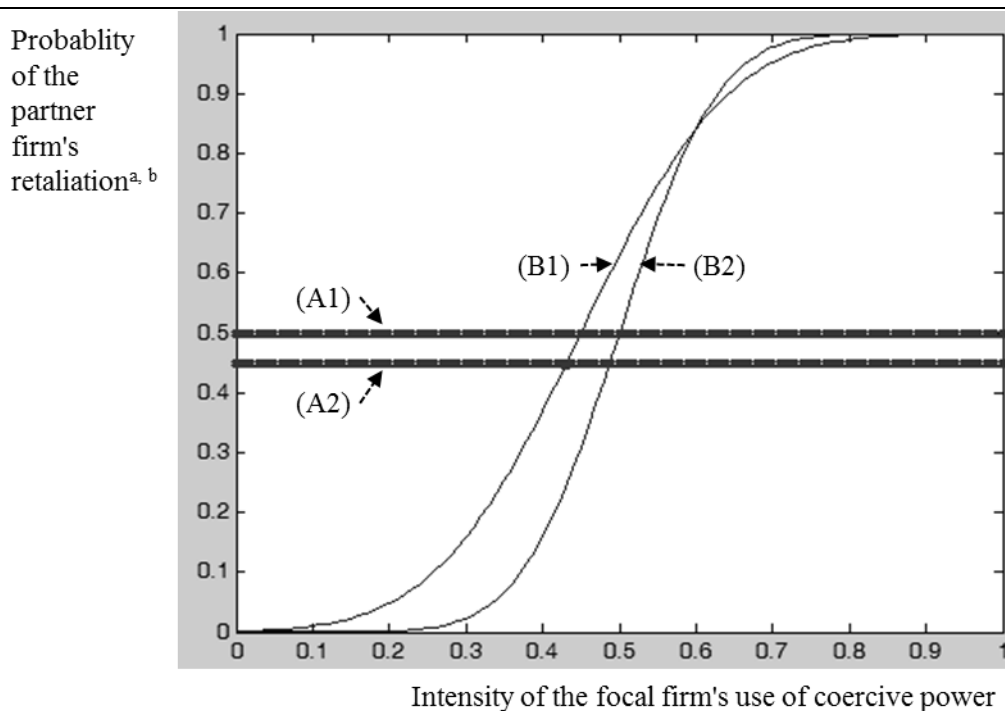
where  $E[Z]$  denotes the expected payoff. Then, the first-order condition is

$$E'[Z(\alpha)] = G' - P \cdot L' = 0. \quad (3)$$

Because the intensity of coercive power use ( $\alpha$ ) has been normed, the marginal gains ( $G'$ ) and marginal losses ( $L'$ ) represent the gains and losses when the focal firm uses coercive power to the maximum intensity ( $\alpha = 1$ ). Because all variables in the first-order condition are exogenously given, the focal firm will use coercive power to a maximum intensity if the probability of retaliation ( $P$ ) is lower than the ratio of the marginal gains ( $G'$ ) to marginal losses ( $L'$ ); otherwise, it will not use coercive power at all.

We extend this model by introducing the concept of the partner firm's tolerance level ( $\theta$ ), in which the probability of retaliation depends on the focal firm's actual intensity of coercive power use. As discussed previously, the tolerance level ( $\theta$ ) adds an uncertain variable to the decision-making problem. Let  $f(\cdot)$  denote its distribution estimated by the focal firm. Because the focal firm expects the partner firm to retaliate only if the use of coercive power breaches the tolerance level, the probability of retaliation is the cumulative probability that the tolerance level ( $\theta$ ) lies below the intensity of coercive power use ( $\alpha$ )—that is,  $P(\theta < \alpha)$ . This cumulative probability can be described by the corresponding cumulative distribution function  $F(\cdot)$ . In this way, we can extend the concept of probability of retaliation from a “flat rate” probability determined solely by the power asymmetry in a supply chain relationship to a cumulative distribution function that depends on both the power asymmetry and the intensity of coercive power use (**Figure 3**). For simplicity, we assume that  $F(\cdot)$  is a continuous, differentiable, and strictly increasing function, and we use normal cumulative distributions to illustrate  $F(\cdot)$  in all figures.

**Figure 3:** The relationship between the probability of the partner firm's retaliation and the intensity of the focal firm's use of coercive power.



- a. Probability of retaliation is *independent* of the intensity of coercive power use in cases where the focal firm has (A1) *low* or (A2) *high* relative power.
- b. Probability of retaliation *depending on* the intensity of coercive power use in cases where the partner firm (B1) has *low* relative power and is *less certain* about its estimation or (B2) has *high* relative power and is *more certain* about its estimation as cumulative functions

Thus, we can reformulate the payoff function in Equation (1) as

$$Z(\alpha, \theta) = \begin{cases} Z_+(\alpha, \theta) = G(\alpha), & \alpha \leq \theta \\ Z_-(\alpha, \theta) = G(\alpha) - L(\alpha), & \alpha > \theta. \end{cases} \quad (4)$$

For simplicity, we assume the gains from the use of coercive power to be a linear function of the intensity of coercive power use ( $\alpha$ ). Thus,

$$G(\alpha) = \alpha \bar{G}, \quad (5)$$

where the constant ( $\bar{G}$ ) denotes the maximal value the focal firm can claim (i.e., when  $\alpha = 1$ ). The severity of the potential retaliation depends on the extent to which the tolerance level is breached ( $\alpha - \theta$ ). For simplicity, we assume a linear relationship between the potential losses and the excess value the focal firm claims above the tolerance level,  $(\alpha - \theta)\bar{G}$ . Let  $\gamma$  denote the constant ratio in this linear relationship, thus reflecting the power asymmetry in a supply chain relationship. We consider  $\gamma$  as the relative severity of retaliation; it describes how severe the focal firm estimates the consequences of potential retaliation to be, relative to the excess value it claims. We obtain

$$L(\alpha, \theta) = \gamma(\alpha - \theta)\bar{G}. \quad (6)$$

Then, we can formulate the decision-making model of the use of coercive power as

$$Z(\alpha, \theta) = \begin{cases} Z_+(\alpha, \theta) = \alpha \bar{G}, & \alpha \leq \theta \\ Z_-(\alpha, \theta) = \alpha \bar{G} - (\alpha - \theta)\gamma \bar{G}, & \alpha > \theta. \end{cases} \quad (7)$$

This payoff function resembles the payoff function in the basic version of the well-known newsvendor problem (e.g., Eeckhoudt et al., 1995; de Véricourt et al., 2013). The basic newsvendor problem describes a situation in which a newsvendor must decide how many newspapers ( $q$ ) to order before the actual demand ( $D$ ) reveals itself. The actual demand ( $D$ ) is assumed to be fully characterized using a cumulative distribution function  $F_N(\cdot)$ , which corresponds to the distribution function  $f_N(\cdot)$ . The unit price ( $p$ ) and unit cost ( $c$ ) per newspaper are considered given and constant. If the newsvendor orders

more newspapers than the actual demand, it must throw the excess away. The payoff function to the newsvendor is then

$$\Pi(q, D) = \begin{cases} \Pi_+(q, D) = qp - qc = q(p - c), & q \leq D \\ \Pi_-(q, D) = Dp - qc = q(p - c) - (q - D)p, & q > D. \end{cases} \quad (8)$$

Similar to the newsvendor problem, the managers of a focal firm must decide on the intensity with which they will use coercive power ( $\alpha$ ) (analogous to the order quantity ( $q$ )) before the supply chain partner's tolerance level ( $\theta$ ) (analogous to the demand ( $D$ )) reveals itself through its retaliatory reaction. In the case of ( $\alpha \leq \theta$ ) (analogous to the case of ( $q \leq D$ )), the focal firm receives what it requests without suffering any loss from retaliation and obtains the payoff ( $\alpha\bar{G}$ ), where ( $\bar{G}$ ) is analogous to the net unit profit of a newspaper ( $p - c$ ). In the case of ( $\alpha > \theta$ ) (analogous to the case of ( $q > D$ )), the focal firm suffers the loss from its supply chain partner's retaliation ( $\alpha - \theta$ ) $\gamma\bar{G}$ , where ( $\gamma\bar{G}$ ) is analogous to the newspaper unit price ( $p$ ). The cumulative distribution function for the tolerance level,  $F(\cdot)$ , is analogous to the cumulative distribution function for the actual demand for newspapers,  $F_N(\cdot)$ . Thus, we formulate the decision-making problem of the use of coercive power in a manner equivalent to the newsvendor problem.

With this analogy, we can borrow mature concepts from the newsvendor problem to better understand the decision-making problem of the use of coercive power (Whetten et al., 2009; Oswick, Fleming, & Hanlon, 2011). In the following, we substitute the corresponding terms in the standard solution to the newsvendor problem (de Véricourt et al., 2013) to obtain the objective function for the use of coercive power and the solution to the model.

The objective function for a profit maximizing newsvendor is

$$\max_q E[\Pi(q, D)] = (1 - F_N(q))\Pi(q, q) + \int_0^q f_N(x)\Pi(q, x)dx. \quad (9)$$

Thus, we can formulate the objective function for the use of coercive power as

$$\max_\alpha E[Z(\alpha, \theta)] = (1 - F(\alpha))Z(\alpha, \alpha) + \int_0^\alpha f(x)Z(\alpha, x)dx. \quad (10)$$

Note that the first term on the right-hand side of Equation (10) is the expected payoff (i.e., payoff multiplied by corresponding probability) in the case of ( $\alpha \leq \theta$ ), while the second term is the expected payoff in the case of ( $\alpha > \theta$ ). The solution to the basic newsvendor problem is the optimal order quantity ( $q^*$ ) that maximizes the expected payoff:

$$q^* = F_N^{-1} \left( \frac{p-c}{p} \right), \quad (11)$$

where  $(F_N^{-1})$  denotes the inverse cumulative distribution function of the actual demand ( $D$ ). Using the analogy, we substitute  $(F_N)$  with  $(F)$ ,  $(p - c)$  with  $(\bar{G})$ , and  $(p)$  with  $(\gamma\bar{G})$ . Thus, we can calculate the optimal intensity of coercive power use ( $a^*$ ) as

$$a^* = F^{-1} \left( \frac{\bar{G}}{\gamma\bar{G}} \right) = F^{-1} \left( \frac{1}{\gamma} \right), \quad (12)$$

where  $F^{-1}$  denotes the inverse cumulative distribution function of the tolerance level ( $\theta$ ).

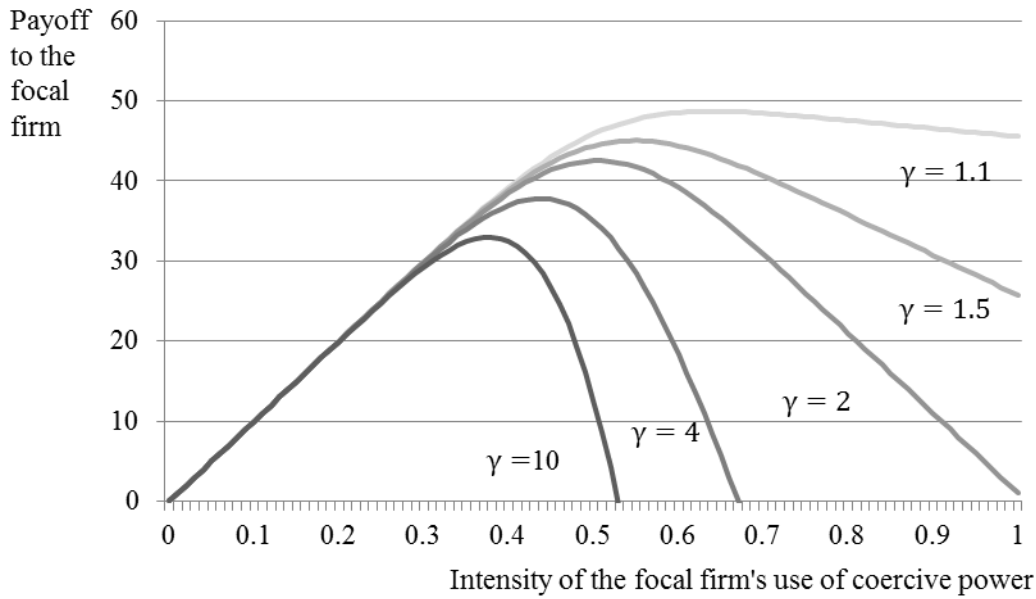
### **3.4 Implications of model results**

#### **3.4.1 Theory development by simulating the model**

The developed model describes the decision-making process of the focal firm regarding the use of coercive power. The simulation results in **Figure 4** support our theoretical arguments that the relationship between the intensity with which the focal firm uses coercive power and its effectiveness in terms of the expected payoff to the focal firm is non-linear (assuming a given power asymmetry and estimates of the probability distribution of the partner firm's tolerance level). We observe that the expected payoff first increases with the intensity of coercive power use and then decreases after a certain intensity of coercive power use.

This observation contradicts the common assumption in the extant literature, which suggests that the use of coercive power is either effective (Zhao et al., 2008; Pulles et al., 2014) or ineffective (Benton & Maloni, 2005; McCarter & Northcraft, 2007; Nyaga et al., 2013). Rather, the model supports the theoretical argument that a partner firm is likely to tolerate the use of coercive power if the intensity of coercive power use by a focal firm is relatively low, taking into account both the benefits that the partner firm receives from the supply chain relationship and its switching cost to another supply chain relationship (Cowan et al., 2015; Habib et al., 2015). Therefore, the expected value captured by the use of coercive power increases with the intensity of the power use to a certain threshold level of tolerance and decreases when the intensity further increases. Hence:

**Proposition 1:** The relationship between the intensity of coercive power use and value captured by the focal firm has an inverted U-shape.

**Figure 4:** Simulated results of the focal firm's expected payoff<sup>a</sup>.

<sup>a</sup>. Monte Carlo simulation based on Equation (10) using ( $\bar{G} = 100$ ), a standard-distributed tolerance level ( $\theta$ ) with mean of 0.5 and standard deviation of 0.1 and with varying levels of payoff structures ( $\gamma$ )

We derive the solution to the model from the critical fractile in the newsvendor problem (Equation (12)). The model suggests that the focal firm optimally chooses a certain intensity level of coercive power use ( $a^*$ ) such that the cumulative probability of the tolerance level's lying below the intensity of coercive power use equals the ratio of the excess value the focal firm claims above the tolerance level to the losses from potential retaliation. Formally,

$$P(\theta \leq a^*) = \frac{1}{\gamma}. \quad (13)$$

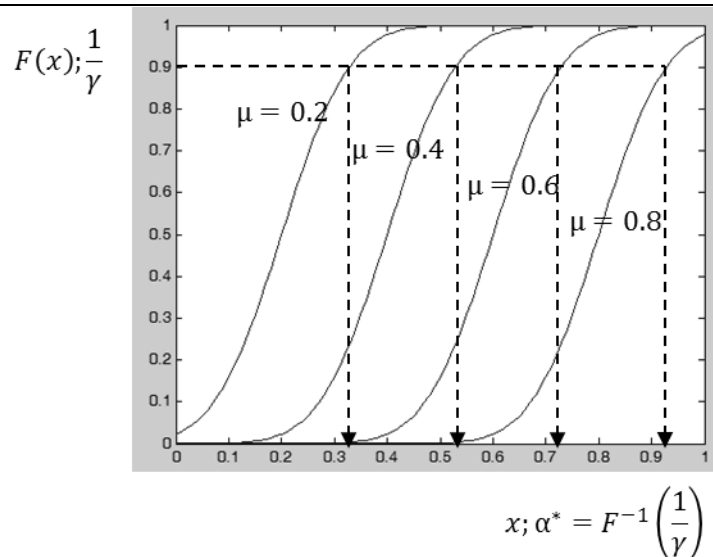
Because we assume that  $F(\cdot)$  is a strictly increasing function, its inverse,  $F^{-1}(\cdot)$ , is strictly increasing as well. Therefore,  $(1/\gamma)$  is positively related to  $a^*$ , and  $\gamma$  is negatively related to  $a^*$  (

**Figure 4).** The model suggests that the focal firm should use less coercive power when it estimates the consequences of potential retaliation to be higher. Note that in the case of  $\gamma \leq 1$ , Equation (12) has a corner solution,  $\alpha^* = 1$ . Thus, when the focal firm expects the loss from potential retaliation to be sufficiently low, the use of coercive power to a maximum intensity is optimal. These observations confirm the effect of power asymmetry on the use of coercive power.

**Figure 5** illustrates how the optimal intensity of coercive power use ( $\alpha^*$ ) increases in accordance with a higher mean ( $\mu$ ) of the estimated distribution of a partner firm’s tolerance level. This result reflects the basic mechanism of how a focal firm accounts for potential retaliation in its decision to use coercive power, which is novel to the power literature: The focal firm aims to maximize the effectiveness of the use of coercive power by exhausting its partner firm’s tolerance to its own advantage. Therefore:

**Proposition 2:** The focal firm’s optimal intensity of coercive power use is positively related to its estimation of the mean of the distribution of the partner firm’s tolerance level.

**Figure 5:** The focal firm’s optimal intensity of coercive power use depending on varying means of the estimated tolerance level<sup>a</sup>.



<sup>a</sup> An analytic simulation based on Equation (12) using standard-distributed tolerance levels ( $\theta$ ) with varying means ( $\mu$ ) and constant standard deviation of 0.1.



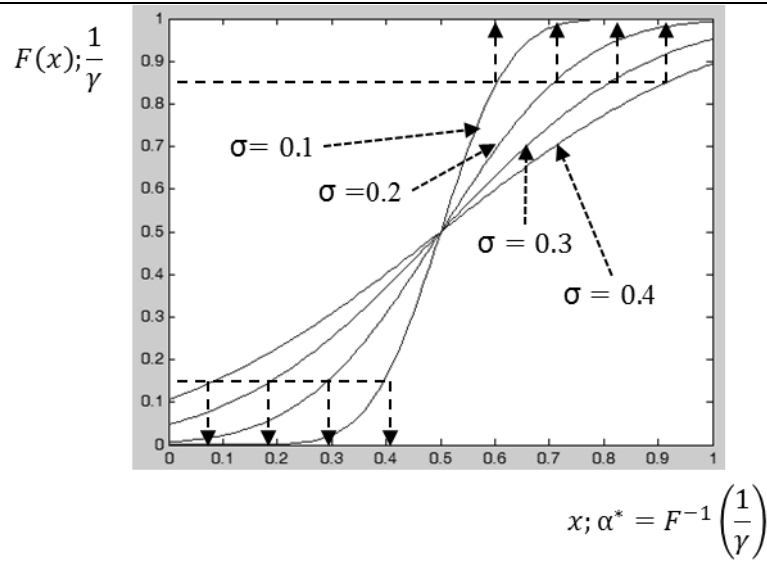


**Figure 6** illustrates how the optimal intensity of coercive power use ( $a^*$ ) is related to the standard deviation ( $\sigma$ ) of the estimated distribution of the partner firm's tolerance level. The model suggests that the more certain the focal firm is about its estimate (i.e., the smaller the standard deviation ( $\sigma$ )), the closer the optimal intensity is to the mean ( $\mu$ ) of the estimated distribution. In the extreme case that the focal firm is absolutely certain about the partner firm's tolerance level (i.e.,  $\theta$  is constant), the optimal intensity would equal the tolerance level (i.e.,  $a^* = \mu = \theta$ ). Conversely, the model suggests that the less certain the focal firm is about its estimate (i.e., the larger the standard deviation ( $\sigma$ )), the closer the optimal intensity is to one of the extreme ends (either zero or one). The reason is that the probability that the tolerance level is extremely high or extremely low increases as uncertainty increases. Depending on the consequences of potential retaliation relative to the excessive value claimed through the use of coercive power (i.e., the relative severity of retaliation ( $\gamma$ )), the relationship between the optimal intensity of coercive power use and the standard deviation ( $\sigma$ ) of the distribution can be either positive or negative. If the relative severity of retaliation ( $\gamma$ ) is so low that  $(1/\gamma)$  is higher than the mean ( $\mu$ ), risking a high intensity of coercive power use pays off for the focal firm. Conversely, if the severity of retaliation ( $\gamma$ ) is so high that  $(1/\gamma)$  is lower than the mean ( $\mu$ ), the focal firm benefits from greater caution in its use of coercive power.

This finding is counterintuitive because the expectation is that a risk-neutral decision maker would not care about the variation of uncertainty as long as the mean is constant. However, the model shows that the consequence of retaliation relative to the expected value claim through the use of coercive power, which is determined by the relationship characteristics, such as power asymmetry, can influence the decision of a firm even if its decision maker is risk-neutral. Therefore:

**Proposition 3:** The relative severity of retaliation moderates the relationship between the focal firm's optimal intensity of coercive power use and its estimate of the standard deviation of the distribution of the partner firm's tolerance level. This relationship is positive when the relative severity of retaliation is low; it is negative when the relative severity of retaliation is high.

**Figure 6:** The focal firm's optimal intensity of coercive power use depending on varying standard deviations of the estimated tolerance level<sup>a</sup>.



<sup>a</sup> An analytic simulation based on Equation (12) using standard-distributed tolerance levels ( $\theta$ ) with constant mean of 0.5 and varying standard deviations ( $\sigma$ ).

### 3.4.2 Practical implications

Although the focus of this paper is mainly on theory development, the model developed in this paper can help firms reflect on the optimal intensity with which they should use coercive power in their supply chain relationships. A challenge in the practical application of the model is assessing the distribution of the partner firm's tolerance level. One feasible approach for addressing the challenge could be to evaluate several scenarios reflecting different levels of coercive power use. By doing so, the focal firm could estimate a discrete distribution. For example, consider a supply chain relationship with the following characteristics:

- The focal firm estimates that it is able to claim a maximum value ( $\bar{G}$ ) of US\$10 million per year through the use of coercive power.
- If the partner firm retaliates, the loss to the focal firm is estimated to be twice as high as the excess value the firm initially claimed (i.e.,  $\gamma = 2$ ).

By adjusting the intensity with which it uses coercive power, the focal firm can claim any part of the maximum possible value. **Table 9** presents the cumulative distribution of the

partner firm's tolerance level as estimated by the focal firm in this example. Applying the model, the focal firm should use coercive power with an intensity that makes the probability of retaliation just equal to  $(1/\gamma)$ . In this case,  $a^* = F^{-1}\left(\frac{1}{2}\right) = 0.4$ . Thus, an intensity of coercive power use that claims US\$4 million per year would be optimal for the focal firm.

**Table 9:** A cumulative distribution function of tolerance level in a sample calculation

Intensity of coercive power use ( $\alpha$ )	The probability of retaliation, $F(\alpha) = P(\theta < \alpha)$
0.1	5%
0.2	12%
0.3	30%
0.4	50%
0.5	70%
0.6	85%
0.7	90%
0.8	95%
0.9	100%

Because the focal firm can only estimate the distribution of the partner firm's tolerance level from observation and experience, this estimate might actually be subject to manipulation by the partner firm. That is, the partner firm has ways to lower the focal firm's intensity of coercive power use, not only reducing its own losses but also avoiding potential setbacks in the relationship's strength and improving collaboration and value creation in the relationship (Benton & Maloni, 2005; Zhao et al., 2008; Nyaga et al., 2013). In particular, the positive relationship between the estimated mean of the tolerance level and the optimal intensity of coercive power use suggests that the partner firm should signal a low tolerance level. One way to do so is by intentionally displaying anger when suspecting the use of coercive power by the focal firm in negotiations and communications. Anger is frequently perceived as a signal that precedes retaliation (Vidal, 2014). Another strategy is to build a tough reputation (Tinsley, O'Connor, &

Sullivan, 2002)—for example, by educating focal firms with stories of retaliation and invoking social norms of reciprocity and fairness. The partner firm's reputation regarding retaliation is likely to shape the focal firm's images of the partner firm even before they have any interaction (Tinsley et al., 2002).

### **3.5 Conclusion, limitations, and future Research**

#### **3.5.1 Considerations for empirical testing of the model**

The objective of this paper was to conceptually and analytically advance our understanding of a focal firm's decision about the use of coercive power in supply chain relationships that takes potential retaliation (Figure 2) into account. Based on social exchange theory, this paper developed a mathematical model that explains the mechanisms behind the trade-off between gains and losses achieved through the use of coercive power, which is shaped by the interdependence between coercion and retaliation. On the basis of this model, this paper proposed a non-linear relationship between the use of coercive power and its outcomes.

Although this paper has offered guidance for operationalizing the key constructs in the developed model in the previous discussion (i.e., via the intensity of coercive power use, a partner firm's tolerance level, and the relative severity of retaliation), testing this model in future research faces the challenge that both firm-level and individual-level constructs might influence the use of coercive power and retaliation (Kumar et al., 1998; Vidal, 2014). To evaluate these factors comprehensively and to delve into potential interactions between them, future research might turn to multilevel theorizing and methodologies (Carter et al., 2015a).

To explore the specific influence of individual-level factors, future research could connect with the research stream of behavioral supply management (Carter et al., 2007; Croson et al., 2013), which has begun clarifying how behavioral aspects (e.g., biases) influence decision making in the supply chain. Furthermore, this paper identified an analogy to the newsvendor problem. This analogy is not necessarily limited to the basic version of the newsvendor problem as discussed in this paper. In an extension of the newsvendor problem, researchers have—both mathematically and empirically—shown that risk aversion of an individual decision maker decreases the order quantity (Eeckhoudt et al., 1995; de Véricourt et al., 2013). Based on the concept of risk aversion, we expect that a more risk-averse decision maker would perceive a lower probability of retaliation—thus a lower intensity of coercive power use according to Figure 1—to be more valuable than a less risk-averse decision maker would. Extending the analogy, we would expect risk aversion to decrease the intensity with which an individual actor uses coercive power, which is in line with experimental findings on risk aversion and power

use (Molm, 1997). Thus, the mechanisms behind the decision making on the use of coercive power might function similarly to mechanisms behind the newsvendor problem. By leveraging this analogy, research on the use of coercive power might further benefit from the more mature research stream of the newsvendor problem (Whetten et al., 2009).

### 3.5.2 Refinement and extension of the model

The model developed in this paper includes several simplifying assumptions that limit its capacity to reflect complex reality. In the following paragraphs, we highlight limitations of our approach and propose ways to refine and extend this research in future studies.

First, the assumption that the distribution of the partner firm's tolerance level is exogenous can be challenged. Arguably, a higher stake might make the partner firm more sensitive to fairness, thus decreasing the level of tolerance. If so, the partner firm's tolerance level ( $\theta$ ) might depend on the focal firm's maximum gain ( $\bar{G}$ ) in a similar way that demand ( $D$ ) might depend on price ( $p$ ) in an extension of the newsvendor problem (Petruzzi & Dada, 1999).

Second, the focal firm might be able to increase its partner's tolerance level ( $\theta$ ) by investing in non-coercive sources of power. For example, the partner firm is likely to be more willing to comply with a request from the focal firm when it wants to identify more closely with the focal firm, when the focal firm has a higher level of expertise, and when the focal firm has a higher level of legitimation (French & Raven, 1959; Benton & Maloni, 2005). Such aspects can be added to the model in a similar way to how advertising was integrated into the research on newsvendor problems (Kraiselburd, Narayanan, & Raman, 2004), which takes into account how a newsvendor can try to increase demand ( $D$ ).

Third, extending the model to a multi-period setting might reflect the reality of supply chain partners' repeated encounters. Two complications need to be considered in such an extension: (1) Mutual retaliation might need to be amplified or corrected in the forward spiral of a supply chain relationship (Autry & Golicic, 2010); and (2) the reaction of the partner firm in a previous interaction might influence the focal firm's estimate of the partner firm's tolerance level in the next interaction. The research on multi-period newsvendor problems (e.g., Wang, Chen, & Yan, 2010; Bisi, Dada, & Tokdar, 2011) might provide some insight for such an extension.

Fourth, supply chain partners might deal with multiple issues simultaneously. In this case, the focal firm might need to determine an overall optimal intensity level while considering different tolerance levels for different issues. Discussions on multi-item newsvendor problems (e.g., Smith & Agrawal, 2000) should provide guidance on how to extend the model to deal with the use of coercive power in a multi-issue context.

### **3.5.3 Application of the newsvendor problem beyond supply chain management research**

This paper is a first attempt to apply the concepts of the well-known newsvendor problem to a topic unrelated to an ordering decision. We show that the basic concepts of the newsvendor problem can be borrowed to solve decision-making problems (Whetten et al., 2009; Oswick et al., 2011) when the optimal decision depends on yet unknown variables, the probability of which in turn depends on the decision-making action. By identifying other analogies, future research might uncover novel applications of the newsvendor model (*Decision Sciences Journal*, 2013), even beyond supply chain management research. For example, rival firms compete against each other to gain higher market share (Chen, 1996; Chen & Miller, 2012), which is analogous to supply chain partners' using coercive power to compete for value. When deciding on a competitive move, such as cutting prices, introducing new products, or increasing production capacities (Yu, Subramaniam, & Cannella, 2013), a firm takes the potential reactions of its rivals into account, which in turn depend on the actual competitive move (Baum & Korn, 1999). Therefore, findings on the newsvendor problem might be applicable to strategic management research.

Furthermore, the problems of coercion and retaliation also exist on the level of countries and in international politics. In this regard, Lebovic (2003) suggests the existence of a tolerance threshold in international conflicts based on observations of the Cold War. Findings on the newsvendor problem might thus be applicable to international peace research as well.



#### **4 Effectiveness of Power Use in Buyer–Supplier Negotiations: The Moderating Role of Negotiator Agreeableness<sup>3</sup>**

Using social exchange and dual-system theory, this research investigates how a particular personality trait of negotiators—namely, agreeableness—moderates the effectiveness of using coercion and reward power to appropriate value in buyer–supplier negotiations. The analysis confirms significant moderating effects of negotiators’ agreeableness on the effectiveness of their use of coercion and reward power to appropriate value in buyer–supplier negotiations. Negotiators on both sides of the dyad with high agreeableness use reward power more effectively than negotiators with low agreeableness. Supplier-side negotiators with low agreeableness use coercion power more effectively than those with high agreeableness. This research introduces dual-system theory to the supply chain management literature and suggests that supply chain management research can benefit from simultaneously examining conscious decision processes of supply chain managers and processes emanating from individual, subconscious differences among those managers. It further suggests the use of theories that account for differences between a buyer and a supplier in a dyad.

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<sup>3</sup> This chapter is based on the unpublished working paper “*Effectiveness of Power Use in Buyer–Supplier Negotiations: The Moderating Role of Negotiator Agreeableness*” by Pei Shen, Lutz Kaufmann, and Felix Reimann. This manuscript has received an invitation to a major revision from the *International Journal of Physical Distribution & Logistics Management* after the first round of revision.

#### 4.1 Introduction

In any buyer–supplier relationship, negotiations are an important form of resource coordination and conflict resolution (Zachariassen, 2008; Bowles & Flynn, 2010; Thomas et al., 2013; Thomas et al., 2015). For example, buyers and suppliers negotiate to determine the details of their product and service exchanges or the split of costs from unexpected supply chain risk events (Thomas et al., 2013; Hohenstein, Feise, Hartmann, & Giunipero, 2015). When the interests of a buyer and a supplier are completely opposed, each party can appropriate value only at the expense of the other through distributive negotiations (Thompson, 1990; Ribbink & Grimm, 2014). When the interests are somewhat compatible, buyers and suppliers have an opportunity to jointly create value through integrative negotiations. However, they still need to negotiate the distribution of the created value (White, Tynan, Galinsky, & Thompson, 2004). Therefore, “[m]ost negotiations have a distributive element” (White *et al.*, 2004, p. 105), meaning that at least in a certain phase of a buyer–supplier negotiation, one party can appropriate value only at the expense of the other.

A widely acknowledged means to appropriate value in buyer–supplier interactions is the use of power (Kim et al., 2005; Williams & Moore, 2007; Daugherty, 2011). In general, power reflects a person’s ability to “carry out his or her own will despite resistance” (Kim *et al.*, 2005, p. 800). Powerful parties in buyer–supplier relationships “might calculate others’ dependencies and exert their power during negotiations to appropriate a larger percentage, if not all, [of the value created in the relationships]” (Crook & Combs, 2007, p. 548). According to French and Raven (1959), a person’s power over his or her counterpart can stem from five major bases: the ability to punish (coercion power), the ability to provide benefits (reward power), the possession of special

knowledge (expert power), the legitimation to dictate behavior (legitimate power), and the extent to which the counterpart wishes to identify with this person (referent power). Whereas the effects of expert, legitimate, and referent power on the behavior of the counterpart are rooted in the counterpart's willingness to comply, the effects of coercion and reward power derive from the explicit and deliberate use of these power bases by one party (Maloni & Benton, 2000; Zhao et al., 2008; Handley & Benton, 2012b). With the aim to explore negotiators' conscious, deliberate decision to use different power bases, this investigation focuses on coercion and reward power. Understanding the effectiveness of the use of reward and coercion power can help negotiators make better choices at a *conscious* level.

As with any business endeavor, negotiations are not only about making conscious choices but also about the execution of the chosen tactics (Sull, 2007). Because negotiation tactics are usually executed by managers representing their firms, negotiation behaviors and outcomes are influenced by human factors (e.g., Carter et al., 2007; Kaufmann, Carter, & Buhrmann, 2012). Individual personality traits, defined as consistent dispositional characteristics that underlie a person's behavior in similar situations (Sharma, Bottom, & Effenbein, 2013), have only recently been introduced to the supply chain management (supply chain management) literature (Tangpong et al., 2010; Li, Tangpong, Hung, Johns, Li, Tangpong, Hung, & Johns, 2013). Personality traits are commonly described through a five-factor model consisting of agreeableness, conscientiousness, extraversion, neuroticism, and openness (Costa & McCrae, 1992; Chiaburu, Oh, Berry, Li, & Gardner, 2011). Among these factors, *agreeableness* is particularly relevant in the context of negotiations (as a particularly intense form of person-to-person interaction) because it describes an individual's attitude toward other people (Graziano, Jensen-Campbell, & Hair, 1996; Dimotakis, Conlon, & Ilies, 2012). More specifically, agreeableness captures

the extent to which a person (negotiator) is “fundamentally altruistic, sympathetic to others, [and] eager to help and be helped in return” (Costa & McCrae, 1992, p. 15).

Research has found that, as a personality trait, agreeableness generally influences behavior at a *subconscious* level (Latham, Stajkovic, & Locke, 2010; Bandura, 2015). As one of the first supply chain management-related studies investigating personality traits, Tangpong *et al.* (2010) find that purchasing managers with high agreeableness are less likely to behave opportunistically in buyer–supplier relationships because they are intrinsically motivated to be more cooperative than managers with low agreeableness. Dimotakis *et al.* (2012) find that negotiators with low agreeableness are more engaged during purely distributive negotiations than negotiators with high agreeableness and posit that this is due to the better fit between a personality of low agreeableness and negotiation contexts that require competitive behavior. Recent advances in cognitive psychology suggest that subconscious behavioral influences are not deactivated when individuals make conscious decisions; rather, individual behavior is *simultaneously* influenced by two cognitive systems, one at a conscious level and another at a subconscious level (Lieberman, 2007; Healey *et al.*, 2015). However, extant research has not yet considered whether the subconscious influence of a negotiator’s personality traits may *interact* with the conscious choice of negotiation tactics (e.g., use of coercion and reward power), such that the effectiveness of the tactics differs depending on the personality of the negotiator using them. This shortfall limits the understanding of the role of a negotiator’s personality in the outcomes of buyer–supplier negotiations. Addressing this gap provides an important opportunity to shed light on how managers can train for and conduct negotiations more effectively from a behavioral perspective. This research therefore aims to answer the following questions: How effective is the use of reward and coercion power, respectively, to appropriate value in buyer–supplier

negotiations? And how does a negotiator’s agreeableness influence the effectiveness of reward and coercion power in appropriating value during negotiations?

To answer these questions, this research is premised on social exchange theory and dual-system theory. Prior research has used social exchange theory to explain the effectiveness of the use of power in buyer–supplier interactions (e.g., Zhao et al., 2008; Kiessling, Harvey, & Akdeniz, 2014; Pulles et al., 2014; Habib et al., 2015). The theory stipulates that buyers and suppliers engage with each other for mutual rewards and to avoid punishment (Nyaga *et al.*, 2013; Pulles *et al.*, 2014). Dual-system theory is rooted in cognitive neuroscience and has recently been used to explain human behavior in the management literature (e.g., Hodgkinson & Healey, 2011; Welsh & Ordóñez, 2014; Healey et al., 2015). It proposes that human behavior is guided by two distinct—and simultaneously operating—mental processing systems: the C-system (for the C in *reflective*) and the X-system (for the X in *reflexive*) (Kahneman, 2003; Lieberman et al., 2002). The C-system is “responsible for cognitive processes that are reflective—that is, controlled, deliberative, and conscious” (Healey *et al.*, 2015, p. 400). The X-system is responsible for “automatic, reflexive, and subconscious information processing” (Welsh & Ordóñez, 2014, p. 725).

Methodologically, this research uses a simulated single-product price negotiation to test the developed hypotheses. Simulated negotiation is a frequently used approach to empirically examine linkages among negotiator differences, negotiation behaviors, and outcomes, because it allows researchers to investigate causal relationships in a controlled environment (Krause, Terpend, & Petersen, 2006; Dimotakis et al., 2012; Ribbink & Grimm, 2014). Moreover, it allows data collection from both sides of a negotiation *dyad*.

In summary, this research aims to contribute to the supply chain management literature in two ways. First, it advances the understanding of the effectiveness of the use of coercion and reward power to appropriate value in buyer–supplier negotiations. Second, it introduces dual-system theory to the supply chain management literature and identifies the personality trait of agreeableness as a relevant moderator for how managers can use effective coercion and reward power. The findings indicate that the supply chain management field can benefit from simultaneously examining both conscious decision processes of supply chain managers and processes emanating from individual differences among those managers at a subconscious level.

## 4.2 Theoretical background and hypotheses development

### 4.2.1 Value appropriation in buyer–supplier negotiations

Although the supply chain management literature has largely taken a collaborative perspective on buyer–supplier relationships (e.g., Simatupang & Sridharan, 2005; Cao & Zhang, 2011; Kembro & Näslund, 2014), this does not exclude the notion that a key objective of supply chain members is to enhance their own competitive advantage and financial performance (Hunt & Davis, 2008; Nair et al., 2011). Toward this objective, buyers and suppliers negotiate terms and conditions for product and service deliveries and solve conflicts, in pursuit of favorable outcomes for themselves (Thompson, 1990; Brooks & Schweitzer, 2011). Although buyer–supplier negotiations are often not purely distributive—they can and frequently do include value creation when some compatible interests are identified—bargaining about how much of the generated value each party can capture is usually unavoidable (White *et al.*, 2004). The popular dichotomy of win-win (value creating) *versus* win-lose (value claiming) negotiations therefore is questionable in light of the practical co-existence of both approaches (Zachariassen, 2008; Thomas et al., 2013). Against this background, this research focuses on the study of value appropriation between two supply chain partners.

The supply chain management literature has long acknowledged that buyer–supplier interactions, such as negotiations, are driven not only by economic interests but also by social dynamics (Zhang, Henke Jr, & Griffith, 2009; Narasimhan, Narayanan, & Srinivasan, 2013; Nyaga et al., 2013; Terpend & Krause, 2015). On the one hand, buyers and suppliers typically negotiate to resolve conflicts of economic interests (Zachariassen, 2008). On the other hand, the two parties engage in social exchanges even in purely distributive negotiations (Thomas et al., 2013; Kong, Dirks, & Ferrin, 2014). For example,

negotiators exchange compliments, develop trust with each other, and conclude with agreements that can affect the relational strength between them (Kong *et al.*, 2014; Thomas *et al.*, 2015). Therefore, social exchange theory is an insightful theoretical lens to examine buyer–supplier negotiations (Kong *et al.*, 2014). In particular, extant research has used one of the theory’s key tenets—namely, the norm of reciprocity—to conceptualize the balance of give and take in a relationship (Blau, 1964; Cropanzano & Mitchell, 2005; Nyaga *et al.*, 2013; Černe, Nerstad, Dysvik, & Škerlavaj, 2014).

#### **4.2.2 The deliberate use of coercion and reward power in buyer–supplier negotiations**

Coercion and reward are two types of power that are frequently used in buyer–supplier interactions to exert influence (Zhao *et al.*, 2008; Pulles *et al.*, 2014). Although reward may be viewed as an implicit form of coercion—because withholding reward can be perceived as punishment—extant research has offered two ways to distinguish these two types of power. First, coercion and reward can be distinguished in relation to the current or expected situation: “If rewards are regularly given, they can be withheld as punishment; if punishments are regularly given, they can be withheld as rewards” (Molm, 1997, p. 116). Second, coercion and reward can be distinguished by the target’s perception: Unlike the use of coercion power, the use of reward power is likely to encourage positive perceptions by the target (Maloni & Benton, 2000; Nyaga *et al.*, 2013; Pulles *et al.*, 2014). Thus, rewards are perceived as positive and beneficial, whereas coercions are perceived as negative and punitive, relative to the target’s current situation or expectation.

The rationale for using coercion and reward power to appropriate value in buyer–supplier negotiations can be derived from social exchange theory. A negotiator uses *coercion* power by making a credible threat to punish the counterpart (Maloni & Benton,



2000). To avoid the punishment, the counterpart is likely to alter behavior in favor of the power-using party (Pulles *et al.*, 2014). Therefore, the use of coercion power can be particularly effective in putting pressure on counterparts, thus enforcing fast and rigid compliance (Molm, 1997; Zhao *et al.*, 2008). Moreover, coercion power is frequently used when the use of non-coercive power has failed to achieve the desired compliance (Payan & McFarland, 2005; Gelderman *et al.*, 2008). Thus:

**Hypothesis 1:** The use of *coercion* power is positively associated with the appropriated value in a buyer–supplier negotiation.

A negotiator uses *reward* power by convincing the counterpart of the intention to initiate reciprocal concessions to reach an agreement (Hüffmeier, Freund, Zerres, Backhaus, & Hertel, 2014), which in turn can generate the obligation to return the favor (Blau, 1964; Nyaga *et al.*, 2013; Černe *et al.*, 2014). Therefore, the use of reward power can be effective to lure the counterpart to make additional concessions (Hüffmeier *et al.*, 2014). Moreover, consistent caring behavior, such as providing benevolent help to others, can dismantle norms of self-interest and promote reciprocity (Grant & Patil, 2012). Thus:

**Hypothesis 2:** The use of *reward* power is positively associated with the appropriated value in a buyer–supplier negotiation.

Because social exchange theory does not differ in its predictions for either side of the buyer–supplier dyad, we posit that these hypotheses hold for both buyers and suppliers in a negotiation.

#### **4.2.3 Moderating effects of negotiator agreeableness on the effectiveness of the use of power**

Recent behavioral supply chain management research suggests that buyer–supplier interactions are not only affected by rational, deliberate decision-making behavior of supply chain managers but also by human factors, such as biases, that exert their influences at a subconscious level (Carter et al., 2007; Knemeyer & Naylor, 2011; Kaufmann et al., 2012). Extant research suggests that accounting for differences at the personal level can advance understanding of a series of supply chain phenomena, such as the bullwhip effect (Croson & Donohue, 2006), supply chain opportunism (Tangpong *et al.*, 2010), and supplier selection processes (Kaufmann *et al.*, 2012). Personality traits of individual managers can affect buyer–supplier interactions because they exert influences on human behavior at a subconscious level (Tett & Guterman, 2000; Lievens, Chasteen, Day, & Christiansen, 2006; Barrick, Mount, & Li, 2013; Wang, Noe, & Wang, 2014). Therefore, accounting for personality traits of individual negotiators should lead to a more nuanced understanding of the effectiveness of the use of power in buyer–supplier negotiations.

As mentioned previously, the negotiation and supply chain management literature has widely investigated personality traits using a five-factor model (e.g., Barrick *et al.*, 2013; Sharma *et al.*, 2013): *Agreeableness* captures varying individual attitudes toward other people, from kind and prosocial on the one hand to skeptical and egoistic on the other hand. *Conscientiousness* captures varying individual motivations and diligence, from dependable and responsible on the one hand to lackadaisical and sloppy on the other hand. *Extraversion* captures varying individual attitudes toward dominance, from active and assertive on the one hand to quiet and reserved on the other hand. *Neuroticism* captures varying individual attitudes toward uncertainty and negative events, from anxious and depressive on the one hand to calm and secure on the other hand. *Openness* captures varying individual attitudes toward unfamiliar experiences and ideas, from

curious and artistic on the one hand to rigid and practical on the other hand (McCrae & John, 1992; Caplan, 2003; Barrick et al., 2013).

Among the five factors, *agreeableness* is “most concerned with interpersonal relationships” (Graziano *et al.*, 1996, p. 820). As such, it is particularly relevant for situations with interpersonal conflict potential because it subconsciously regulates an individual’s engagement with and reactions to others in such situations (Dimotakis *et al.*, 2012). Individuals with high agreeableness tend to be intrinsically motivated to behave in a kind and cooperative way, whereas individuals with low agreeableness tend to be intrinsically motivated to behave in a skeptical and competitive way (Graziano, Habashi, Sheese, & Tobin, 2007; Dimotakis et al., 2012).

According to dual-system theory, the C-system and X-system operate simultaneously and can exert parallel and sometimes competing influences on human behavior (Healey *et al.*, 2015). While the C-system involves controlled, deliberative, and conscious cognitive processes, the X-system uses an individual’s underlying knowledge structures and mental schemas to quickly process information through subconscious pattern matching and can be triggered by simple exposure to related stimuli (Lieberman et al., 2002; Welsh & Ordóñez, 2014; Healey et al., 2015). As previously noted, personality traits describe an individual’s stable characteristics and are considered part of the X-system (Latham *et al.*, 2010; Sharma *et al.*, 2013).

In the course of a negotiation, negotiators frequently use their C-systems to consciously reflect on the situation, process the available information, and make deliberate decisions, such as the choice of their power tactics, depending on what seems most rational and promising in the given situation (Olekalns, Smith, & Walsh, 1996; Kim et al., 2005; Welsh & Ordóñez, 2014; Healey et al., 2015). At the same time, their X-systems

subconsciously process the situation and may trigger subtle behaviors according to their personality. These subtle, subconscious behaviors may be aligned with the conscious behaviors initiated by the C-system, but in some situations, they can oppose and contradict them.

In general, when the C-system and X-system are aligned, the total effect should be facilitative (Lieberman, 2007; Healey et al., 2015); conversely, when the two systems are conflicting, the total effect is competitive (Lieberman, 2007; Healey et al., 2015). Behaving in a way that is against one's preference is like a right-handed person writing with the left hand—it is possible, but, without extensive training, it can cost a great deal of energy and may be ineffective (Bayne, 2004). Therefore, the subconscious influence of agreeableness may assist or hinder the conscious power-using behavior of a negotiator. When a negotiator with low agreeableness uses a high level of coercion power, the C-system and the X-system are likely to facilitate each other (Welsh & Ordóñez, 2014; Healey et al., 2015). For example, the negotiator may feel at ease when making threats, thus leading the counterpart to perceive the threats as credible. Conversely, when a negotiator with high agreeableness uses a high level of coercion power, the C-system and the X-system are likely to compete with each other (Welsh & Ordóñez, 2014; Healey et al., 2015). It might become apparent to the counterpart that the negotiator feels uncomfortable in making threats, which may make those threats less credible. Consequently, negotiators with low agreeableness might be more effective in using coercion power than negotiators with high agreeableness. Furthermore, the discomfort caused by the competing influence of the C-system and the X-system might motivate negotiators to acquiesce to the counterpart's demands, to quickly end the negotiation and escape the discomfort (Dimotakis *et al.*, 2012). For the same reasons, negotiators with high agreeableness might be more effective in using reward power than negotiators with low agreeableness. Negotiators with low

agreeableness might struggle with making an offer of benefits appear sincere and benevolent, causing doubts and mistrust on the side of the counterpart, which may make the use of reward power ineffective (Kong *et al.*, 2014). Thus:

**Hypothesis 3:** A negotiator’s *agreeableness* negatively moderates the effectiveness of the use of *coercion* power to appropriate value in a buyer–supplier negotiation.

**Hypothesis 4:** A negotiator’s *agreeableness* positively moderates the effectiveness of the use of *reward* power to appropriate value in a buyer–supplier negotiation.

### **4.3 Research methodology**

#### **4.3.1 Research design**

Data were collected through a negotiation simulation with buyer–supplier dyads. Participants of the negotiation simulation were randomly assigned to the buyer or supplier role in a single-issue negotiation task (Barry & Friedman, 1998; Bowles & Flynn, 2010). The issue at stake was the purchase price/sales price of a batch of products (i.e., watches, shoes, or game sets). Printed role instructions informed the buyer that the buying firm urgently needed a batch of the product for a special event. The total budget was set at US\$225,000 (the buyer’s reservation price). Participants in the supply role were told that they urgently needed to clear out storage space that contained the exact amount of the product the buyer needed to obtain. They were told that the lowest price they should accept was US\$200,000 (supplier’s reservation price). Thus, the task provided the parties with a zone of potential agreement of US\$25,000 (the distance between the reservation prices). Participants were instructed to conduct the negotiation in a way that maximized the economic interests of the firm they represented. They were given 10 minutes’ preparation time and 20 minutes’ negotiation time. Each participant completed a survey after concluding the negotiation.

#### **4.3.2 Sample and data collection**

Seventy-eight professional managers from a wide range of industries and 74 business school students, all enrolled in negotiation courses, participated in simulated negotiations. They were randomly formed into pairs for the negotiation task in their respective courses. Of the 152 participants, 66 participants were women (43.4%). All 152 participants (76 pairs) provided useful data.

If certain conditions are met, the use of combined professional manager and student samples is widely accepted in both the supply chain management and negotiation literature (e.g., Amanatullah, Morris, & Curhan, 2008; Bowles & Flynn, 2010; Thomas et al., 2013; Ribbink & Grimm, 2014). First, the student sample and the professional manager sample should not significantly differ from each other in the constructs of interest (Croson & Donohue, 2006; Herbst & Schwarz, 2011). For the research at hand, the respective *t*-test results indicated no significant difference in any variables between the student sample and the professional manager sample. Second, the theoretical foundation of the hypotheses should hold regardless of sample characteristics (Stevens, 2011). The hypotheses developed in this research are based on social exchange theory and dual-system theory. As such, they are universalistic conceptualizations that apply to any individuals negotiating on behalf of their company regardless of their professional status. For these reasons, the use of a combined manager and student sample in this research appears appropriate and meets the respective guidelines established in the supply chain management literature (Stevens, 2011).

#### **4.3.3 Construct measures and control variables**

The dependent variable in this research is the *appropriated value* in a buyer–supplier negotiation. We measure it with the captured share of the zone of possible agreements, as indicated in the contract both negotiation parties signed in the simulated negotiation (Novemsky & Schweitzer, 2004). The use of an objectively determined dependent variable reduces the risk of common method bias.

The use of *coercion* and *reward* power by a negotiator was assessed by the respective negotiator’s counterpart, using multi-item seven-point Likert-type scales adapted from Maloni and Benton (2000). Empirical supply chain management research

has repeatedly validated these sets of measurements (e.g., Benton & Maloni, 2005; Handley & Benton, 2012b; Nyaga et al., 2013; Pulles et al., 2014). The survey items of coercion power asked the participants to assess the extent to which they experienced threatening and punishing behavior from their counterparts during the negotiation. The survey items of reward power asked them to assess the extent to which they experienced helping and incentivizing behavior from their counterparts during the negotiation.

**Table 10** provides all items, their factor loadings, and reliability indicators.

We measured the negotiator's *agreeableness* with multi-item seven-point Likert-type scales adapted from Tangpong *et al.* (2010), who in turn based their scales on the International Personality Item Pool (IPIP) introduced by Goldberg, Johnson, Eber, Hogan, Ashton, Cloninger, and Gough (2006). Psychology research has widely used and validated the personality measurement items from the IPIP (e.g., Segerstrom, Evans, & Eisenlohr-Moul, 2011; O'Connor & Athota, 2013; Henle & Gross, 2014). The items are short verbal phrases, such as "I feel others' emotions," that allow participants to respond in a compact, but more contextualized, way than single trait adjectives (Goldberg *et al.*, 2006). Unlike the variables on power use, the items on agreeableness were self-reported by each negotiator. This means that the independent variables (power use, reported by counterpart), the moderator (agreeableness, self-reported), and the dependent variable (appropriated value, objectively observed) were all assessed from different sources, minimizing the risk of both common method bias and social desirability bias. Furthermore, the dependent variable (value appropriated from a negotiation) was formed chronologically after the independent variables (power used during the negotiation) and the moderator (agreeableness as a consistent dispositional characteristics), minimizing the risk of endogeneity.



The participants' *gender* (coded as 1 for women and 0 for men) and the *perceived interdependence* between the negotiation parties served as control variables. The effect of gender differences is an enduring issue in the negotiation literature (see Mazei, Hüffmeier, Freund, Stuhlmacher, Bilke, & Hertel, 2015, for a meta-analysis). For perceived interdependence, high interdependence may affect negotiators' motivation to use power, because it puts them into a structurally weaker position (Thomas *et al.*, 2013). We measured it using multi-item seven-point Likert-type scales adapted from Thomas *et al.* (2013). Furthermore, all variables from the *counterpart* served as control variables because both parties affect the outcomes of a dyadic negotiation (Thompson, 1990; Krause *et al.*, 2006; Elfenbein, Curhan, Eisenkraft, Shirako, & Baccaro, 2008; Bowles & Flynn, 2010).

A confirmatory factor analysis tested the validity and reliability of the measures of all latent variables (the use of coercion and reward power, agreeableness, and perceived interdependence). The measurement model showed good goodness-of-fit values ( $\chi^2 = 70.895$ ,  $\chi^2/df = 1.182$ ; CFI = 0.984; TLI = 0.980; GFI = .936; AGFI = .920; NFI = .908; RMSEA = 0.035; SRMR = 0.0811). Thus, all constructs proved to be sufficiently valid (Hu and Bentler, 1999). Cronbach's alpha values ranged between 0.650 and 0.848. The average variance extracted (AVE) values ranged between 0.664 and 0.809. Thus, all constructs proved to be sufficiently reliable (Bagozzi & Yi, 1988; Hair *et al.*, 2013). Moreover, the AVE value for each construct was greater than the squared correlations between every pair of constructs, indicating adequate discriminant validity (Fornell & Larcker, 1981).

**Table 10:** Measurement items, reliability, and validity

Construct (source)	Cronbach's alpha, AVE, and loading
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<i>The use of coercion power</i> (Maloni & Benton, 2000)	$\alpha = 0.818$ ; AVE = 0.734
If I had not accepted my counterpart's offer, my company would not receive very good treatment from his/her company in the future.	0.568
If I had not agreed to his/her suggestions for the deal, my counterpart could make things difficult for my company in the future.	0.839
My counterpart made clear that failing to comply with his/her requests would result in penalties.	0.929
<i>The use of reward power</i> (Maloni & Benton, 2000)	$\alpha = 0.817$ ; AVE = 0.745
My counterpart offered incentives when I initially showed reluctance to accept his/her offer.	0.727
I felt that by going along with my counterpart, my company would be favored on other occasions.	0.869
My counterpart offered rewards so that I would go along with his/her wishes.	0.739
<i>Negotiator agreeableness</i> (Tangpong <i>et al.</i> , 2010)	$\alpha = 0.848$ ; AVE = 0.834
I have a soft heart.	0.742
I sympathize with others' feelings.	0.799
I often take time out for others.	0.736
I feel others' emotions.	0.815
<i>Perceived interdependence</i> (Thomas <i>et al.</i> , 2013)	$\alpha = 0.650$ ; AVE = 0.664
My company and my counterpart's company would have a hard time replacing the relationship even if we wanted to.	0.538
I feel that my company and my counterpart's company depend on each other.	0.787
I feel that my company and my counterpart's company are crucial to each other's success.	0.585

## Analysis and results

**Table 11** provides a comparison of the data between the professional manager sample and the student sample. The *t*-test results show that the students did not behave in a significantly different way from the professionals (all significance levels above 0.1). Therefore, we combined both samples in the analyses.

**Table 11:** Mean comparison between professional manager sample and student sample

Variables	Manager buyer	Manager supplier	Manager all	Student buyer	Student supplier	Student all	Mean diff. buyer	Mean diff. supplier	Mean diff. all
Appropriated value	0.61	0.39	0.50	0.55	0.45	0.50	0.06	-0.06	0.00
Coercion	3.31	4.17	3.74	3.79	4.18	3.98	-0.48	-0.01	-0.24
Reward	3.92	4.04	3.98	4.50	3.82	4.16	-0.58	0.22	-0.18
Agreeableness	5.11	5.32	5.21	4.94	5.15	5.05	0.17	0.17	0.16
Perceived interdependence	5.09	4.84	4.97	4.83	4.99	4.91	0.26	-0.15	0.06
Gender	0.31	0.38	0.35	0.62	0.43	0.53	-0.31**	-0.05	-0.18*

**Note:** Significance at: † $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ , and \*\*\* $p < 0.001$ .

**Table 12** describes the average values, standard deviations, and a comparison between buyer and supplier data. We analyzed the buyer and supplier data separately because they had different role instructions. A comparison of the buyer and supplier data shows no significant difference in gender and agreeableness between the participants in either role, indicating an effective random assignment of the roles. Surprisingly, buyers used coercion power to a significantly higher extent than suppliers ( $p = 0.011$ ). Moreover, buyers, on average, outperformed their supplier counterparts ( $p = 0.084$ ). **Table 13** presents the correlation coefficient matrix of all the variables.

**Table 12:** Mean, standard deviations, and mean comparison between buyer and supplier data

Effectiveness of Power Use in Buyer–Supplier Negotiations: The Moderating Role of Negotiator Agreeableness

Variables	Supplier mean	Supplier SD	Buyer mean	Buyer SD	Mean difference
Appropriated value	0.42	0.39	0.58	0.39	-0.16 <sup>†</sup>
Coercion	3.54	1.39	4.17	1.45	-0.63*
Reward	4.20	1.56	3.94	1.44	0.26
Agreeableness	5.24	1.12	5.03	1.17	0.21
Perceived interdependence	4.91	0.97	4.97	1.15	-0.06
Gender	0.41	0.50	0.46	0.50	-0.05

**Note:** Significance at: <sup>†</sup> $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ , and \*\*\* $p < 0.001$ .

**Table 13:** Mean, standard deviations, and correlations of constructs

Variables	B_OUT	B_COE	B_REW	B_AGR	B_INT	B_GEN	S_OUT	S_COE	S_REW	S_AGR	S_GEN	S_INT
Buyer outcome (B_OUT)	1											
Buyer coercion (B_COE)	0.22 <sup>†</sup>	1										
Buyer reward (B_REW)	-0.12	0.07	1									
Buyer agreeableness (B_AGR)	-0.07	0.02	-0.05	1								
Buyer perceived interdependence (B_INT)	0.00	0.07	0.11	0.47***	1							
Buyer gender (B_GEN)	-0.06	-0.18	-0.01	0.11	-0.08	1						
Supplier outcome (S_OUT)	-1.00***	-0.22 <sup>†</sup>	0.12	0.07	0.00	0.06	1					
Supplier coercion (S_COE)	-0.01	-0.10	0.00	0.22 <sup>†</sup>	0.30**	0.08	0.01	1				
Supplier reward (S_REW)	-0.10	-0.09	0.02	0.14	0.23 <sup>†</sup>	0.02	0.10	0.31**	1			
Supplier agreeableness (S_AGR)	-0.07	0.10	-0.01	0.08	0.03	0.02	0.07	-0.12	0.21 <sup>†</sup>	1		
Supplier perceived	-0.06	0.07	0.19	-0.09	0.03	-0.07	0.06	0.14	0.08	0.00	1	

interdependence (S_INT)												
Supplier gender (S_GEN)	-0.02	0.01	-0.03	-0.02	0.00	0.15	0.02	0.17	0.15	0.20 <sup>†</sup>	0.29 <sup>*</sup>	1
<b>Note:</b> Significance at: <sup>†</sup> $p < 0.1$ , <sup>*</sup> $p < 0.05$ , <sup>**</sup> $p < 0.01$ , and <sup>***</sup> $p < 0.001$ .												

We tested all hypotheses using hierarchical regression analysis, a common approach to examine main and interaction effects (e.g., Flynn, Huo, & Zhao, 2010; Tangpong et al., 2010; Boon-itt & Chee Yew, 2011). We created the interaction terms using the mean-centered scales, to avoid multicollinearity between the interaction terms (Poppo & Zhou, 2014). The variance inflation factor values associated with each regression coefficient in the whole analysis did not exceed 1.711, indicating no problem with multicollinearity (Zhou, Min, Xu, & Cao, 2008). Because the hypotheses do not assume a specific role for the negotiator, they apply to both the buyer and the supplier in a dyadic negotiation (Krause et al., 2006; Elfenbein et al., 2008; Thomas et al., 2013). Combining both buyer and supplier outcomes into a single analysis would violate the assumption of independent observations in ordinary least squares regression, because buyers’ economic outcomes are perfectly negatively correlated with the suppliers’ (Barry & Friedman, 1998). Therefore, we conducted separate analyses for buyers and suppliers (Barry & Friedman, 1998). As previously discussed, we used counterpart effects (e.g., the counterpart’s use of coercion and reward power) as an additional control because both parties affect the outcomes of a dyadic negotiation (Krause et al., 2006; Bowles & Flynn, 2010). **Table 14** and **Table 15** summarize the regression results for negotiators on the buyer and supplier side, respectively.

**Table 14:** Hierarchical regression results for negotiators on the buyer side

Dependent variable: Buyer appropriated value
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Effectiveness of Power Use in Buyer–Supplier Negotiations: The Moderating Role of Negotiator Agreeableness

Independent variables	Step 1	Step 2	Step 3
<i>Control variables</i>			
Buyer perceived interdependence	-0.002	0.054	0.242 <sup>†</sup>
Buyer gender	-0.067	-0.012	-0.003
<i>Direct effects</i>			
Buyer coercion		0.231 <sup>†</sup>	0.258*
Buyer reward		-0.130	-0.139
Buyer agreeableness		-0.103	-0.147
<i>Interaction effects</i>			
Buyer coercion × Buyer agreeableness			-0.030
Buyer reward × Buyer agreeableness			0.207 <sup>†</sup>
<i>Counterpart effects</i>			
Supplier perceived interdependence	-0.071	-0.070	-0.034
Supplier gender	0.013	0.016	-0.048
Supplier coercion		0.044	0.050
Supplier reward		-0.072	-0.052
Supplier agreeableness		-0.073	-0.096
Supplier coercion × Supplier agreeableness			0.414**
Supplier reward × Supplier agreeableness			-0.362**
<i>R</i> <sup>2</sup>	0.008	0.089	0.288
Change in <i>R</i> <sup>2</sup>	0.008	0.081	0.199
Change in <i>F</i>	0.148	0.965	4.266**

**Note:** Significance at: † $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ , and \*\*\* $p < 0.001$ .

**Table 15:** Hierarchical regression results for negotiators on the supplier side

Dependent variable: Supplier appropriated value			
Independent variables	Step 1	Step 2	Step 3
<i>Control variables</i>			
Supplier perceived interdependence	0.071	0.070	0.034
Supplier gender	-0.013	-0.016	0.048
<i>Direct effects</i>			
Supplier coercion		-0.044	-0.050
Supplier reward		0.072	0.052
Supplier agreeableness		0.073	0.096
<i>Interaction effects</i>			
Supplier coercion × Supplier agreeableness			-0.414**
Supplier reward × Supplier agreeableness			0.362**
<i>Counterpart effects</i>			
Buyer perceived interdependence	0.002	-0.054	-0.242†
Buyer gender	0.067	0.012	0.003
Buyer coercion		-0.231†	-0.258*
Buyer reward		0.130	0.139
Buyer agreeableness		0.103	0.147
Buyer coercion × Buyer agreeableness			0.030
Buyer reward × Buyer agreeableness			-0.207†
$R^2$	0.008	0.089	0.288
Change in $R^2$	0.008	0.081	0.199
Change in $F$	0.148	0.965	4.266**

**Note:** Significance at: † $p < 0.1$ , \* $p < 0.05$ , \*\* $p < 0.01$ , and \*\*\* $p < 0.001$ .

In the first step of the hierarchical regressions, we examined the effects of the control variables. The results did not show any significant effects of participants' gender or their perceived interdependence on the appropriated value. In the second step, we added the use of coercion and reward power and the level of agreeableness to the regression models. There was no significant change in the  $F$ -statistics of the models. The buyers' use of coercion power had a positive effect on their appropriated value ( $b = 0.231$ ,  $p = 0.065$ ). However, the effect of the suppliers' use of coercion power was not significant. Therefore,  $H1$  was supported for buyers but not for suppliers. The direct effects of the use of reward power on the appropriated value were not significant in the buyer or the supplier model. Therefore,  $H2$  was not supported.

In the third step, we assessed the moderating effects of agreeableness by adding the interactions between agreeableness and the two types of power use. This yielded a significant change in the predictive power of the regression models ( $\Delta R^2 = 0.199$ ,  $\Delta F = 4.266$ ,  $p = 0.004$ ). The results show that the interaction between the *suppliers'* use of coercion power and their agreeableness had a significant, negative effect on their appropriated value ( $b = 0.414$ ,  $p = 0.002$ ). This indicates that the suppliers' agreeableness negatively moderates the relationship between their use of coercion power and their appropriated value. However, the effect of the interaction between the *buyers'* use of coercion power and their agreeableness was not significant. Therefore,  $H3$  was supported for suppliers but not for buyers. Furthermore, the results show that the interaction between the use of reward power and agreeableness in both buyer and supplier models had significantly positive effects on their respective dependent variables—though the effect in the buyer model was rather weak (buyer model:  $b = 0.207$ ,  $p = 0.099$ ; supplier



model:  $b = 0.362$ ,  $p = 0.007$ ). This indicates that for both buyers and suppliers, the negotiator's agreeableness positively moderates the relationship between the use of reward power and the appropriated value. Therefore, *H4* was supported for both buyers and suppliers.

#### **4.4 Discussion and implications**

This research investigates the effectiveness of the use of coercion and reward power to appropriate value in buyer–supplier negotiations and the moderating effects of the negotiator’s personality trait of agreeableness. The hypotheses were grounded in social exchange theory and dual-system theory. Using negotiation simulations with 152 participants, this research found significant moderating effects of a negotiator’s agreeableness on the effectiveness of the use of coercion and reward power to appropriate value in buyer–supplier negotiations. The results indicate that the use of reward power is effective only for negotiators with high agreeableness. Moreover, the use of coercion power is effective for buyer negotiators in general and for supplier negotiators with low agreeableness. These findings have important theoretical and managerial implications.

##### **4.5.1 Theoretical implications**

Previous research in the supply chain management and negotiation literature has highlighted the use of power as an important means to appropriate value. However, understanding of the effectiveness of the use of different types of power in buyer–supplier negotiations is still limited. Addressing this void, this study finds that the use of coercion and reward power may not per se affect the appropriated value in buyer–supplier negotiations. Rather, the negotiator’s personality traits, such as agreeableness, can moderate the effectiveness of the use of coercion and reward power. The findings on these moderation effects help supply chain management researchers understand how power can be effectively used at an interpersonal level—the most fundamental level of a buyer–supplier relationship. As such, this research extends the theory of power use in the supply

chain management literature, which has mostly focused on the use of power at the firm level (e.g., Handley & Benton, 2012b; Nyaga et al., 2013; Pulles et al., 2014).

The supply chain management literature has recently highlighted the importance of and made major advances in understanding the influences of the human factor (e.g., Carter et al., 2007; Knemeyer & Naylor, 2011; Kaufmann et al., 2012). This research builds on and extends such understanding by introducing dual-system theory to the supply chain management literature. The premise of dual-system theory that both the C-system and the X-system continuously and simultaneously influence human behavior implies that supply chain management research can benefit from the holistic examination of both conscious decision processes of supply chain managers and processes emanating from individual differences among those managers at a subconscious level. The importance of *intrapersonal alignment* between the C-system and the X-system demonstrated in this research can lead to important insights in other fields of the supply chain management discipline. For example, supply chain managers with high emotional stability might be better able to handle issues related to supply chain resilience than managers with high neuroticism, who are likely to have difficulties in responding calmly and effectively to major supply chain disruptions. Thus, examining intrapersonal misalignment between the C-system and the X-system might help supply chain management researchers uncover causes of failure that are not apparent at an organizational or interpersonal level. In addition, the alignment between the C-system and the X-system *within* and *across* team members may have important implications for team cognition and decision making (Healey et al., 2015). As such, dual-system theory may lead to an improved understanding of team behavior in supply chain management (e.g., Meschnig & Kaufmann, 2015)

#### **4.5.2 Managerial implications**

Value appropriation is a ubiquitous element in buyer–supplier interactions (White et al., 2004; Zachariassen, 2008; Thomas et al., 2015). Effective negotiation tactics can help managers capture a larger share of the value available in buyer–supplier interactions, thus improving their firms’ financial performance. The findings of this research indicate that negotiators with high agreeableness use reward power more effectively, while negotiators with low agreeableness (in a supplier role) use coercion power more effectively.

Understanding the personality–tactics fit allows managers not only to improve their own negotiation outcomes by adjusting their negotiation tactics according to their personality traits; they can also assign negotiators possessing personality traits that fit with the intended negotiation tactics to negotiation teams to enhance the probability of a favorable outcome. For negotiation situations that require the use of different tactics (e.g., both coercion and reward power), the findings of this research highlight the need to compose a negotiation team based on a mix of personalities, so that team members can focus on the use of the respective tactics that fit their own personalities.

Moreover, the findings of this research should raise managers’ general awareness of the negative subconscious influences of personality traits during negotiations. Similar to a right-handed person writing with the left hand, using negotiation tactics against one’s preference may require substantial training. Targeted trainings may help managers learn to cope with the discomfort and stress caused by personality–tactic misfits, thus leading to more effective negotiations with suppliers and customers.

#### 4.5 Limitations and future research opportunities

This study sheds first light on the role of negotiators' personalities in the effectiveness of using different types of power. As with any research, the findings should be interpreted against the background of certain limitations, which may also represent opportunities for future research. This research focused on two common negotiation tactics—the use of coercion and reward power—and one critical personality trait—agreeableness. Beyond the use of power, negotiators can use various other tactics to gain concessions from their counterparts, including rational persuasion, inspirational appeal, and consultation (Kim *et al.*, 2005). In addition, other personality traits can affect negotiators. For example, Barry and Friedman (1998) suggest that extraversion is a liability to purely distributive negotiations because highly extraverted negotiators might reveal important information to their counterparts, which might be used against the negotiator. Future research might therefore investigate the effectiveness of further negotiation tactics and the possible moderating effects of other personality traits.

From a methodological perspective, this research used a one-on-one negotiation simulation to test the hypotheses. However, negotiations among teams can involve more complex dynamics than those among individuals (Thompson, Peterson, & Brodt, 1996; O'Connor, 1997). For example, team members can adopt different roles in situations, such as good-cop/bad-cop, to correct for each other's biases (Brodt & Tuchinsky, 2000; Gelfand, Brett, Gunia, Imai, Huang, & Hsu, 2013). Therefore, understanding how personality traits interact with team dynamics in negotiations appears to be another promising future research opportunity.

From a theoretical perspective, both social exchange theory and dual-system theory do not differentiate between the roles of the negotiators. Therefore, this research was not

able to predict or explain differences between buyers and suppliers based on these theories. Future research might explore the reasons for systematic differences in power using behavior between buyers and suppliers found in this and previous research (e.g., Heide & Miner, 1992; Nyaga et al., 2013). Resource advantage theory (Hunt and Davis, 2008, 2012) may offer a theoretical foundation for such investigations; it stipulates that firms create and acquire resources that are superior to those of their competitors, in their efforts to gain competitive advantage and, ultimately, to achieve superior financial performance (Hunt & Morgan, 1995). Because buyers and suppliers typically have different access to resources outside the buyer–supplier relationship, they seek different but complementary resources inside the relationship. Building on this perspective, future research might try to explain why buyers and suppliers behave differently in their interactions, including differences in their use of power. We therefore close with a call for using and further developing theories that help explain the specific positions of entities in supply chains.

## 5 Closing Remarks

The objective of this thesis was to draw more attention to the antecedents and consequences of the *use* of power in buyer–supplier relationships in the field of supply chain management. In the previous three chapters, this thesis has addressed structural antecedents of the use of power, the effectiveness of the use of coercive power, and the role of individual personality in the effectiveness of the use of power, respectively. Each of the three chapters has used a different research methodology and has made a unique set of contributions to the theory development in supply chain management.

Chapter 2 used a vignette study and has found that a higher level of multimarket contact encourages suppliers to use legal legitimate power to a greater extent and encourages buyers to use reward power to a greater extent and legal legitimate power to a lesser extent. This chapter has made three contributions to the study of power and the advancement of resource-advantage theory in the supply chain management literature. First, it makes inroads into understanding how *multimarket* contact can influence the relationship between buyers and suppliers, particularly with regard to the use of power. Second, the study advances resource-advantage theory in that it can be used as a theoretical foundation to explain *structural differences* between buyer behavior and supplier behavior. Third, the study extends the scope of resource-advantage theory beyond explaining and predicting differences in organizational performance (Hunt & Davis, 2008; Golicic et al., 2012) to explaining and predicting differences in organizational *behavior*.

Chapter 3 developed a mathematical model and used Monte Carlo simulations to support theory development. It has shown that the relationship between the intensity of coercive power use and its outcome for the focal firm is non-linear because of the

recursive nature of the decision-making problem. In addition to this ground-breaking proposal, this chapter has advanced social exchange theory in two ways: by explaining the specific mechanisms behind a focal firm's decision to use coercive power and by introducing the partner firm's anticipated retaliation as a key factor in this regard. In addition, the developed model links mechanisms behind the decision-making problem of coercive power use to the concept of the newsvendor problem. With regard to management practice, the conceptual proposal in this paper can help power-using firms to determine the optimal intensity in their use of coercive power, thus making more effective decisions possible.

Chapter 4 analyzed the results of negotiation simulations and has found that negotiators' agreeableness has significant moderating effects on the effectiveness of their use of coercion and reward power to appropriate value in buyer-supplier negotiations. Negotiators with high agreeableness, on both sides of the negotiating dyad, use reward power more effectively than negotiators with low agreeableness. Supplier-side negotiators with low agreeableness use coercion power more effectively than those with high agreeableness. This chapter has contributed to the supply chain management literature in two ways. First, it advances the understanding of the effectiveness of the use of coercion and reward power to appropriate value in buyer-supplier negotiations. Second, it introduces dual-system theory to the supply chain management literature and identifies the personality trait of agreeableness as a relevant moderator in how managers can use effective coercion and reward power.

The findings and contributions should be viewed in light of several limitations, as highlighted in the last section of each chapter. To conclude this thesis, the two most



important and overarching limitations are summarized below. Each limitation provides promising avenues for future research.

First, while the experimental methodologies used in this thesis—vignette study and negotiation simulations—are carefully set up to best reflect real-life business situations, they both have limitations regarding generalizability. Because of the nature of an experiment, the studies cover a limited set of scenarios. Thus, a survey-based examination of the actual use of power might increase the external validity of the results. The key for future researchers who seek to validate the research results in real-life situations is to uncover subtle decision-making processes, such as buyer–supplier interactions, and to isolate the effects of interest from a large number of factors that might influence power-using behaviors.

Second, each of the chapters in this thesis has focused on only one level of research: Chapter 2 and 3 on a firm level and Chapter 4 on an individual level. However, both firm level and individual level factors simultaneously influence the power-using behavior of firms. To evaluate these factors comprehensively and delve into potential interactions between them, future studies might resort to *multilevel* methodologies (Carter et al., 2015a).

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## 7 Appendix

### **Appendix 1: Buyer version of the vignette: scenario and manipulations<sup>4</sup>**

#### **Introduction**

Imagine that the BYER Group and the SELR Group are two diversified firms operating in the ABC industry [an industry familiar to the respondent]. This means that they are divided into multiple independent, self-responsible business units (also called profit centers, divisions, or business areas), each with a focus on a different product market. Imagine further that one of the SELR Group's business units currently supplies XYZ [a product familiar to the respondent] to one of the BYER Group's business units.

Now imagine that you are a purchasing manager at one of the BYER Group's business units. You are responsible for the purchase of the XYZ, which must be ordered on a regular basis. As the responsible purchasing manager, you know that it is not difficult to find and get technical release for an equivalent replacement from other suppliers. As such, you could terminate your relationship with the SELR Group without incurring any significant costs to your business unit or experiencing negative effects of quality or other risk factors.

The next page describes the business interactions between the BYER Group and the SELR Group. You will be asked to answer a set of questions after the descriptions. Please assume that all statements are accurate and trustworthy. As you answer each question, please predict how the BYER Group and the SELR Group would work with each other in the future on the basis of the descriptions. Please base your answers on how you think your business unit actually would act, rather than should act, in the described situation.

#### **Manipulation of multimarket contact**

*Low level of multimarket contact*

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<sup>4</sup> Each purchasing manager was provided with one vignette of the buyer version, which includes one of eight possible combinations of manipulation treatments, which was randomly generated by a web-based online survey software.

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In addition to the supply relationship for the XYZ, the BYER Group and the SELR Group have established another buyer–supplier relationship among their other business units. Your business unit does not directly participate in that business relationship. Consequently, it is hard for you to assess the power relationship between the two companies in that market. However, you know that the power relationship may shift over time (e.g., before and after the award of a contract). Your business partner might want to get back at your firm if they feel being treated unfairly.

*High level of multimarket contact*

In addition to the supply relationship for the XYZ, the BYER Group and the SELR Group have established several buyer–supplier relationships among their other business units. You know of four other business units that also have established buyer–supplier relationships with the SELR Group. Your business unit does not directly participate in those business relationships. Consequently, it is hard for you to assess the power relationship between the two companies in those markets. However, you know that the power relationship may shift over time (e.g., before and after the award of a contract). Your business partner might want to get back at your firm if they feel being treated unfairly.

**Manipulation of focal firm coordination**

*Low level of focal firm coordination*

Your company does not have a centralized team or committee that coordinates all purchases of the BYER Group at, e.g., the SELR Group. There are no specified rules to document the results of each interaction (e.g., supplier visits) that you have with the SELR Group or to report such results. You are not rewarded (e.g., through bonuses or other types of appreciation) for helping other (sister) business units of your company achieve their cost-saving goals.

*High level of focal firm coordination*

You belong to a centralized team (e.g., a lead buying team) in your company that coordinates all purchases of the BYER Group at, e.g., the SELR Group. There are clearly specified rules to document the results of each interaction (e.g., supplier visits) that you have with the SELR Group and to report such results. You are rewarded (e.g., through bonuses or other types of appreciation) for helping other (sister) business units of your company achieve their cost-saving goals.

### **Manipulation of perceived partner firm coordination**

#### *Low level of perceived partner firm coordination*

When interacting with the SELR Group, you realize that the SELR Group does not have a team (e.g., a key account management team) to coordinate all marketing and sales activities for a key account such as the BYER Group, nor does it involve top management in such coordination. Furthermore, it has no standard operating procedures established to coordinate different business units working with a common customer, e.g., the BYER Group. Your counterparts are not rewarded (e.g., through bonuses or other type of appreciation) for helping other (sister) business units in their company achieve their sales goals.

#### *High level of perceived partner firm coordination*

When interacting with the SELR Group, you realize that your counterparts belong to a team (e.g., a key account management team) that coordinates all marketing and sales activities for a key account such as the BYER Group. Furthermore, standard operating procedures are established in their company to coordinate different business units working with a common customer, e.g., the BYER Group. They are rewarded (e.g., through bonuses or other types of appreciation) for helping other (sister) business units in their company achieve their sales goals.

### **Opportunity to use power**



Your business unit faces continuous pressure to reduce costs. One cost-saving option for your business unit is to introduce a new program that streamlines the XYZ delivery process in your market. However, you expect resistance from your counterparts at the SELR Group, because the implementation of the new program would require them to adapt their current processes, which would immediately incur a significant amount of costs to the business unit at the SELR Group without substantial benefits. How would your business unit act in this situation?

## **Appendix 2: Supplier version of the vignette: scenario and manipulations<sup>5</sup>**

### **Introduction**

Imagine that the BYER Group and the SELR Group are two diversified firms operating in the ABC industry [an industry familiar to the respondent]. This means that they are divided into multiple independent, self-responsible business units (also called profit centers, divisions, or business areas), each with a focus on a different product market. Imagine further that one of the SELR Group's business units currently supplies XYZ [a product familiar to the respondent] to one of the BYER Group's business units.

Now imagine that you are a marketing and sales manager working for the business unit at the SELR Group, which mainly offers XYZ. You are responsible for the sales volume and sales margin of XYZ. Your company's ability to produce XYZ is at full capacity now and in the near future. You know that it is not difficult to find a suitable replacement for the BYER Group's revenues. As such, it would not be a significant financial setback for you or your business unit if the BYER Group terminated its relationship with your business unit.

The next page describes the business interactions between the BYER Group and the SELR Group. You will be asked to answer a set of questions after the descriptions. Please assume that all statements are accurate and trustworthy. As you answer each question, please predict how the BYER Group and the SELR Group would work with each other in the future on the basis of the descriptions. Please base your answers on how you think your business unit actually would act, rather than should act, in the described situation.

### **Manipulation of multimarket contact**

*Low level of multimarket contact*

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<sup>5</sup> Each sales manager was provided with one vignette of the supplier version, which includes one of eight possible combinations of manipulation treatments, which was randomly generated by a web-based online survey software.

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In addition to the supply relationship for the XYZ, the BYER Group and the SELR Group have established another buyer–supplier relationship among their other business units. Your business unit does not directly participate in that business relationship. Consequently, it is hard for you to assess the power relationship between the two companies in that market. However, you know that the power relationship may shift over time (e.g., before and after the award of a contract). Your business partner might want to get back at your firm if they feel being treated unfairly.

*High level of multimarket contact*

In addition to the supply relationship for the XYZ, the BYER Group and the SELR Group have established several buyer–supplier relationships among their other business units. You know of four other business units that also have established buyer–supplier relationships with the SELR Group. Your business unit does not directly participate in those business relationships. Consequently, it is hard for you to assess the power relationship between the two companies in those markets. However, you know that the power relationship may shift over time (e.g., before and after the award of a contract). Your business partner might want to get back at your firm if they feel being treated unfairly.

**Manipulation of focal firm coordination**

*Low level of focal firm coordination*

Your company does not have a team (e.g., a key account management team) to coordinate all marketing and sales activities for a key account such as the BYER Group, nor does it involve top management in such coordination. There are no standard operating procedures established to coordinate different business units working with a common customer, e.g., the BYER Group. You are not rewarded (e.g., through bonuses and other types of appreciation) for helping other (sister) business units in your company achieve their sales goals.

*High level of focal firm coordination*

You belong to a team (e.g., a key account management team) that coordinates all marketing and sales activities for a key account such as the BYER Group. Standard operating procedures are established to coordinate different business units working with a common customer, e.g., the BYER Group. You are rewarded (e.g., through bonuses or other types of appreciation) for helping other (sister) business units in your company achieve their sales goals.

**Manipulation of perceived partner firm coordination**

*Low level of perceived partner firm coordination*

When interacting with the BYER Group, you realize that the BYER Group does not have a centralized team or committee that coordinates all purchases of the BYER Group at, e.g., the SELR Group. The BYER Group has no specified rules to document the results of each interaction (e.g., supplier visits) that your counterparts have with your company or to report such results. Your counterparts are not rewarded (e.g., through bonuses or other types of appreciation) for helping other (sister) business units in their company achieve their cost-saving goals.

*Low level of perceived partner firm coordination*

When interacting with the BYER Group, you realize that your counterparts belong to a centralized team (e.g., a lead buying team) in their company that coordinates all purchases of the BYER Group at, e.g., the SELR Group. They have clearly specified rules to document the results of each interaction (e.g., supplier visits) that your counterparts have with your company and to report such results. They are rewarded (e.g., through bonuses or other types of appreciation) for helping other (sister) business units in their company achieve their cost-saving goals.

**Opportunity to use power**

Your business unit faces continuous pressure to reduce costs. One cost-saving option for your business unit is to introduce a new program that streamlines the XYZ delivery process in your market. However, you expect resistance from your counterparts at the BYER Group, because the implementation of the new program would require them to adapt their current processes, which would immediately incur a significant amount of costs to the business unit at the BYER Group without substantial benefits. How would your business unit act in this situation?

### Appendix 3: Affirmation – Statutory Declaration

Last Name: **Shen**      First Name: **Pei**

#### Affirmation – Statutory Declaration

According to § 10 part 1 no. 6 of the Doctoral Studies' Guide Lines

(dated 5th March 2008 as amended on the 8th March 2012)

I hereby declare, that the Dissertation submitted to the Wissenschaftliche Hochschule für Unternehmensführung (WHU) – Otto Beisheim School of Management was produced independently and without the aid of sources other than those which have been indicated. All ideas and thoughts coming both directly and indirectly from outside sources have been noted as such.

This work has previously not been presented in any similar form to any other board of examiners. Sentences or text phrases, taken out of other sources either literally or as regards contents, have been marked accordingly. Without notion of its origin, including sources which are available via internet, those phrases or sentences are to be considered as plagiarisms. It is the WHU's right to check submitted dissertations with the aid of software that is able to identify plagiarisms in order to make sure that those dissertations have been rightfully composed. I agree to that kind of checking, and I will upload an electronic version of my dissertation on the according website to enable the automatic identification of plagiarisms.

The following persons helped me gratuitous / non-gratuitous in the indicated way in selecting and evaluating the used materials:

Title	Last name	First name	Kind of support	Gratuitous/ non-gratuitous
Ph.D.	Kaufmann	Lutz	• Conceptual guidance	Gratuitous
Ph.D.	Reimann	Felix	• Conceptual guidance	Gratuitous
PTMBA student WHU	Eickholt	Stephan	• Facilitation of part of the survey used in Chapter 2 " <i>Multimarket</i> "	Gratuitous

			<i>Contact and the Use of Power in Buyer-Supplier Relationships</i>	
PTMBA student WHU	Krüger	Marco	<ul style="list-style-type: none"> <li>Facilitation of part of the survey used in Chapter 2 <i>“Multimarket Contact and the Use of Power in Buyer-Supplier Relationships”</i></li> </ul>	Gratuitous
B.Sc. student WHU	Hinkelmann	Hannah	<ul style="list-style-type: none"> <li>Facilitation of part of the experiment used in Chapter 4 <i>“Effectiveness of power use in buyer-supplier negotiations: the moderating role of negotiator agreeableness”</i></li> </ul>	Gratuitous

Further persons have not been involved in the preparation of the presented dissertation as regards contents or in substance. In particular, I have not drawn on the non-gratuitous help of placement or advisory services (doctoral counsels / PhD advisors or other persons). Nobody has received direct or indirect monetary benefits for services that are in connection with the contents of the presented dissertation.

The dissertation does not contain texts or (parts of) chapters that are subject of current or completed dissertation projects.

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 Place and date of issue

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 Signature