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Unintended Consequences: How Suppliers Compensate for Price Concessions and the Role of Organizational Justice in Buyer-Supplier Relations

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"You get what you pay for" is one of life's lessons that predominates in purchasing decisions individuals make in their personal lives. The results of this study suggest this lesson should also prevail among management when price-related purchasing decisions in businesses are being made. An evaluation of over 1,700 purchasing instances across seven years of a longitudinal panel data set collected from Tier 1 production suppliers to the six major North American automotive Original Equipment Manufacturers (OEMs), Chrysler, Ford, General Motors, Honda, Nissan, and Toyota, found that suppliers compensate for price concessions and price reduction pressure from the OEM in the year following the concession, by reducing product quality, service support, and R&D expenditures associated with goods provided to the OEM. This industry is particularly relevant because it is highly adversarial, yet at the same time reliant on interdependence. The results show that supplier price concessions granted to an OEM led to compensatory supplier behaviors of reduced quality and R&D expenditures toward that OEM. Further, the results suggest that the organizational justice dimensions of distributive justice, procedural justice, interpersonal justice, and informational justice can ameliorate negative supplier compensatory activities. A buyer–supplier relational environment that engenders organizational justice tactics such as open and honest communication with suppliers provides suppliers the expectation of an acceptable return on business over the long term, provides help to suppliers to reduce costs, and builds supplier trust of the OEM had generally positive effects on quality, service, and R&D expenditures. From a management perspective, these results indicate there is a very real risk versus reward issue associated with pressuring suppliers for price reductions.

Keywords: buyer supplier relations; price pressure; price concessions; equity theory; organizational justice

INTRODUCTION

A significant amount of research suggests that strong supplier relationships can lead to positive outcomes. Buyers who maintain good supplier working relations over time generate positive returns on co-innovation for both buyers and suppliers (Yeniyurt et al. 2014). Despite these benefits, firms often ask their suppliers for price concessions, adding significant pressure to their relationships. Evidence further suggests that these higher supplier price concessions/pressure can put collaborative relationships at risk (Henke et al. 2009). For example, one study has shown that manufacturers who exert price reduction pressures on their suppliers in an adversarial manner in order to decrease costs, increase margins, and maintain competitiveness, can cause stress across their mutual working relationships (Henke and Chun 2010). The potential for this risk is not new and was recognized over 90 years ago in a 1927 New York Times article (p. 18, November 27, 1927) that reported a "Large Company Orders Agents to Stop 'Hard Buying,'" because "Company" executives had come to the realization that "...any vendor supplying material at a financial loss....is going to exhaust every means of recouping that loss." Terpend et al. (2008) substantiated this belief 80 years later when their review of 151 buyer–supplier relationship articles appearing in four prominent academic journals between 1986 and 2005 concluded that "…. practitioners can be confident that pursing appropriate purchasing practices will positively impact the bottom line." More recently, Automotive News Europe reported that "Partsmakers blame added price pressure for deteriorating relations" (Stanley 2014). Furthermore, from 2000 to 2012, during years of adversarial supplier relations under Daimler and Cerberus management, Chrysler proceeded to lose $2 billion annually (Henke et al. 2014).

This potentially negative impact on working relations is no small matter. The importance of this issue becomes particularly significant when it is realized that buyers, when pressuring their suppliers for price decreases, concurrently ask the same suppliers to increase product quality, increase service support, and increase innovation/R&D (e.g., Zhang et al. 2009). Thus, the intersection of reduced revenue (for the supplier) and increased product quality (for the OEM) renders a potentially tenuous buyer/supplier relationship. Yet, research has yet to address suppliers' responses to these perceived inequities in the buyer/supplier relational dynamic. What becomes critical, then, is to identify the theoretical antecedents/mechanisms by which such adverse outcomes can be mitigated or eliminated. Scholars have turned to equity theory as a conceptual framework to understand supplier behaviors under similar conditions. Equity theory posits that actors will consider the nature and distribution of inputs and outputs in an exchange, determine whether or not the distribution is equitable, and if it is not equitable, determine how to compensate for the imbalance (Huseman et al. 1987). This theoretical lens has been

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used to explain value creation (Wagner et al. 2010) and to understand positive versus negative inequity in buyer–supplier relationships (Coley et al. 2012).

Presently, the literature on suppliers' compensatory actions in response to buyer price pressures is relatively scant. Overwhelmingly, such work focuses on the conditions under which a supplier would acquiesce and give a price concession (Henke et al. 2009), rather than examining *how* a supplier will respond to such pressure in other areas (i.e., what are the unintended consequences of price pressure). Subsequently, this paper seeks to fill this gap by considering the following research questions: (1) In the presence of relational inequity(ies), do suppliers compensate by reducing the quality, service, and R&D activities associated with goods that are provided the buyer? and (2) What is the impact of buyer–supplier working relations on such compensatory actions?

This study seeks to answer these questions by integrating equity theory, organizational justice, and buyer–supplier relational dynamics to understand the role working relations have on how suppliers compensate buyers when faced with relational (i.e., equity) imbalances. In particular, the paper explores whether suppliers respond to price concessions by decreasing their performance in other areas. The results show that supplier price concessions granted to an OEM lead to compensatory supplier behaviors of reduced quality and R&D expenditures toward that OEM. Further, the results suggest that the organizational justice dimensions of distributive justice, procedural justice, interpersonal justice, and informational justice can ameliorate negative supplier compensatory actions. A buyer–supplier relational environment that engenders organizational justice tactics such as open and honest communication with suppliers provides suppliers the expectation of an acceptable return on business over the long term, provides help to suppliers to reduce costs, and builds supplier trust of the OEM had generally positive effects on quality, service, and R&D expenditures. From a management perspective, these results indicate there is a very real risk versus reward issue associated with pressuring suppliers for price reductions.

LITERATURE REVIEW: EQUITY THEORY AND BUYER–SUPPLIER RELATIONSHIPS

Equity theory

Equity theory, as an academic viewpoint, traces its roots back nearly 60 years to the field of social psychology. The seminal work in the field (see: Adams 1963, 1965) began with exploration into the drivers of workplace dissatisfaction, with respect to pay/compensation, and how to potentially mitigate the dissatisfaction. Adams (1965) grounded the theory by examining "(1) the nature of inputs and outcomes, (2) the nature of the social comparison process, (3) the conditions leading to equity or inequity and the possible effects of inequity, and (4) the possible responses one may make to reduce a condition of inequity" (Pritchard 1969:176). As originally conceptualized, inputs refer to any factor either endogenous (i.e., appearance and age) or exogenous (i.e., level of effort exerted and education) to the social agent, which taken together affects how the aggrieved person gains/perceives some personal return. Outcomes refer to returns the social agent values (pay raises, bonuses, better work schedules, etc.). Taken together, inputs and outcomes form a perceived value ratio (i.e., inputs/outcomes), which enables the direct comparison of the relative importance of the outcomes to the inputs.

It is the perception of this "value ratio" that is at the heart of equity theory. Specifically, the social comparison process occurs between the value ratios of two social agents. When a social agent comparing their value ratio to another agent's value ratio perceives their outcome is less than that of the agent against whom the comparison is being made, then there exists an inequity. If the outcomes are perceived as equal, then equity theory suggests that equity exists in the relations between the two parties. Although equity theory originated as a form of social comparison *between* social agents, it has been shown to apply to social comparisons made *within* a social agent as well. For example, equity theory has been shown to apply when pay cuts are initiated at an organizational-wide level (Greenberg 1990a). In this case, though comparisons to other social agents remained relatively similar, as the pay cuts were equitable at 15% for every employee, the change in compensation triggered perceptions of inequity, which resulted in higher levels of theft. In buyer–supplier relationships, comparisons that trigger equity theory have been identified as both "'I paid more than another customer did,' which is a comparison between two price points, or 'I paid more than I used to,' which is a comparison between a price point and a price range" (Xia et al. 2004:2). Self-comparison serves as a natural extension of equity theory, as the information necessary for comparing equity is immediately available when comparing temporal changes to compensation. Furthermore, prior research suggests that self-comparison has a demonstrable effect on behavioral changes (Greenberg 1990a).

The theoretical underpinning of (in)equity rests upon there being cognitive dissonance between the expected outcome and its actualization. This dissonance leads to one social actor feeling as though "things did not go as expected" (Adams 1963:9). The impact of such (in)equity has the potential to cause tension in the relations of the social agents (Adams 1965). Such tension leads one agent to seek remediation from the other to reduce or eliminate the inequity (Pritchard 1969). Social agents can take several avenues to reduce or eliminate perceived inequities that generally fall into two overarching categories (Adams 1963, 1965; Pritchard 1969): internal and external responses. Internally, that is, psychologically, the social agent can distort the perception of the inputs and/or outcomes to make the perception of the outcome more palatable. Externally, the social agent can change their inputs/outcomes or act to change the inputs/outcomes of the social agent against which the comparison has been made.

Studies exploring supply chain relations and the equitable distribution of rewards between exchange partners has been a topic of inquiry for some time. The core question of most of this research relates directly to the impact on the involved firms and their supply chain relations when levels of (in)equity are (low)high and how the firms/social agents the central tenet to the research in this domain is to understand the role that unbalanced perceptions of equity have on firms, as well as supply chain relations and partners. At the firm level, equity theory has elucidated the role that pricing plays in customer satisfaction and brand loyalty, finding that inequity has a largely negative effect on these two constructs (Huppertz et al.

1978). Equity theory has also contributed to understanding the antecedents of customer satisfaction in international buyer–supplier relationships, finding that even across borders, inequity can negatively impact the relational dynamics of firms (Homburg et al. 2002). Echoing these findings, research has also related equity theory to the market orientation of industrial distributors, finding that the perception of equitable distribution between exchange partners is a significant facilitator to relational success (Siguaw et al. 1998).

Scholars have also studied supplier willingness to collaborate in projects when inequities are present, finding that under the presence of inequity, suppliers become less likely to collaborate, particularly in short-term engagements (Coley et al. 2012). Furthermore, gaps in expectations inherent in buyer–supplier relationships can lead to lower levels of innovation (DeCampos 2014). Additionally, such inequities can create power imbalances, which have been shown to negatively affect the relationship between parties (Nyaga et al. 2013) and lead to perceived opportunistic behavior (Villena and Craighead 2016). Expanding on the above, it has also been shown that such dependence can significantly affect the relationship between trust and resource allocation (Pulles et al. 2014), which further amplifies extant work suggesting that cooperation in such relationships can alleviate cost issues in such exchanges (Terpend and Krause 2015).

Organizational justice

Organizational justice stems from equity theory (Adams 1963, 1965; Pritchard 1969) and explores the role of fairness within organizational relationships (Greenberg 1990b). While equity theory primarily emphasizes the difference between inputs and outputs – which can be exacerbated when buyers request price concessions from their suppliers – organizational justice emphasizes the dimensions of fairness within the relationship. Organizational justice originally emphasized the role of distributive justice, which has the strongest connection to equity theory, and has since expanded to include other types of justice (Greenberg 1990b), specifically four: (1) informational justice, (2) interpersonal justice, (3) distributive justice, and (4) procedural justice (Colquitt 2001), though informational and interpersonal justice are sometimes combined into interactive justice (Luo 2007). Interpersonal justice is "the perceived fairness of the interpersonal treatment that is shown to others when procedures are implemented and outcomes are allocated" (Johnson et al. 2014:3). Informational justice primarily refers to the efficacy of communication surrounding a procedural change (Colquitt 2001). Distributive justice represents the fairness of decision outcomes and the distribution of resources (Ololube 2016). Procedural justice represents the "perceived fairness of how decisions are made and outcomes are determined" (Johnson et al. 2014:2). Combined, the different dimensions of justice help to provide numerous perspectives on how fairness might be perceived in relationships.

Organizational justice has been advanced as an important consideration in supply chain management. Understanding the role of organizational justice can reduce opportunistic behavior (Ireland and Webb 2007) and help recover trust after supply chain disruptions occur (Wang et al. 2014). In a critical study, Narasimhan et al. (2013) studied interorganizational justice in supply chain relations and found that performance increases are possible through investments that increase the justice realized by the involved parties, but if investments are made outside of the critical, that is, constraining, elements of the relationship, the performance benefits may not be realized. Narasimhan et al. (2013) emphasize that not only are the different aspects of justice important, but that emphasis on the constraining factor in a given relationship can provide additional understanding of the relationship justice has with performance. Their findings suggest that the constructs of organizational justice should not be viewed only in isolation, but within the system as a whole.

Given equity theory's emphasis on the perception of inputs-to-outputs, firms experiencing an adjustment to their inputs (i.e., price concessions) might commensurately adjust their outputs (e.g., quality, service, and R&D levels) in order to create a more equitable distribution between parties. In such a context, organizational justice emphasizes the perception of fairness within the relationship. Such perceptions can also impact supplier behaviors, particularly because price concessions serve as a trigger for suppliers to potentially change their behavior by reducing outputs. Thus, the relational strategies advocated in the framework of organizational justice can help to mitigate the consequences of unilateral price concessions. We emphasize four buyer–supplier relationship constructs which, tacitly, are connected to these dimensions of justice and subsequently use them in the below hypothesis development. Hence, the theoretical model, the dimensions of organizational justice, and the buyer–supplier relational constructs are shown in Figure 1.

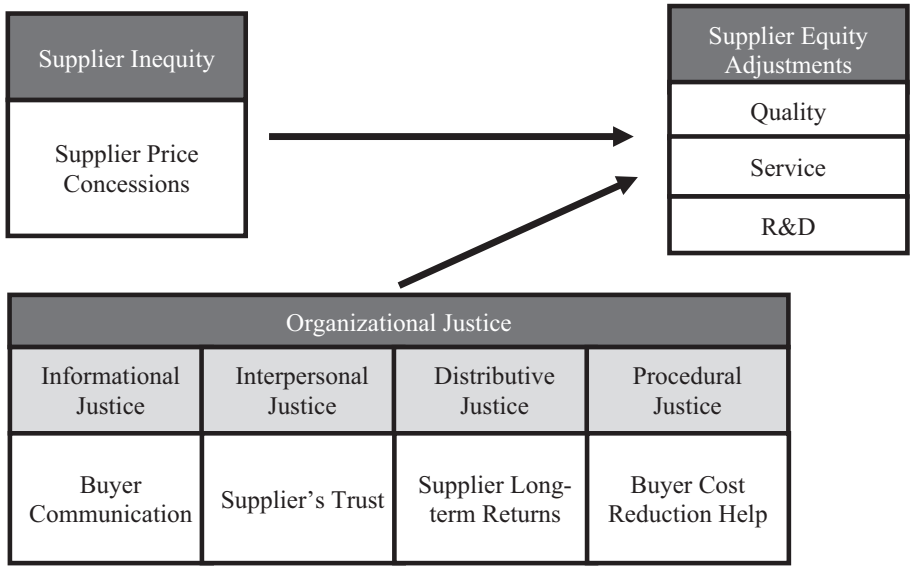
HYPOTHESIS DEVELOPMENT

As implied in the literature review above, equity theory contains two core questions: (1) What is the effect of inequity in a relationship? and (2) How will social agents remediate such inequity (a) to their benefit and (b) to rebalance the relational dynamics? Extant literature is replete with research that has implicitly and explicitly studied the negative effects of inequity. Yet, in the context of buyer–supplier relations, research that deals with how suppliers respond to buyer-initiated adversarial price reduction pressure is somewhat scant, in spite of its importance. For example, it has been found that pressure from the more powerful agent in the supply chain can lead to particularly negative consequences (Henke et al. 2014). Subsequently, the focus of this study was buyer-initiated adversarial price reduction pressures on suppliers that create a demonstrable inequity in the buyer–supplier relationship.

Supplier compensatory actions

When there exists relational inequity, we posit the supplier will seek to rebalance the inequity by responding with compensatory actions that might negatively impact the buyer. This study focuses on three potential non-price-related areas of such compensatory actions: quality of the goods provided the buyer, services and support offered to the buyer, and R&D activities associated with the goods supplied to the buyer. We refer to these compensatory actions as quality, service, and R&D responses. We capture this response with a balanced five (5)-point scale ranging from decrease to increase (the Method section below, as well as the attached appendix describes the scale in more detail) in response to price concessions given to a buyer.

Figure 1: Theoretical model.



Several different compensatory behaviors are included in the research as the specific ways through which a supplier finds an equitable remedy to buyer-initiated price concessions. Perhaps the most straightforward example is that a supplier who is paid less (i.e., acquiesces to a price concession) might respond by reducing the quality of the product to lower levels (e.g., cheaper materials or fewer quality controls). It is possible, however, that firms are not willing or able to reduce quality levels specific to a buyer, which could lead to other compensatory actions. Firms might respond to such a decrease in the perceived equity in the relationship by reducing the level of service provided to the buyer. Higher service levels can be value-adding within the relationship but also can be costly and perceived as less valuable as they are not direct cost reductions (Christopher and Rayals 2014). Reductions in service levels can compensate for the inequity and reduce other costs associated with the relationship, thereby acting as a mechanism for reducing the perceived disparity created by price concessions. Reductions in a firm's financial slack can compromise other areas of performance, such as service levels and safety performance (Fawcett et al. 2016). Similarly, as a firm's financial slack reduced when a supplier agrees to price concessions, this can reduce the supplier's resources to engage in R&D efforts. Accordingly, we expect that price concessions might also result in firms seeking remediation through reductions in their R&D expenditures to accommodate reduced revenue. While this might have implications for long-term innovation which is negative for the supplier as well as the buyer, it might be necessary for the short term in highly competitive industries where price concessions are more common. While a long-term orientation has been shown to lead to firm's value and operating performance, incentives do not always align with longterm longterm performance (Flammer and Bansal 2017). Accordingly, in the presence of reducing prices from short-term pressures, we anticipate that supplier might respond by reducing their outputs in terms of R&D expenditures.

Supplier price concessions – equity theory

Buyer price reduction pressures are applied on suppliers of production goods for two reasons. First, to increase the probability that the supplier will provide the buyer a price concession on the current cost of the goods being provided by the supplier. Second, to increase the amount of the price concession the supplier is otherwise willing to give the buyer. In fact, the greater the buyer price reduction pressure, the greater the supplier price concession (Henke et al. 2009). This buyer price reduction/supplier price concession scenario is a win–lose situation. The supplier cost concession immediately reduces the buyer's cost of goods, which directly increases the buyer's gross profit the amount of the concession. The supplier loses because any monies the supplier gives up in the form of a price concession have a negative impact on the supplier's financial state; both revenue and profit are reduced by the amount of the concession.

In the context of equity theory, the concession the supplier gives to the buyer results in relational inequity. This inequity arises as the supplier compares their loss of revenue and the buyer's increased margin that resulted from the concession given to the buyer. Such inequity can cause negative effects on the relationship (Narasimhan et al. 2013; Pulles et al. 2014), which further reduces the supplier's willingness to collaborate (Coley et al. 2012) and detracts from the efficiency and effectiveness of the working relationship between the two parties (Carrell and Dittrich 1978). Accordingly, equity theory suggests that the supplier will seek to remediate their inequitable position by rebalancing the scale by seeking some compensatory (e.g. quality, service, and R&D response) to correct the inequity. Therefore, we posit:

> ***H1****: Supplier price concessions given to the buyer in the previous year have a negative effect on the supplier (a) quality, (b) service, and (c) R&D responses provided the buyer in the following year.*

Buyer communication - informational justice

Research that focuses on buyer–supplier relationships has studied the role of open and honest communication for some time. These studies suggest that communication is an effective tool to improve the relationship between parties, in addition to being a critical element in sharing information (Cannon and Perreault 1999; Paulraj et al. 2008; Zhang et al. 2009). Information sharing, which has a demonstrably positive effect in enhancing interactional justice, has also been found to be an essential supply chain management capability (Wu et al. 2006), with positive benefits in the buyer–supplier relational dynamic (Cannon and Perreault 1999; Shin et al. 2000; Bendoly and Swink 2007; Paulraj et al. 2008). Accordingly, we consider buyer communication to be the extent to which the buyer openly and honestly shares timely and sufficient information with its suppliers (Anderson and Weitz 1992; Paulraj et al. 2008).

Communication serves as a critical antecedent through which informational justice, and thus overall perceptions of equity, is achieved. Communication has positive benefits in increasing the perception of equity in relationships (Hulland et al. 2012). Communication has also been shown to be closely connected to justice and the decrease of opportunistic actions in buyer–supplier relationships (Huo et al. 2016). Informational justice, then, leads to higher levels of relational performance for the buyer–supplier relationship (Liu et al. 2012). This is consistent with extant research that suggests increased levels of equity in the relationship can increase the likelihood of future collaborations (Coley et al. 2012). As partners experience higher levels of communication, informational justice is increased and, as a result, positive effects to the ongoing buyer–supplier working relationship occur (Henke et al. 2008, 2009; Zhang et al. 2009) and the power balance dynamics in the relationship can be better managed (Nyaga et al. 2013; Terpend and Krause 2015).

As buyers engage in effective communication with suppliers, negative compensatory reactions to price concessions will be reduced as they will be less likely to perceive an inequity within the relationship. Increased levels of the buyer's communication can also enhance the supplier's willingness to engage in buyer-specific investments (Anderson and Weitz 1992; Bendoly and Swink 2007; Paulraj et al. 2008). Thus, inequity in relational exchanges has been shown to lead to negative outcomes, causing one actor attempting to remediate their perceived inequity. We subsequently suggest that increased levels of communication can act as a buffer in this process and therefore hypothesize that:

> ***H2****: Buyer communication with the supplier has a positive effect on the supplier (a) quality, (b) service, and (c) R&D response provided the buyer.*

Supplier's trust – interpersonal justice

As firms gain positive experience with one another, this collective shared experience leads to trust in the relationship (Currall and Inkpen 2002). Such cumulative trust levels lead to a relational governance mechanism, which makes trust a particularly strong safeguard against unilateral opportunistic behavior (Fawcett et al. 2012). Extant research has suggested that mutual trust reflects one party's belief in the other party's reliability and integrity (Morgan and Hunt 1994), and can begin to form at the price negotiation phase of the relationship (Huang et al. 2008). Alternatively, if unilateral or mutual distrust exists, the relationship is likely to suffer as the expectation of reciprocity is absent (Rousseau et al. 1998). Hence, it is the continued positive working relations between buyer and supplier that foster mutual trust which can lead to enhanced collaboration and superior outcomes than if sought alone (Anderson and Narus 1990; Joshi and Stump 1999; Fawcett et al. 2008; Gundlach and Cannon 2010).

The issue of trust is tightly connected to the concept of justice, with evidence that there is a reciprocal relationship between justice and trust when viewed as benevolence and integrity (Colquitt and Rodell 2011). Accordingly, trust can be highly associated with perceptions of justice and reduce perceived inequities if the supplier trusts the buyer in the relationship even when the buyer is pressuring for price concessions. In addition, the trust between buyers and suppliers is strongly related to levels of equity in the relationship (Terpend and Krause 2015). In the context of outsourcing in the logistics industry, for example, the equity between parties is positively related to bilateral trust, as well as to the likelihood that improvements to the relationship will be made (Hofer et al. 2012). In the automotive industry, the development of buyer-specific technologies typically requires substantial supplier investments. Therefore, a supplier's trust in the buyer is essential prior to engaging in such co-innovation behavior. Similarly, it is reasonable to assume that a supplier would only share proprietary technologies with a buyer that has established reliability and integrity, and therefore the existence of relational equity.

As discussed in the preceding hypothesis development, it has been suggested that self-enforcing safeguards (e.g., governance mechanisms such as trust) can result in supernormal economic outcomes for exchange partners and are directly affected by the relational equity between firms. Such returns can arise given that such safeguards are a superior incentive for value creation initiatives (Dyer and Singh 1998) such as reduced costs of conducting business and price reductions. Furthermore, Narayandas and Kalwani (1995) found that suppliers in a trusting long-term relationship do face price pressures from their customer over the duration of the relationship, but they are able to offset such price reductions by reducing their inventory costs. Such a result is only achievable when equity is perceived in the relationship, therefore positively affecting the levels of trust (Hofer et al. 2012) particularly given the importance of price negations and trust (Huang et al. 2008). Accordingly, we posit that:

> ***H3****: Supplier's trust in the buyer has a positive effect on the supplier (a) quality, (b) service, and (c) R&D response provided the buyer.*

Supplier expectation of long-term economic returns – distributive justice

Perceptions of inequitable distribution of economic benefit can lead to situations where the relationship fails, such as the potential merger of GM/Renault–Nissan which had a potential cost savings of over $10 billion, but failed to be established because

of the perceived unfairness of the distributions of benefits (DeCampos 2014). Yet, such potentially negative outcomes can be mitigated if the buyer and supplier are working together in a collaborative, "pie expansion" manner, that results in mutually beneficial strategic outcomes (Jap 1999). In discussing distributive justice, Griffith et al. (2006) note, "in on-going supply chain relationships exchange partners are willing to accept short-term imbalances in outcomes given that over the length of the relationship outcomes should accurately reflect inputs." Such a scenario can lead the negotiation to approach a win–win situation. For example, several suppliers to Honda and Toyota informed our research team that while they are reluctant to give up the opportunity to increase profits, they are more willing to give both of these OEMs price concessions. They are willing to do so because their relationships with both Honda and Toyota are fair in expectations. Also, both OEMs proactively monitor their suppliers' financial health to ensure that the supplier remains financially sound (Bode et al. 2014) which further strengthens the equity in the relationship (Pulles et al. 2014). Finally, suppliers are willing to give price concessions because the relationship they have with Honda and Toyota reassures the supplier that as long as they remain reasonably competitive, each OEM will continue to give the supplier business.

Extant research has echoed these propositions. One such study found that the suppliers of Honda and Toyota are 10 times more likely to give price concessions than similar suppliers to GM and Ford (Sherefin 2005). One reason for this increased likelihood can be found by juxtaposing the above logic together. That is to say, the relationship between the exchange partners leads to the supplier's perception of long-term returns, which significantly increases the likelihood of the supplier giving price concessions to the buyer. Additionally, several suppliers to Honda and Toyota communicated to the research team that they are willing to share information about their product costs with both manufacturers. They do so because both manufacturers are fair in preserving their suppliers' profit margins when looking for ways to reduce cost. Taken together, it becomes clear that the combination of these relational characteristics provides an assurance of financial certainty. Accordingly, we posit:

> ***H4****: Supplier belief that they can make an acceptable return on the buyer's business over the long term has a positive effect on the supplier (a) quality, (b) service, and (c) R&D response provided the buyer.*

Buyer cost reduction help – procedural justice

While buyers can let suppliers go at it alone in trying to meet their price reduction expectations, a much more collaborative approach is for the buyer to proactively work with the supplier to eliminate costs from the transaction, wherever they may be. As an example, Honda works with its suppliers collaboratively by mandating its engineers to spend extended periods of time at its suppliers' facilities. In so doing, Honda has been able to reduce its suppliers' costs by as much as 7%, of which approximately 50% is shared with Honda (Liker and Choi 2004). Toyota uses both approaches to supplier cost reduction (Liker 2004; Liker and Choi 2004). This is also in line with Emerson's balancing mechanisms (Emerson 1962), in that one potential avenue for reconciling differences in power asymmetries is for the suppliers to identify means to increase their efficiency and reduce their own costs. Much like Honda, Toyota sends its engineers out to suppliers to help find cost saving opportunities, which eventually translate into lower prices for Toyota. Toyota also helps suppliers set up groups of noncompeting suppliers, sometimes with a Toyota engineer and other times just with the suppliers, to work together to help each member of the group find ways to cut costs in its manufacturing facilities. Perceptions of procedural justice, which can be viewed as the "fairness of that process, associated with the distribution and/or allocation of goods/services" (Griffith et al. 2006:86), can lead to more positive long-term orientation and relational behaviors. Such procedural justice is reflected by the OEM's willingness to allocate resources toward the cost reduction initiatives that they are requesting. When the OEM shares resources to make the process of price reduction more possible, then the perceptions of fairness can reduce the inequity perceived by the supplier.

The result of such initiatives is a win–win scenario for both Honda and Toyota and their suppliers. Increased relational investments such as these lead to higher levels of trust, equity, and overall fairness (Petersen et al. 2008). Accordingly, when such positive relational dynamics are present, we suggest, the supplier is less likely to react to the OEM with compensatory actions. Thus, we hypothesize:

> ***H5****: Buyer help provided to the supplier to reduce costs has a positive effect on supplier (a) quality, (b) service, and (c) R&D response provided the buyer.*

The theoretical framework and hypotheses are depicted in Figure 2.

EMPIRICAL STUDY

Data set

The hypotheses above were tested using a longitudinal panel data set gathered via an annual survey of Tier 1 production suppliers to the six major North American automotive OEMs: Chrysler/FCA US, Ford, General Motors, Honda, Nissan, and Toyota. The purpose of the survey is to determine the state of the working relations that exist between the buyers (i.e., OEMs) and their Tier 1 production suppliers. Respondents of the survey are the Tier 1 suppliers' sales personnel (i.e., VP of Sales, Division Manager in Charge of Sales, Account Representatives) who have overall commercial responsibility for their firm's goods supplied to a specific OEM, and are uniquely qualified to respond to the survey. Over the period of 2003–2009, the data were collected via a survey where participants are contacted by mail. There were no incentives offered for participation, and four weekly postcards were sent as periodic reminders to complete the survey.

These sales personnel are very much aware of the various interfacing activities that exist between the supplier and its

OEM customers, and thus provide a suitable frame from which to sample. Furthermore, this approach is consistent with the recommendation to use key informants who are the most qualified to report on the issues under investigation (Kumar et al. 1993). The automotive industry is of particular interest for buyer–supplier price pressures because it tends to be strongly adversarial, yet also relies on a high degree of interdependence (Gulati and Sytch 2007). Time-series panel data were derived for this study. While numerous reasons have been suggested concerning the challenges of implementing longitudinal field-survey research (Anderson 1995), time-series panel data offer several benefits, including increased heterogeneity of observations thereby helping to alleviate multicollinearity concerns, and are ideal for the study of dynamic phenomena (Wooldridge 2002).

Empirical model

In this study, the primary unit of analysis is the matched buyer/supplier relationship, as the responses are solicited from matched buyer/supplier relationships, over time (i.e., same buyer, same supplier, and captured in the same category area). The data set contains 1733, 1732, and 1734 usable year–supplier–buyer observations across seven years (after lagging the dependent variables and dropping the observations that have missing information in any of the variables) for the Quality Response, Service Response, and R&D Response, respectively.

The model chosen to estimate the relationships between organizational justice and price concessions given is one where the supplier's responses on quality, service, and R&D are modeled as linear functions of each of the independent variables. Thus, the three models estimated are as follows:

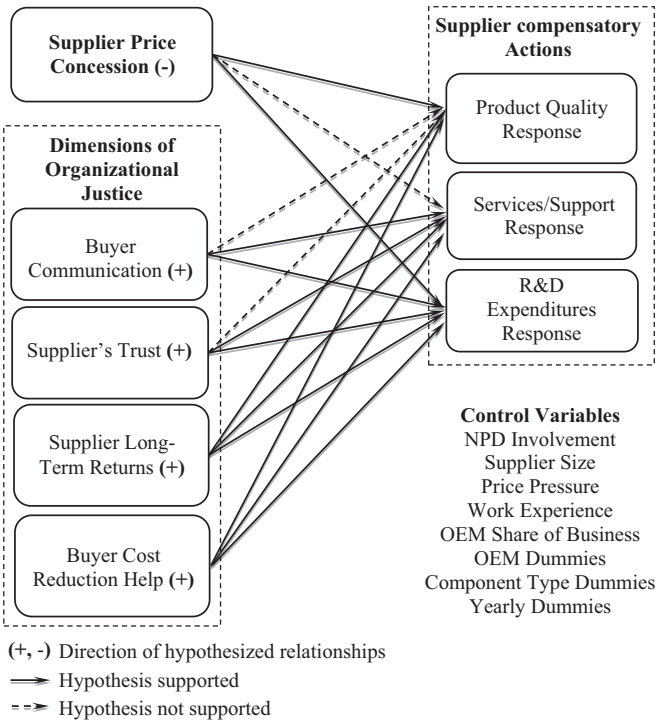
$$\begin{aligned} \textit{Quality Response}_{ijt} = {} & \beta_{10} \\ & + \beta_{11}\textit{Price Concession Prev. Year}_{ijt} \\ & + \beta_{12}\textit{Communication} \\ & + \beta_{13}\textit{Supplier Trust}_{ijt} \\ & + \beta_{14}\textit{Long Term Return}_{ijt} \\ & + \beta_{15}\textit{Buyer Cost Red. Help}_{ijt} \\ & + \beta_{1m}\mathbf{X_{ijt}} \\ & + \beta_{1n}\mathbf{Y_{ijt}} + \varepsilon_{ijt} \end{aligned} \tag{1}$$

$$\begin{aligned} \textit{Service Response}_{ijt} = {} & \beta_{20} \\ & + \beta_{21}\textit{Price Concession Prev. Year}_{ijt} \\ & + \beta_{22}\textit{Communication} \\ & + \beta_{23}\textit{Supplier Trust}_{ijt} \\ & + \beta_{24}\textit{Long Term Return}_{ijt} \\ & + \beta_{25}\textit{Buyer Cost Red. Help}_{ijt} \\ & + \beta_{2m}\mathbf{X_{ijt}} \\ & + \beta_{2n}\mathbf{Y_{ijt}} + \varepsilon_{ijt} \end{aligned} \tag{2}$$

$$\begin{aligned} \textit{R \& D Response}_{ijt} = {} & \beta_{30} \\ & + \beta_{31}\textit{Price Concession Prev. Year}_{ijt} \\ & + \beta_{32}\textit{Communication} \\ & + \beta_{33}\textit{Supplier Trust}_{ijt} \\ & + \beta_{34}\textit{Long Term Return}_{ijt} \\ & + \beta_{35}\textit{Buyer Cost Red. Help}_{ijt} \\ & + \beta_{3m}\mathbf{X_{ijt}} \\ & + \beta_{3n}\mathbf{Y_{ijt}} + \varepsilon_{ijt} \end{aligned} \tag{3}$$

where $m = 6, 7, \ldots 10$ and $n = 11, 12, \ldots 25$, where i denotes the supplier, j denotes the OEM, and t represents the year under observation (all other terms are explained, with operationalizations, below). In addition, each β_{op} (where o indicates from which equation the β has been estimated, and p indicating the chronological ordering of the β) represents the coefficient corresponding to the independent variable, the $\mathbf{X_{ijt}}$ and $\mathbf{Y_{ijt}}$ are vectors of control variables (specific details are below in the corresponding section), and the ε's represent each equation's error term. The models are then estimated separately, each of which with an ordinary least squares approach.

Figure 2: Empirical model.



Dependent variables

The model includes three dependent variables. These are as follows: (1) *Quality Response*$_{ijt}$ which denotes supplier i's likelihood to engage in compensatory behavior with respect to the product quality, with OEM j in year t, based on the price concession behavior of the OEM. (2) *Service Response*$_{ijt}$ stands for

supplier *i*'s likelihood to engage in compensatory behavior with respect to the services and support thereof, with OEM *j* in year *t*, based on the price concession behavior of the OEM. Finally, (3) *R&D Response*$_{ijt}$ stands for supplier *i*'s likelihood to engage in compensatory behavior with respect to the future R&D investment, with OEM *j* in year *t*, based on the price concession behavior of the OEM. A five-point scale is used to capture each of the compensatory actions, labeled as "decrease," "somewhat decrease," "maintain about the same," "somewhat increase," and "increase."

Independent variables

In order to properly test the hypotheses presented above, the following independent variables are included in the model. First, in order to test H1, the variable *Price Concession Prev. Year*$_{ijt}$ is used and denotes the price concession given by supplier *i*, captured in survey year *t*, and given to OEM *j* in the previous calendar year (i.e., in the survey year *t,* the value represents the price concession in year $t-1$). In order to test H2-5, *Communication*$_{ijt}$, *Supplier Trust*$_{ijt}$, *Long-Term Return*$_{ijt}$, and *Buyer Cost Reduction Help*$_{ijt}$ are the working relations specific variables that capture the extent of OEM open communication with a supplier, the level of supplier trust in the OEM, a supplier's anticipated acceptable long-term returns on the OEM's business, and the help received from the OEM regarding cost reduction, for OEM *j* and supplier *i* in year *t*. Communication, supplier trust, acceptable long-term returns, and buyer cost reduction help have been measured using survey questions where the supplier is asked to rate each relationship characteristic at the time of the survey, on a five-point scale, ranging from "to very little or no extent" and "to a very great extent." While we note that single-item measures are sometimes a limitation, the current database is uniquely suited for testing the hypotheses presented above given its longitudinal, time-series information on a large panel of supplier/OEM relations. Additionally, similar studies have utilized single-item measures to capture time-varying phenomena and estimate dynamic models (e.g., Henke et al. 2009).

Control variables

So as to alleviate concerns of omitted variable bias, and to ensure that the model is as fully specified as possible, we also include several control variables that previous research has shown to be relevant in a price concession scenario. First, in each of the equations, there is an $\mathbf{X_{ijt}}$ term. Contained in this term are five variables: (1) To capture the experiential effects that can exist between buyers and suppliers, we include the length of the relationship between the buyer and the supplier, measured in years; (2) then, in order to capture the dynamics of the working relationships between the buyer and the supplier, we include the supplier's involvement in the OEM's new product development process; (3) we then include a measure of the general price pressure that the OEM exerts on the supplier. The next two variables in this vector serve to capture the power and size of the firms involved in the transaction, both of which also are lagged to account for endogeneity and autocorrelation. Thus, (4) we include the percentage of the supplier's revenue that the OEM is responsible for; and finally, (5) we include the supplier's size, measured using the supplier total North American OEM automotive revenues. Taken together, each of these variables provides for a reasonable control for both the potential power that the OEM can exert over the supplier and the potential power of the supplier to retaliate. Then, each equation also includes a $\mathbf{Y_{ijt}}$ term, which represents a vector of dummy variables that account for component type, OEM, and year. Five-year dummies were included as data from 2003 were used as lagged variable values (thus, should the model have included a dummy variable for this year, there would have been perfect multicollinearity and it would have been omitted from the model estimation, hence the use of five), and year 2004 is the base case. Such yearly dummies are critical, as they control for any year-to-year changes in the economic conditions and general industry factors such as raw material supply, customer demand, or commodity prices. Given that there are six OEMs, five dummies are used to control for OEM specific fixed effects. There are also five dummy variables accounting for six component types: (1) power train (base case), (2) chassis, (3) exterior, (4) interior, (5) electrical & electronics, and (6) body-in-white. All of the above controls have been shown to be key explanatory variables in similar research (Henke et al. 2009). A visual representation of the empirical model can be seen in Figure 2. The descriptive statistics and correlations can be seen in Table 1. Additionally, the appendix to this article provides the details of the survey instrument used to gather the data for this study, and the wording of each question for the dependent, independent, and control variables.

RESULTS

Ordinary least squares (OLS) with robust standard errors was used to estimate each equation above. The OLS estimates of the equation parameters can be seen in Table 2. The models fit the data satisfactorily. For the model with Quality Response as the dependent variable, the F-statistic with degrees of freedom (25, 1707) is 6.34 and statistically significant ($p < .001$); the model with Service Response as the dependent variable has an F-statistic of 19.93 with degrees of freedom (25, 1706) which is statistically significant ($p < .001$); finally, the model with R&D Response has an F-statistic of 29.25 with degrees of freedom (25, 1708) and is statistically significant ($p < .001$). Additionally, the models resulted in R^2 statistics of .1036, .2480, and .2993, for Quality, Service, and R&D responses, respectively.

The results indicate that the supplier price concession in the previous year has a statistically significant ($p < .05$) negative effect on the quality. Though, while still negative, there is not a statistically significant effect on the service response from the supplier ($p < .101$). We do, however, show support for the negative effect of price concessions on the supplier's R&D response, where we see a negative and statistically significant ($p < .05$) coefficient. Thus, the results indicate strong support for hypothesis 1a and hypothesis 1c, but fail to support hypothesis 1b. Three things are worth noting, however. First, across all three coefficients for the price reduction given last year, the effect is negative. Second, that the support was nearly marginally statistically significant for the effect on Service Response ($p < .101$). Finally, in 2/3 models, the control variable price reduction pressure has a coefficient which is negative and statistically significant ($p < .05$). These results indicate that as the supplier price concession increases, suppliers tend to decrease the product quality

Table 1: Correlations and descriptive statistics

Correlations	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Price reduction given previous year	2.8509	2.8316	1									
2. Communication	3.0056	1.1202	−0.0213	1								
3. Supplier's trust	2.8549	1.1471	−0.0317*	0.7076*	1							
4. Supplier long-term returns	2.8785	0.9627	−0.0323*	0.4868*	0.5729*	1						
5. Buyer cost reduction help	2.0799	0.9910	0.0330*	0.4698*	0.4973*	0.3804*	1					
6.NPD involvement	3.1323	1.1474	0.0655*	0.3896*	0.3195*	0.2539*	0.2896*	1				
7. Price pressure	4.0194	0.9680	0.1627*	−0.2203*	−0.2704*	−0.2616*	−0.1190*	0.0053	1			
8.OEM share of business	23.5963	22.0171	0.1185*	0.0202	0.0479*	0.0152	−0.0195	0.0947*	0.1042*	1		
9. Supplier size	18.1902	2.8533	0.0165	0.0124	0.0065	−0.0119	0.0882*	0.0994*	0.0554*	−0.1399*	1	
10. Working experience	20.2156	16.8480	0.0392*	−0.0898*	−0.1191*	−0.0943*	−0.1052*	0.0167	0.1628*	0.1568*	0.1037*	1

Note: $^{*}p < .05$.

provided, and also decrease their willingness to invest in R&D with the OEM that requested the price discount (Table 3).

OEM communication has a positive and statistically nonsignificant effect ($p > .1$) on the supplier product quality response. Yet, there is a positive and statistically significant effect on the supplier service and R&D response ($p < .05$ for both). These results fail to provide support for hypothesis 2a but provide support for hypotheses 2b and 2c. Similarly, supplier trust of the OEM has a positive and statistically nonsignificant effect on supplier product quality response ($p < .105$). However, the effects were positive and statistically significant for supplier service response and supplier R&D response ($p < .05$ for both). Thus, the results fail to support hypothesis 3a but provide support for hypotheses 3b and 3c. As such, the results indicate that supplier trust and OEM communication do not provide a significant benefit with respect to negative quality responses to supplier price concessions, but provide some benefits by limiting the decreases in supplier service and supplier R&D investments in reaction to supplier price concession.

Supplier's assessment of potential long-term returns from their relationship with the OEM has a significant and positive effect on all three types of supplier compensatory actions ($p < .001$). Thus, the results provide strong support for hypotheses 4a, 4b, and 4c. Similarly, buyer cost reduction help has a positive statistically significant effect on supplier product quality ($p < .001$), service ($p < .05$), and R&D response ($p < .001$). These results provide strong support for hypotheses 5a, 5b, and 5c. Therefore, it can be concluded that both supplier perceived opportunity for long-term returns and buyer cost reduction help are effective mechanisms in limiting supplier negative compensatory reactions associated with supplier price concessions.

Robustness testing

In addition, to ensure that our empirical specifications and estimation techniques were rigorous, several robustness exercises were undertaken. First, in order to control for any potential heteroskedasticity, all models were estimated with the Huber/White Sandwich estimators (Freedman 2006). Second, because the dependent variables were measured on a Likert scale from 1 to 5, each model was also estimated using an ordered logistic regression (Winship and Mare 1984). We note that in all three cases, the coefficients' effect sizes, directions, and corresponding statistical significances remain the same. Additionally, given the potential interrelatedness of the three dependent variables at hand, the model specifications above were also jointly estimated using a seemingly unrelated regression (SUR) approach (Zellner 1962). We note that the coefficients' directions, effect sizes, and statistical significance remain largely unchanged from the results obtained by using OLS, as presented herein. We thus conclude that the econometric approach taken was appropriate to test the hypotheses in this study.

DISCUSSION

"You get what you pay for" is one of life's lessons that predominates in purchasing decisions we make in our personal life. The results of this study suggest this lesson should also prevail among management when price-related purchasing decisions in

Table 2: OLS Estimates of hypotheses **H1a–c** to **H5a–c**

Independent variables	Dependent: quality response		Dependent: service response		Dependent: R&D response	
	β	Robust SE	*β*	Robust SE	*β*	Robust SE
Price reduction given previous year	−0.0205**	0.0081	−0.0149	0.0091	−0.0205**	0.0102
Communication	0.0124	0.0219	0.0584**	0.0256	0.0812**	0.0282
Supplier's trust	0.0329	0.0203	0.0695**	0.0260	0.0755**	0.0283
Supplier long-term returns	0.1053***	0.0203	0.1674***	0.0237	0.2261***	0.0259
Buyer cost reduction help	0.0642***	0.0181	0.0677**	0.0224	0.0936***	0.0272
NPD involvement	−0.0014	0.0151	0.0226	0.0191	0.0191	0.0201
Price reduction pressure	0.0389***	0.0175	−0.0485**	0.0187	−0.0690**	0.0231
OEM share of business	−0.0001	0.0008	−0.0005	0.0010	0.0004	0.0011
Supplier size	0.0004	0.0074	−0.0249**	0.0097	0.0092	0.0101
Working experience	−0.0001	0.0010	−0.0005	0.0012	−0.0017	0.0014
Intercept	2.6266***	0.1592	2.7287***	0.2083	1.7625***	0.2281
Fit statistics	n = 1,733 $F(25, 1707) = 6.334$ ($p < .001$), $R^2 = .1036$		n = 1,732 $F(25, 1706) = 19.93$ ($p < .001$), $R^2 = .2480$		n = 1,734 $F(25,1708) = 29.25$, $R^2 = .2993$	

Notes: Significance levels are two-tailed. Intercepts, dummy variables for component type, buyer (OEM), and year are not shown in the table due to space considerations.
**$p < .05$, ***$p < .001$.

business are being made. Given the persistent pressure OEM's place on their suppliers for price reductions, it is important to understand the impact that such price pressure will have on a supplier's output, in areas aside from cost. Additionally, an understanding of the factors that can reduce the unintended, and negative, impacts of such price pressure on supplier output is critical.

The intense competition facing virtually every company requires constant vigilance in producing the most cost-effective products and services. For those companies in industries that spend significant portions of their revenue on suppliers, such as in the automotive, airframe, and aircraft engines industries, the vigilance requires that suppliers be constantly pressured for lower prices. Such pressures, though, can risk good supplier relationships which can have largely positive effects on the performance in the relationship (Henke et al. 2009; Yeniyurt et al. 2014). The results of this study indicate that when suppliers succumb to buyer price reduction pressures, the suppliers concurrently compensate for their loss of revenue and profit by reducing the quality of the goods and the support provided to the buyer. In addition, the supplier reduces research and development expenditures associated with the goods provided to the buyer. Although the buyer receives immediate benefit in the terms of price concessions granted by the supplier, the decrease in R&D investment/commitment and the quality of the products can lead to long-term consequences, which may outweigh the initial savings.

A unique relationship emerges from the results with regard to the price pressure of the OEM, where the negative and significant relationships between price reduction pressures mirrored those associated with the supplier price concession given. That is, the relationship between price reduction pressure relating to Service and on R&D was both negative and statistically significant ($p < .05$), while the relationship between supplier price concession given was negative and statistically significant with the supplier's quality and R&D responses ($p < .05$). It is possible that higher levels of pressure in the relationship led to decreases in more long-term relational investment, while price concessions given led to decreases in quality, which is more reflective of an immediate equity adjustment associated specifically with the decrease in price. From a management perspective, these results suggest that there is a very real risk versus reward issue associated with the pressuring suppliers for price reductions. The reality of the marketplace, however, does not make letting up on the price reduction pressure a viable option. So, what is the buyer to do?

The results indicate that there are several concomitant activities that purchasing management can undertake to ameliorate the supplier negative compensatory actions. Purchasing management can ensure that purchasing agents working with suppliers provide the information and data supplier personnel need to meet the needs of the company in a timely and adequate, open, and honest manner. Such communication, the results indicate, will help instill a willingness in the supplier to increase service and support, and continue conducting R&D research associated with the product provided the company. Such communication will also contribute to the supplier being more trusting of the company, which in turn, as the study has substantiated, will further reinforce supplier willingness to increase service and R&D activities.

Table 3: Summary of hypothesis support, theoretical, and managerial contribution(s)

Hypothesis	Measurement	Theoretical construct	Quality (a)	Service (b)	R&D (c)	Hypothesis support	Theoretical and managerial implication(s)
H1	Price concessions (−)	ET	-	N.S.	-	2/3 supported	Unilateral price concessions have a particularly attenuated and negative effect on the quality levels, and willingness to continue joint R&D expenditures delivered to the OEM. Suppliers react to changes in their equity by reducing the quality and the R&D, both transparent costs that can be matched to price concessions.
H2	Buyer communication (+)	INJ	N.S.	+	+	2/3 supported	Positive communication between buyer and supplier can offset the potential negative effects resulting from unilateral price concessions to both service levels, as well as future R&D expenditures. Effective informational justice can lead to more positive supplier responses in terms of relational performance, though not at the product level.
H3	Supplier's trust (+)	IPJ	N.S.	+	+	2/3 supported	Fostering trust between parties can offset the potential negative effects resulting from unilateral price concessions to both service levels, as well as future R&D expenditures. Interpersonal justice, reflected in trust, leads to positive supplier relational performance, though not at a product level.
H4	Supplier long-term returns (+)	DJ	+	+	+	3/3 supported	The supplier's belief that the relationship will foster long-term returns, even as unilateral price concessions are demanded, significantly impacts their efforts in quality, and service levels, as well as future joint R&D expenditures with the OEM. Fairness in distribution of returns (i.e., expectations of long-term returns for both parties) leads to a positive supplier response.
H5	Buyer cost reduction help (+)	PJ	+	+	+	3/3 supported	The buyer's demonstrated help with respect to cost reduction (i.e., sending engineers to help the supplier reduce component costs), even as unilateral price concessions are demanded, significantly impacts their efforts in quality, and service levels, as well as future joint R&D expenditures with the OEM. Efforts to engage in procedural justice (i.e., sharing the burden during price reductions) lead to a positive supplier response.

Notes: (−), (+) = hypothesized relationship with dependent variables. DJ, distributive justice; ET, equity theory; INJ, informational justice; IPJ, interpersonal justice; N.S., not significant; PJ, procedural justice.

While increased and improved communication will help maintain the service and R&D activities, it will not change the supplier's compensatory action of reducing product quality. This is understandable since supplier personnel associated with services and support, and R&D activities are a sunk cost. So, having these personnel continue to work on activities associated with the buyer who has just been given a price concession does not cause the supplier to necessarily incur additional costs. On the other hand, the cost of maintaining the product quality will exacerbate the supplier's lower revenues and loss profits resulting from the price concession.

Accordingly, the buyer needs to do something that helps the supplier to overcome the revenue and profit losses. In fact, the study results provide specific direction as to how this can be done. First, the buyer can work with the supplier to find ways to reduce the costs associated with the provided products. It does not matter where the reduction occurs, in the design of the product or in processes in the buyer's or supplier's facilities, as long as the activity leads to a real hard cost reduction for the supplier the data indicate that the supplier is likely to maintain the product's quality. In addition, if the supplier perceives that there are real opportunities for realizing an acceptable return, whatever acceptable may be for the supplier, on buyer business over the long term, the data indicate the supplier will maintain the product's quality. It is possible that certain situations preclude the buying firm from engaging in the strategies above. In such cases, recognizing the trade-offs associated with price concession demands might limit buyer's desire to engage in price concession demands, or to understand the potential reaction of suppliers. This can help the buyer to mitigate concerns from supplier reactions through additional oversight or through different supplier relationship strategies.

In the language of equity theory, the revenue and profit losses realized by the supplier that result from the supplier price concession given in response to the buyer price reduction pressures cause the supplier to perceive that an inequitable situation has been created between them and their customer. To right the inequity, the supplier undertakes three specific product-related actions – product quality is reduced, as is services and R&D expenditures associated with the product whose price has been reduced. The buyer, however, can reduce the negative impacts of the supplier compensatory actions by being proactive in terms of appropriate organizational justice approaches to mitigate the effect of the perceived inequity. In anticipation of implementing price reduction pressures on a supplier, the buyer should ensure that good communication exists between itself and the affected supplier, that an environment of profit opportunity exists for the supplier, and that the buyer has personnel, and processes and procedures in place that can be used to work with the supplier to reduce costs associated with the supplier's product, wherever within the buyer–supplier system cost reduction opportunities may exist. Table 3 provides a summary of the hypotheses and their support (or not), as well as the theoretical and managerial contribution of the study.

CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

This research contributes to previous work in several ways. First, it identifies equity theory as motivation to understand how suppliers respond to perceived inequities in the form of granting price concessions to buyers and organizational justice as a potential mechanism for reducing the negative outcomes of such inequities. The findings address when suppliers engage in either negative or positive behaviors when faced with buyer-initiated adversarial price reduction pressures and potential relational inequities. By integrating equity theory, organizational justice, and buyer–supplier relational dynamics, we present empirical evidence that inequity in the relationship can lead to compensatory behaviors from the suppliers to address this perceived inequity. However, this compensatory effect can be reduced by organizational justice through the application of buyer–supplier relational behaviors of buyer communication, supplier trust in the buyer, supplier expectations of returns, and buyer cost reduction help. This extends prior research on price concessions which has explored the conditions through which a supplier would grant a price concession request (Henke et al. 2009) by connecting it to reductions in supplier output when price concessions are granted. Understanding how the different dimensions of organizational justice can lead to positive supplier outcomes, even in the presence of price concessions, provides a positive path forward for firms who are facing high pressure to reduce prices.

It is also worth pointing out that the results from this research serve as a unique corollary to the research on power dynamics as extant research has explored different power levels inherent in the relationship (Villena and Craighead 2016), whereas this study explores the outcomes related to the application of power, in the form of price concessions granted by suppliers. In other words, rather than studying the conditions of power/dependency dynamics, which can lead to different relational outcomes and potential inequity, this manuscript explores the implications for when the buyer wields power and how suppliers respond to the use of such power in different conditions.

Future research should examine the relationships between power/dependence dynamics, the application of power, and supplier responses, particularly in terms of inequity and organizational justice. Research exploring alternative compensatory behaviors could also provide additional insight into these issues. For example, suppliers could compensate through opportunistic behavior, which could be closely related to many of these organizational justice constructs. Additionally, the compensatory actions identified in this manuscript could lead to opportunistic behavior to cover up such actions. For example, consider the Takata airbag recalls, which was largely due to the switch from tetrazole to ammonium nitrate to save costs as margins were getting tighter (Tabuchi 2014). Takata "routinely manipulated results of air-bag inflator tests" going as far back as the year 2000 (Trudell and Fisk 2016:1), hiding the increased risks and decreased quality of the product. How opportunism might emerge as compensatory actions to inequity or low organizational justice and also how it could amplify the risks associated with compensatory action should be investigated.

Though this study has furthered our understanding of the role that OEM price reduction pressure plays on service, R&D, and quality responses from the supplier, there is more work to do. Understanding the contextual details regarding the price concessions can yield additional findings relative to how inequity is perceived in the relationship. Buyer behaviors surrounding the price concessions can enhance or diminish the perceptions of

inequity and thus the supplier's response. For example, if the buyer is demanding price concessions from a Tier 1 supplier while at the same time engaging in direct sourcing with Tier 2 or Tier 3 suppliers, the perception of inequity could be worse. Also, a limitation of the present study is the single-item nature of the constructs measured in this survey. While extant research has leveraged this approach, future work should capture a multidimensional approach to the constructs measured herein. Related to this, is the potential limitation of using a survey instrument for capturing some, potentially, objective measures of performance. Future research should triangulate "softer" measures of concession outcomes with more objective (perhaps financial) measures to extend the external validity of the findings.

This research focused its scope on the automotive industry. Clearly, there exists significant price pressure in other industries such as aerospace, pharmaceutical, and others. Future research should explore the crossover of these results to other industries so as to extend the external validity of the results. The present study seeks to address the value of working relations between parties and the connection that they have in remediating the negative impact of such price pressure. As a result, there are no financial metrics used in the analysis. Given the increasingly important role that supply chain finance and the financial flows in a supply chain play in understanding supply chains (Carter et al. 2015; Carnovale et al. 2018), this is a necessary avenue for future research. Specifically, future research should examine the connection between such price pressure and financial performance (i.e., cash conversion-cycles, ROA, ROI, ROIC, and ROE). Finally, while we examine the R&D response of the suppliers being pressured, future research should investigate how such price-related pressure impacts the innovation output of the suppliers in the firm's network.

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APPENDIX: INSTRUMENT DETAILS

Variable	Dependent/ Independent	Instrument Question	Reference(s)
Quality Response	Dependent	To compensate for the 200[X]† price reduction concessions given to the OEM, what phrase in the above scale best describes the action your firm is or will be taking during 200[X], in product quality (excluding actions that might negatively impact consumer safety)?	Henke et al. (2008, 2009, 2014); Zhang et al. (2009, 2011)
Service Response		To compensate for the 200[X]† price reduction concessions given to the OEM, what phrase in the above scale best describes the action your firm is or will be taking during 200[X], in services/support (including launch support) provided to the OEM?	
R&D Response		To compensate for the 200[X]† price reduction concessions given to the OEM, what phrase in the above scale best describes the action your firm is or will be taking during 200[X], in research and development expenditures?	
Price Reduction Pre. Year	Independent	Total "hard*" price reduction concession percentage your firm gave the OEM in 200[X]†	
Communication		To what extent does the OEM communicate openly and honestly with your firm?	
Supplier's Trust		To what extent do you trust the OEM?	
Supplier Long-Term Returns		Given the OEM's expectations, including cost and quality, to what extent do you think your firm will be able to make an acceptable return on the OEM's business over the long-term?	
Buyer Cost Reduction Help		To what extent does the OEM help your firm reduce costs?	
NPD Involvement	Control	To what extent does the OEM involve your firm early enough in its product development process?	
Price Reduction Pressure		To what extent does your firm feel pressure from the OEM to reduce prices?	
OEM Share of Business		What was the approximate share (percent) of your firm's total 200[X] North American OEM automotive sales for each of your OEM customers?	
Supplier Size		What was your firm's total 200[X] North American OEM automotive sales in U.S. dollars, rounded to the nearest $100,000 (e.g., 25,600,000)?	
Working Experience		How many years has your firm been supplying production goods to the OEM in North America?	

Notes: *In the instrument, the following is communicated to the respondents: "'Hard' price reduction refers to a decrease in purchase order piece price".
† The year to which the instrument makes mention is the year prior to the responses.

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