The influence of power driven buyer/seller relationships on supply chain satisfaction

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Abstract

Research on supplier satisfaction in buyer–supplier relationships has been primarily conceptual. One purpose of the research described in this paper is to empirically test the influences of supply chain power on supplier satisfaction. Exploration of the effects of power on factors of supplier satisfaction will provide the key to understanding the power-satisfaction link in supply chain relationships. This paper shows how the buyer–seller relationship affects supplier satisfaction. In doing so, previous satisfaction and power literature is pulled together to demonstrate that the power-satisfaction variable must be included in any examination of supply chain partnerships. The three primary objectives of this research are to establish how the different “bases of power” affect the satisfaction of selling firms, investigate how power driven relationships affect supplier satisfaction, and measure the effect of power influences on supplier satisfaction in the automobile industry. Each of these research objectives was achieved. This study establishes the first empirical evidence for the measurement of power-driven supplier satisfaction. In each of the nine models studied, the power-affected buyer–supplier relationship was found to have a significant positive effect on both performance and satisfaction. The paths between performance and satisfaction, however, were consistently found to be non-significant.

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1. Introduction

Historically, the operations function has been targeted as a cost center within most industrial firms. In the past, corporate strategy was usually developed without involving operations strategy, leaving the operational functions (procurement, manufacturing and distribution) to simply minimize costs. However, over the past 10 years, successful industrial firms have begun to refocus on operations as a profit center. The repositioning of the operations function has become a new and effective competitive weapon. The critical elements of attitude, process improvement, waste

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elimination, and technology are necessary in allowing operations to provide a competitive advantage within the typical industrial firm (Hayes et al., 2005). This new operations oriented strategy has also transcended the traditional boundaries of the firm. A product is delivered to the end customer via a supply chain of firms, which consists of suppliers, manufacturers, and distributors. Individual firms are links in the supply chain, but a supply chain is only as strong as its weakest link. Thus, a manufacturer cannot be responsive without satisfied suppliers, and the benefits of such a relationship cannot be transferred to the end customer unless the distributors align with this manufacturer’s strategy as well. At the same time, a manufacturer cannot produce quality products without pushing quality responsibility upstream to its suppliers. Supply chain management involves the strategic process of coordination of firms within the supply chain to competitively deliver a product or service to the ultimate customer. The definition of a supply chain for this study represents a link between a manufacturing firm and a first tier supplier. This paper reflects a dyadic relationship as perceived from the supplier’s vantage point. The manufacture–supplier dyad represents a building block that can easily be extended throughout the supply chain. Thus, a more general definition of supplier satisfaction in the supply chain is “a feeling of equity with the supply chain relationship no matter what power imbalances exist between the buyer–seller dyad.”

Supply chain management offers a promise of increased market share for competitive US firms. Intense implementation challenges, however, often prevent effective exploitation of supply chain management benefits, thereby proving detrimental to any planned operations advantage. Some of the barriers to effective supply chain management are given in Table 1. Because supply chain management necessitates sharing of traditionally proprietary information, strategy, planning, and goals, most firms do not feel comfortable exposing such elements to other firms, fearing a loss of control.

The Daimler–Chrysler Corporation, a leader in developing close relationships with its suppliers, can be used to illustrate supply chain satisfaction. When Daimler–Chrysler’s team designed its new LH line (Dodge Intrepid, Eagle Vision, and Daimler–Chrysler Concorde) and new compacts sedans (Neon), Daimler–Chrysler outsourced more than 70% of its parts to a limited number of suppliers. In order to achieve this supply chain partnership arrangement, Daimler–Chrysler invited several key suppliers to participate in the early stages of the development process. Daimler–Chrysler pre-sourced 95% of the component parts for its new sedan by choosing vendors prior to the design stage (Kamath and Liker, 1994) thereby eliminating the competitive bidding process. Several of Daimler–Chrysler’s supply chain partners, like their Pacific rim competitors, had full responsibility for developing the components themselves and for coordinating with other sub-contractors to carry out the component development process. In the end, the LH line was developed from scratch in 39 months versus the usual 5–6 years; the new Neon line was developed in only 31 months. Furthermore, Daimler–Chrysler’s supplier cost reduction effort (SCORE) led to 10,000 new ideas between 1991, and 1993 and resulted in $2.3 billion in supply chain savings, one-third of which the suppliers retained (Kamath and Liker, 1994).

There is a void in supply chain satisfaction research. However, there are a few researchers that have studied satisfaction in distribution channels (Hunt and Nevin, 1974; Michie and Sibley, 1985; Raven and Kruglanski, 1970). One purpose of our research here is to empirically test the existence of benefits of supplier satisfaction that have so far been conjectured as conceptual ideas from distribution channel research. The current literature on supply chain management makes the ambitious assumption that the constituents of the supplier-buyer dyad are willing and able to cultivate mutually beneficial relationships, which leads to supplier satisfaction. However, it may be argued that a firm with significant power might not find it necessary to establish the win–win alliance since it can achieve its own profitability and effectiveness through control of its suppliers (dependents). In other words, firms with the bargaining power have little if any reason to yield control or to withhold exercise of such power. In seeking their own profitability and success, the dominant firms may be better off pursuing their own individual supply chain agendas, submitting to a joint planning partnership only as much as the balance of power dictates. The lack of supplier satisfaction dramatically challenges the possibilities for implementation and contests the
effectiveness of some of the current supply chain partnership research.

This study is structured as follows. Section 2 provides a review of the relevant background literature regarding the influence of power on supplier satisfaction. The research design and methodology are presented in Section 3. The analysis is given in Section 4. The results and managerial insights are discussed in Section 5. The conclusions will be given in Section 6.

2. Background

The primary purpose of this section is to examine shortcomings of the supply chain literature in addressing the influences of buyer power on supplier satisfaction.

As shown in Table 2, the idea of relationships among firms seeks to move away from the concept of discrete transactions, breaking down traditional inter-firm barriers to a supply chain orientation. Maloni and Benton (1997) offered an extensive review of supply chain partnership literature. Later, Chen (2002) provided a comprehensive literature review about information sharing in supply chains.

Supply chain partnerships emphasize a direct, long-term association, encouraging mutual planning and problem solving efforts. Table 3 displays the critical elements of a supply chain partnership in comparison to traditional thinking.

In a later paper, Maloni and Benton (2000) presented an extensive study on the influences of power in the supply chain. The research described in the Maloni and Benton (2000) paper provides initial evidence that recognizes power as a variable in the supply chain. With foundations in marketing channels literature (Lusch and Brown, 1982; Frazier and Rody, 1991; Frazier and Summers, 1984), Maloni and Benton (2000) showed empirically, the importance of power within the supply chain. Their findings are summarized below:

- **Power plays a significant role in the supply chain, and the different sources of power have contrasting effects on inter-firm relationships in the chain. Thus, both the power source and the power target must be able to recognize the presence of power, and then reconcile supply chain strategy for power influences.**
- **A stronger buyer–supplier relationship will enhance performance throughout the chain. This finding offers validation for the pursuit of supply chain integration as a key driver of corporate strategy and promotes the need for a better understanding of the integration process.**
- **Exploitation of the supply chain by the power partner may lead to dissension and under performance, thus hurting the power holder. Likewise, a judicious use of power may serve to benefit the power holder.**
Influences of power on the buyer–supplier relationship and subsequent effects of this relationship upon supply chain performance expose the potential of power as a tool to promote integration of the chain and empower higher levels of performance. This performance benefit incites the power holders to take a second look at their positioning of power within supply chain strategy and urges a more conscious, considerate use of power.

Supply chain strategy must be formulated with complete and accurate information. Firms must understand their chain partners in all respects, including comprehension of the sources, imbalances, and consequences of power such that the most beneficial use (or disuse) of this power can be directed to achieve supply chain performance and member satisfaction.

The Maloni and Benton (2000) paper provides insight for both the academic and practitioner view of power influences in the supply chain. Despite the value of that research in exposing power issues, a complete analysis of power effects was not attempted. With a supply-side orientation, the current research establishes, for the first time, a definition of supplier satisfaction in the supply chain as a feeling of equity with the supply chain relationship no matter what power imbalance exists between the buyer and seller dyad.

The critical question remains:

- How does the power variable affect supplier satisfaction?

Until this question can be effectively addressed, long-term supply chain performance cannot be accurately predicted. In contrast to the void in the literature on supplier satisfaction, distribution channel researchers have produced a wealth of studies exploring satisfaction within marketing and distribution channels. The next section provides a brief review of the established power literature. Its effects on the previous supply chain research will also be discussed. Inter-firm power and supplier satisfaction has roots in the social sciences (psychology, social psychology, and political science) literature.

2.1. Power sources

The most appropriate dichotomization of the supply chain environment is based on mediated and non-mediated power sources (French and Raven, 1959). Mediated power sources, which include reward, coercive, and legal legitimate, involve influence strategies that the source (buyer) specifically administers to the target (seller). The intention is to bring about some direct action. Mediated bases represent the competitive and negative uses of power traditionally associated with organizational theory. On the other hand, non-mediated power sources, which are more relational and positive in orientation, include expert, referent, and traditional legitimate (Brown et al., 1995; Maloni and Benton, 2000). These power bases occur as a natural part of buyer–seller business transactions and do not necessitate intention from the source. In fact, the source may not even be aware that non-mediated power bases exist. For a more comprehensive discussion on mediated and non-mediated power, see Brown et al. (1995) and, Maloni and Benton (2000).

Numerous distribution channel researchers (Lusch and Brown, 1982; Frazier and Rody, 1991; Frazier and Summers, 1984; Maloni and Benton, 2000) found that

<table>
<thead>
<tr>
<th>Traditional supply relationships</th>
<th>Supply chain partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price emphasis for supplier selection</td>
<td>Multiple criteria for supplier selection</td>
</tr>
<tr>
<td>Short-term contracts for suppliers</td>
<td>Long-term alliances with suppliers</td>
</tr>
<tr>
<td>Bid evaluation</td>
<td>Intensive evaluation of supplier value-added</td>
</tr>
<tr>
<td>Large supplier base</td>
<td>Few suppliers</td>
</tr>
<tr>
<td>Proprietary information</td>
<td>Shared information</td>
</tr>
<tr>
<td>Power driven problem solving</td>
<td>Mutual problem solving</td>
</tr>
<tr>
<td>improvement</td>
<td>improvement</td>
</tr>
<tr>
<td>success sharing</td>
<td>success sharing</td>
</tr>
</tbody>
</table>

Adapted from Stuart (1993).
power sources tend to use non-coercive influence strategies, which are logically supported by the idea that use of coercion may risk the power advantage (Boyle and Dwyer, 1995; Frazier and Rody, 1991; Maloni and Benton, 2000). Furthermore, Stern and Heskett, 1969 and Bacharach and Lawler, 1980 specifically show that non-coercive techniques can enhance the power advantage. In contrast, other researchers (Frazier, 1983; Dwyer and Walker, 1981) argue that distribution channel power sources tend to utilize mediated power strategies because such forms of power require less time to implement.

2.2. Power and satisfaction

Supplier satisfaction is defined as the feeling of equity with the relationship no matter what power imbalance exists. Surprisingly, little research (Michie and Sibley, 1985) has been undertaken to examine power effects on channel member satisfaction, perhaps because the issue is straightforward and highly intuitive. In turn, the literature (Hunt and Nevin, 1974; Lusch, 1976; Michie and Sibley, 1985) found relatively positive effects of non-coercive power on satisfaction and negative effects from coercion. Wilkinson (1979) also found that increased control could lead to satisfaction for the controlling firm, although this relationship might reverse itself under situations of high control. The supply chain partnership literature must address the effects of power on satisfaction to see if supplier satisfaction can exist for both parties (buyer and seller) in the presence of power asymmetry. Wilkinson (1981) found that non-coercive power enhanced satisfaction with other channel members, but he found no relationship between channel member satisfaction and non-coercive power sources.

This research will test the following supplier satisfaction question:

- How does power influence supplier satisfaction within the supply chain?

2.3. Conceptual model

It has been shown that power has a significant influence on factors that are critical to the relationship between a buyer and supplier such as cooperation, commitment, trust, compliance, conflict, and conflict resolution (Brown et al., 1995; Maloni and Benton, 2000). The findings from the supply chain power literature and the discussion in the previous section serve as the basis for hypothesis development in the present study. The supply chain power relationship is expected to be direct and positive for non-mediated power sources and negative for mediated power sources. The conceptual model, a priori finding from the distribution literature (Lusch and Brown, 1982; Frazier and Rody, 1991; Frazier and Summers, 1984), and the study by Maloni and Benton (2000) led to the development of specific research hypotheses, which are presented below in Fig. 1.
As shown in Fig. 2, there are three sources of power, followed by the buyer–seller relationship that affect the measures of performance for the supplier (s), manufacturer (m) and the supply chain (sc) which in turn affect supplier satisfaction. As an example, the non-mediated (Mn) source of power for the supply chain (sc) is represented by the effect of supply chain performance (Mn–sc) on supplier satisfaction.

2.4. Power and satisfaction hypotheses

Based on the literature review in the previous section and discussions with industry experts, the power bases were divided into mediated (legal legitimate, reward, coercive) and non-mediated (expert, referent). As can be seen, mediated power can be divided into two distinct factors. The following hypotheses were used to test the ability of mediated power sources to reduce the degree of supplier satisfaction, which is also affected by the performance of supply chain members (buyers and suppliers) as well as the supply chain itself. Thus the appropriate hypotheses for testing the effect of supply chain relationships on supplier satisfaction are given below:

2.4.1. Degree of relationship and supplier satisfaction.

Skinner et al. (1992) found that satisfaction had a positive relationship with cooperation and a negative one with conflict, and Ganesan (1994) found that satisfaction is a significant factor in achieving long-term relations. Ultimate supply chain partner satisfaction remains the overriding factor in determining the future of a supply chain partnership. Without satisfaction, supply chain members are unable to generate the psychological factors such as trust, commitment, and goodwill that are necessary for the partnership to be sustained. The formal hypothesis is given below:

H1. The degree of relationship has a significant positive effect on supplier satisfaction.

2.4.2. Supplier performance and supplier satisfaction.

According to Anderson and Sullivan (1993), customer satisfaction is a customer’s overall or global judgment regarding the extent to which product or service performance match expectations. Moreover, Reichheld and Sasser (1990) suggest that customer satisfaction should be reflected in a firm’s economic returns and profitability. Stank and Goldsby (1999) show that the effects of operational performance and relational performance on satisfaction and loyalty. Gunasekaran et al. (2002) suggest that in the development of metrics, an effort should be made to align and relate them to customer satisfaction. Alternatively from a supply chain point of view, it is hypothesized in the current study that supplier performance will lead to supplier satisfaction. The formal hypothesis is given below:

H2. Supplier performance has a significant positive effect on supplier satisfaction.

2.4.3. Buyer performance and supplier satisfaction.

In the marketing literature there has been some empirical work that provides support for a positive link between buyer performance and customer satisfaction (Cronin and Taylor, 1992; Crosby et al., 1990; Youngdahl and Kellogg, 1997). It is
hypothesized in the current study that buyer performance will lead to supplier satisfaction. The formal hypothesis is given below:

**H3.** Buyer performance has a significant positive effect on supplier satisfaction.

2.4.4. Supply chain satisfaction and supplier satisfaction.

Lee and Billington (1992) suggest that supply chain metrics must be linked to satisfaction. According to Lee and Billington, many companies do not monitor the supply chain performance metrics often enough. This measurement is needed to integrate the customer specifications in design, customer quality, cost control and process control. The formal hypothesis is given below:

**H4.** Supply chain performance has a significant positive effect on supplier satisfaction.

3. Research design and methodology

The primary research instrument for the study is a rigorously validated questionnaire. A set of critical questions regarding the analysis of power within buyer–supplier relationships is empirically tested. To address such questions, data were collected to measure the various supplier satisfaction relationship constructs. A summary of the survey questions is shown with the summary statistics in Table 4.

While different industries are in varying stages of implementing supply chain management development, the automobile industry is in an advanced stage. Imports of high quality, fuel efficient, and competitively priced cars from Japan in the 1970s and 1980s forced American automobile manufacturers to become competitive or to go out of business. Subsequently, one critical success factor in the industry has proven to be effective supplier partnering. Furthermore, the automotive industry has retained a significant climate of power asymmetry. Given these two elements and given our research objectives, the automobile industry is an excellent data source for this study. Experts believe that relatively few manufacturers account for most of the auto production in the US. Although the US Big Three (General Motors, Ford, and Daimler–Chrysler) have been hit hard by foreign competition, they still retain significant market share, and their market share have strengthened since the early 1990’s. Profitability also has been relatively strong for the Big Three over the last few years. The Big Three, along with the two primary Japanese transplant manufacturers (Honda and Toyota), sell over 85% of new automobiles in the US market. Given the relatively high cost of automobiles, and the fact that over 13.5 million vehicles were sold in the United States in 1996, a tremendous amount of revenue is associated with just five manufacturers. Therefore, there is a significant supply chain power advantage in favor of the manufacturers because they hold an oligopolistic control over market sales.

Given the market share of the larger auto manufacturers, there are many critical industry-wide issues that significantly affect supply chain processes in the United States. Each of these drivers holds implications for manufacturer–supplier relationships. Both the US and Japanese transplant firms are attempting to utilize supply chain management as a source of competitive advantage within the industry. This competitive pressure extends to the coordination of suppliers and manufacturers to decrease costs, increase quality, and increase the sharing of product design responsibilities.

3.1. Instrument design and data collection

Given the automobile industry as a research focus, the next step involves the establishment of a data collection plan. The research team sought meetings with industry practitioners to verify that the direction for the research design and analysis was timely and relevant. Five primary automobile manufacturers (Daimler–Chrysler, Ford, General Motors, Honda, and Toyota) were invited to participate in the project; each of the five responded with interest. Telephone interviews were conducted with Ford and Toyota. Field visits were conducted with three of these manufacturers, including General Motors, Daimler–Chrysler, and Honda.

The manufacturer meetings, as well as other industry research, showed that the manufacturers had achieved different levels of success in implementing supply chain management. Some manufacturers, like Daimler–Chrysler and Honda, were already capitalizing on integrated supply relationships in
order to gain a competitive advantage in the industry. Others, like General Motors still struggled to set effective supply chain integration strategies. Given this disparity, it was decided to establish the research focus as a benchmark study so to generate industry-wide best practice awareness.

Based on industry research, Daimler–Chrysler and Honda were targeted for comprehensive data collection. Honda, as a Japanese transplant firm, has proven to be a pioneer of supply chain management within the US market, and Daimler–Chrysler has led the US Big Three in the same category. As part of the analysis described above, it was verified that Daimler–Chrysler and Honda are industry leaders, thus positioning the research as a benchmark study of supplier satisfaction.

3.2. Supplier lists

Both Daimler–Chrysler and Honda were asked to provide address lists of their most critical tier one suppliers. Daimler–Chrysler supplied 178 contacts, and Honda supplied 392 contacts. Both firms then forwarded a letter to the president of each of the suppliers, informing them that they would be receiving a survey packet from the research team. They encouraged their suppliers to participate without fear of retaliation. The research team also insured the anonymity of the supplying firms. The supplier lists consisted of individuals at decision-making levels, and in strategically oriented positions, having titles such as President, CEO, and Chairman. The data were entered into a spreadsheet format and were verified twice for entry accuracy. The data were then filtered for problems. Some companies were removed from the Honda list because they were Honda subsidiaries. Of the 570 total contact names supplied by the two participating firms, 525 were considered usable after data cleansing. One hundred seventy-seven (33.7%) of these contacts were from Daimler–Chrysler, and the other 348 (66.3%) were from Honda. This sample size allowed for suitable testing of the research hypotheses.

<table>
<thead>
<tr>
<th>(A) Question number</th>
<th>(B) variable of measurement</th>
<th>(C) abbreviated statement from survey</th>
<th>(D) arithmetic mean</th>
<th>(E) S.D.</th>
<th>(F) T-Statistics</th>
<th>(G) Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Cooperation</td>
<td>Relationship better described as a “cooperative”</td>
<td>5.45</td>
<td>1.39</td>
<td>15.78</td>
<td>***</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Perform well together</td>
<td>5.85</td>
<td>1.10</td>
<td>25.46</td>
<td>***</td>
</tr>
<tr>
<td>69</td>
<td></td>
<td>Our future goals best reached with XXX</td>
<td>6.18</td>
<td>1.03</td>
<td>32.05</td>
<td>***</td>
</tr>
<tr>
<td>70</td>
<td></td>
<td>We can not count on XXX to give us support others receive</td>
<td>2.66</td>
<td>1.67</td>
<td>−12.18</td>
<td>***</td>
</tr>
<tr>
<td>71</td>
<td></td>
<td>XXX helps us in getting job done</td>
<td>5.36</td>
<td>1.18</td>
<td>17.47</td>
<td>***</td>
</tr>
<tr>
<td>9</td>
<td>Commitment</td>
<td>Do not want to replace XXX as a partner</td>
<td>6.50</td>
<td>0.95</td>
<td>39.68</td>
<td>***</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Committed to preservation of good relationships with XXX</td>
<td>6.72</td>
<td>0.67</td>
<td>61.04</td>
<td>***</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Our firm believes in XXX as a partner</td>
<td>6.14</td>
<td>1.15</td>
<td>28.11</td>
<td>***</td>
</tr>
<tr>
<td>54</td>
<td>Trust</td>
<td>XXX is concerned about our welfare</td>
<td>4.83</td>
<td>1.52</td>
<td>8.24</td>
<td>***</td>
</tr>
<tr>
<td>55</td>
<td></td>
<td>XXX considers how its decisions/actions affect us</td>
<td>4.61</td>
<td>1.49</td>
<td>6.20</td>
<td>***</td>
</tr>
<tr>
<td>56</td>
<td></td>
<td>We can not trust XXX</td>
<td>2.43</td>
<td>1.61</td>
<td>−14.76</td>
<td>***</td>
</tr>
<tr>
<td>57</td>
<td>Conflict</td>
<td>XXX looks out for our best interests</td>
<td>4.22</td>
<td>1.47</td>
<td>2.31</td>
<td>**</td>
</tr>
<tr>
<td>58</td>
<td></td>
<td>We do not like things XXX does</td>
<td>2.83</td>
<td>1.56</td>
<td>−11.34</td>
<td>***</td>
</tr>
<tr>
<td>59</td>
<td></td>
<td>XXX prevents us from doing what we want to do</td>
<td>3.85</td>
<td>1.59</td>
<td>−1.44</td>
<td>***</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>XXX does not have our best interests at heart</td>
<td>3.39</td>
<td>1.54</td>
<td>−6.05</td>
<td>***</td>
</tr>
<tr>
<td>61</td>
<td></td>
<td>We disagree with XXX on critical issues</td>
<td>3.28</td>
<td>1.51</td>
<td>−7.24</td>
<td>***</td>
</tr>
<tr>
<td>62</td>
<td>Conflict resolution</td>
<td>Discussions within areas of disagreement are productive</td>
<td>4.89</td>
<td>1.15</td>
<td>11.74</td>
<td>***</td>
</tr>
<tr>
<td>63</td>
<td></td>
<td>Discussions intend to create more problems</td>
<td>3.01</td>
<td>1.43</td>
<td>−10.47</td>
<td>***</td>
</tr>
<tr>
<td>64</td>
<td></td>
<td>Discussions increase effectiveness/strength of relationship</td>
<td>4.83</td>
<td>1.31</td>
<td>9.53</td>
<td>***</td>
</tr>
<tr>
<td>65</td>
<td>Compliance</td>
<td>Our private views different from those we express publicly</td>
<td>2.49</td>
<td>1.70</td>
<td>−13.44</td>
<td>***</td>
</tr>
<tr>
<td>66</td>
<td></td>
<td>Unless rewarded, we see no reason to expend extra effort</td>
<td>2.59</td>
<td>1.61</td>
<td>−13.30</td>
<td>***</td>
</tr>
<tr>
<td>67</td>
<td></td>
<td>How hard we work for XXX is linked to reward</td>
<td>3.50</td>
<td>1.74</td>
<td>−4.34</td>
<td>***</td>
</tr>
<tr>
<td>68</td>
<td></td>
<td>Bargaining is necessary to obtain favorable terms of trade</td>
<td>4.76</td>
<td>1.61</td>
<td>7.15</td>
<td>***</td>
</tr>
</tbody>
</table>

(A) Question number; (B) variable of measurement; (C) abbreviated statement from survey; (D) arithmetic mean; (E) S.D.; (F) T-statistics calculated as (D−4)/(E*sqrt(229)); (G) significance—*** indicate significance at 0.01, ** at 0.05, and * at 0.10; (H) XXX = Honda, Daimler-Chrysler.
3.3. Instrument design

As the supplier contact lists were being coordinated, the research instrument was being developed. A two-stage process was utilized to design the questionnaire. Fig. 3 outlines the survey development process. First, an extensive literature review was used to generate statement items related to the research constructs of interest. In the second stage, the advice of industry experts was sought to help refine the survey to an effective form. Pilot testing was conducted with industry experts. The process helped to generate an instrument that would produce reliable and unbiased scales.

3.4. Response

Twelve of the original 525 supplier contacts involved problems or errors that did not allow the contact to either receive or complete the survey. Such problems included unfixable address errors and corporate policies of non-participation in external surveys. Furthermore, one supplier was actually a wholly owned subsidiary of one of the manufacturers, and another did not deal directly with either manufacturer. A total of 14 non-usable survey contacts were dropped from consideration. Without any further information about other possible problems from non-respondents, a total of 511 possible valid participants were contacted through survey mailings.

The two rounds of surveys yielded a total of 195 respondents (38.16%) with 137 from the first round and 58 from the second round. (Round 1 response was defined as participants who responded to the first survey mailing and likewise for Round 2) Some of the responses were deemed unusable due to incompleteness, missing data, or excessive response of “no opinion”. Such responses included 14 from the first round and three from the second round. The cleansing yielded a final tally of 180 responses for a final response rate of 35.23% which compares favorably to other return rates in the fields of operations management and logistics. This included 125 (24.46% of all suppliers contacted and 69.44% of all respondents) from Round 1 and 55 (10.76% of all suppliers contacted and 30.56% of all respondents) from Round 2. Seventy-one (39.44% of all respondents) of the responses were from Daimler–Chrysler supplied contact names, and the remaining 109 (60.56% of all respondents) were from Honda supplied names. Of the 180 respondents, 49 (27.22% of all respondents) provided usable responses for both Daimler–Chrysler and Honda, leaving a total of 229 (180 + 49) data points for analysis.

3.5. Summary statistics

Descriptive statistics for each survey statement are presented in Table 4. Each statement sought responses based on a Likert scale from 1 (strongly disagree) to 7 (strongly agree) with 4 indicating a neutral score. Included in the summary statistics are the mean and standard deviation of the score for each statement, as well as a t-test for significance of difference from a neutral score of 4.

The summary statistics for the critical relationship elements between the buyers and suppliers were primarily positively oriented (see Table 4). The t-tests reveal a significant presence of commitment, trust, and cooperation as well as a lack of compliance in the buyer–supplier relationships. Furthermore, the t-tests also implied a lack of conflict in the buyer–supplier relationships.
relationships and an effective process of conflict resolution. Overall, the results of the t-test for relationship elements t-tests, reveal an industry environment that would tend to foster partnership-oriented relationships. It is important to note that previous benchmarking results have portrayed the targeted manufacturers, Daimler–Chrysler and Honda, to be industry leaders in supplier relations. Thus, the results from the relationship elements summary statistics divulge a best practice relationship environment rather than that of the industry as a whole.

The summary statistics for performance and satisfaction (Table 5) were also strongly favorable. First, the t-statistics for supplier performance, manufacturer performance, and supply chain performance retained highly significant values. These results indicate that the suppliers seemed to view their relationships with the manufacturers as enhancing the performance of themselves, the manufacturers, and the supply chain.

The positive performance measures are indicative of the linked nature of the supply chain. It appears that suppliers perceive that an improved relationship allows them access to critical information flows and planning activities, allowing them to do their job better. Their performance in the form of better designed, higher quality products at reduced costs, then translates to the manufacturer in the form of better cars at competitive prices. This enhances sales, market share, and customer loyalty, benefiting the entire supply chain. This offers support for the ultimate goal of supply chain management in improving the performance of all supply chain members. Furthermore, the t-tests for satisfaction show that the suppliers were primarily satisfied with their relationships with the manufacturers. Means for all four satisfaction measures were highly significant. This makes intuitive sense given the results of the power, relationship, and performance measures. The suppliers view their buyer relationships positively and perceive their own performance as having improved as a result. High satisfaction would flow naturally from such an environment. Once again, it is important to remember that such results represent a benchmarking environment rather than the composite industry.

3.5.1. Validity of measurement model

The validation process for the survey instrument had three steps: content validity; construct validity, which includes reliability, and nomological validity (O’Leary-Kelly and Vokurka, 1998). The literature review and in-depth interviews conducted with

<table>
<thead>
<tr>
<th>(A)</th>
<th>(B) Power variable</th>
<th>(C) Statement</th>
<th>(D) Mean</th>
<th>(E) S.D.</th>
<th>(F) T-Statistics</th>
<th>(G) Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Satisfaction</td>
<td>Dealing with XXX benefits our company</td>
<td>6.06</td>
<td>1.00</td>
<td>31.23</td>
<td>***</td>
</tr>
<tr>
<td>51</td>
<td></td>
<td>We are satisfied with dealings with XXX</td>
<td>5.36</td>
<td>1.51</td>
<td>13.64</td>
<td>***</td>
</tr>
<tr>
<td>52</td>
<td></td>
<td>Would discontinue selling to XXX if could</td>
<td>1.76</td>
<td>1.41</td>
<td>-24.00</td>
<td>***</td>
</tr>
<tr>
<td>54</td>
<td></td>
<td>XXX is good company to do business with</td>
<td>5.98</td>
<td>1.17</td>
<td>25.68</td>
<td>***</td>
</tr>
<tr>
<td>41</td>
<td>Performance-supplier</td>
<td>Performance of our firm has improved a result of our association with XXX</td>
<td>5.40</td>
<td>1.20</td>
<td>17.76</td>
<td>***</td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>Efficiency of relationship has improved our performance</td>
<td>5.23</td>
<td>1.22</td>
<td>15.21</td>
<td>***</td>
</tr>
<tr>
<td>47</td>
<td>Performance-manufacturer</td>
<td>Without XXX, our performance not as good</td>
<td>4.75</td>
<td>1.66</td>
<td>6.88</td>
<td>***</td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>XXX’s performance has improved</td>
<td>5.18</td>
<td>1.31</td>
<td>13.63</td>
<td>***</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>Efficiency of relationship has improved XXX performance</td>
<td>4.97</td>
<td>1.24</td>
<td>11.79</td>
<td>***</td>
</tr>
<tr>
<td>48</td>
<td>Performance-supply chain</td>
<td>Without us, XXX’s performance not as good</td>
<td>4.57</td>
<td>1.46</td>
<td>5.90</td>
<td>***</td>
</tr>
<tr>
<td>43</td>
<td></td>
<td>Performance of supply chain has improved</td>
<td>4.96</td>
<td>1.26</td>
<td>11.55</td>
<td>***</td>
</tr>
<tr>
<td>46</td>
<td></td>
<td>Efficiency of relationship has improved supply chain performance</td>
<td>4.90</td>
<td>1.18</td>
<td>11.50</td>
<td>***</td>
</tr>
<tr>
<td>49</td>
<td></td>
<td>Without relationship, supply chain performance would not be as good</td>
<td>4.46</td>
<td>1.33</td>
<td>5.20</td>
<td>***</td>
</tr>
</tbody>
</table>

(A) Question number; (B) variable of measurement; (C) abbreviated statement from survey; (D) arithmetic mean; (E) S.D.; (F) T-statistics calculated as (D−μ)/(σ*sqrt (229)); (G) significance—*** indicate significance at 0.01, ** at 0.05, and * at 0.10; (H) XXX = Honda, Daimler-Chrysler.
business executives and researchers established the basis of content validity for the survey instrument.

The purpose of construct validity is to show that the items measure and are correlated with what they purport to measure, and that the items do not correlate with other constructs. Unidimensionality was established with target rotation factor analysis, where 0.40 is generally considered to be the lowest significant factor loading to define the construct (Guadagnoli and Velicer, 1998; Hair et al., 1998).

Cronbach’s coefficient alphas were calculated for the items for each survey construct, and these are summarized in Table 6. For the five power constructs that remained after unidimensionality verification, each retained an acceptable level of alpha; 0.72 for expert, 0.83 for referent, 0.92 for legal legitimate, 0.75 for reward, and 0.87 for coercive. Furthermore, the alphas for the five relationship elements constructs also retained acceptable alpha levels with commitment at 0.83, cooperation at 0.71, trust at 0.89, conflict at 0.81, and conflict resolution at 0.86. Finally, the three different performance measures (supplier, manufacturer, and supply chain) also retained significant alpha values at 0.83, 0.84, and 0.85 respectively while satisfaction had an alpha value of 0.80. Given the results of the internal consistency assessments, the reliability of the research constructs were established.

3.6. Model testing

An initial exploratory factor analysis was run on the power bases to test for the mediated/non-mediated dichotomy. The results of the inter-factor correlation matrix supports the non-mediated grouping as expert, referent, and legitimate, but while coercive and legal legitimate power bases also correlated significantly, reward power stood alone as an independent base (Maloni and Benton, 2000).

Given these results, the research proceeded with a trichotomization of power strategies into non-mediated (expert, referent, legitimate), coercive-mediated (coercive, legal legitimate), and reward-mediated (reward). Combining these three power strategies and performance orientations (supplier, manufacturer, supply chain), nine models were tested as shown in Fig. 2.

4. Analysis

Given the multiple dependence relationships in the research models, structural equation modeling (SEM) is the most suitable statistical tool available to assess the models. Structural equation modeling (SEM) measures multiple relationships among independent and dependent variables, accommodating aggregated dependence relationships simultaneously in one comprehensive model.

The causal paths between various types of power relationships, performance results and supplier satisfaction were assessed. A validated survey instrument was used to collect responses to the manifest variables. The manifest variables then served as indicator variables for the latent factors.

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Values of Cronbach alpha for reliability assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>Variable</td>
</tr>
<tr>
<td>Power</td>
<td>Expert</td>
</tr>
<tr>
<td></td>
<td>Referent</td>
</tr>
<tr>
<td></td>
<td>Legal legitimate</td>
</tr>
<tr>
<td></td>
<td>Reward</td>
</tr>
<tr>
<td></td>
<td>Coercive</td>
</tr>
<tr>
<td>Relationship</td>
<td>Commitment</td>
</tr>
<tr>
<td></td>
<td>Conflict</td>
</tr>
<tr>
<td></td>
<td>Conflict resolution</td>
</tr>
<tr>
<td></td>
<td>Cooperation</td>
</tr>
<tr>
<td></td>
<td>Trust</td>
</tr>
<tr>
<td>Performance</td>
<td>Supplier performance</td>
</tr>
<tr>
<td></td>
<td>Manufacturer performance</td>
</tr>
<tr>
<td></td>
<td>Supply chain performance</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Satisfaction</td>
</tr>
</tbody>
</table>
4.1. Operationalized structural models

The generic structural model for the research conceptualized the relationship \((Y_3)\) between the buyer and supplier. The relationship was influenced by power (whether it was non-mediated, coercive-mediated, or reward-mediated). This power-affected relationship then affected performance \((Y_2)\) and satisfaction \((Y_1)\). It was hypothesized that supplier satisfaction was also influenced by performance. As an example, Fig. 4 represents one such model for non-mediated power (expert, \(Y_4\) and referent, \(Y_5\)) and supplier performance \((Y_{2a})\).

The SEM consists of both independent and dependent variables, but a dependent variable within one equation may become an independent variable within another equation. Structural equations look similar to regression equations with the addition of inter-related dependent variables. Thus, the current example model may be represented by equations in which the fitting of the structural model provides estimation of the \(\gamma\) and \(\beta\) paths:

\[
\begin{align*}
Y_3 &= \gamma_{34}Y_4 + \gamma_{35}Y_5 + \zeta_3 \\
Y_{2a} &= \beta_{23}Y_3 + \zeta_2 \\
Y_1 &= \beta_{12}Y_2 + \beta_{13}Y_3 + \zeta_1
\end{align*}
\]

where: \(Y_i\) represents the latent factor \(i\); \(\gamma_{ji}\) is the causal effect of exogenous variable \(i\) upon endogenous variable \(j\); \(\beta_{ji}\) is the causal effect of endogenous variable \(i\) upon endogenous variable \(j\); \(\zeta_j\) represents the error term for the equation for endogenous variable \(j\).

4.2. Model fitting

The fit indices associated with the final structural models were validated and are shown in Table 7. Specifically, the value of the chi-square statistic for each model was less than twice the degrees of freedom, and both the NFI and NNFI far surpassed the minimum suggested 0.90 level for each of the models. Also, the \(t\)-tests for both the factor loadings and path coefficients yielded significance with no near-zero standard errors. Furthermore, the plot of residuals was symmetric, centered to about zero, and retained relatively few extreme values. Finally, the PNFI eclipsed 0.60 for each model, while the RNFI surpassed the suggested value of 0.90 for each model, indicating a parsimonious summary; the measures of fit suggested a relatively strong fit for the nine research models. The final structural models for each of the supplier satisfaction models are presented below:

4.2.1. Non-mediated, supplier performance (Mn–s) structural model

The model shown in Fig. 5 specifies the conceptualized causal paths between some of the factors. The independent variables are permitted to covary. The corresponding structural model was run in SAS.

The significance of the \(t\)-statistics in the first equation indicates that both expert \((Y_4)\) and referent \((Y_5)\) significantly affect the relationship factor \((Y_3)\), and provide support for the basic premise of the research that power will affect buyer–supplier relationships. In turn, this power-affected relationship


(Y_3) was found to significantly influence supplier performance (Y_{2a}) as shown in the second equation. Finally, with regard to satisfaction, although the relationship variable (Y_3) was found to have a significant effect upon satisfaction (Y_1), no relationship was found between supplier performance (Y_{2a}) and satisfaction (Y_1) as shown in the third equation. This implies that the quality of the supplier’s relationship with the manufacturer is more critical to their satisfaction than their actual performance. The above inferences relate directly to H1.

4.2.2. Remaining non-mediated (Mn–m, Mn–sc) structural models

The previous section discussed the fit assessment of the non-mediated, supplier performance (Mn–s) structural model, and this section will analyze the fit of the remaining non-mediated power models (Mn–m and Mn–sc). Because the fit procedure for these models is identical to the one (Mn–s) above, the results are merely summarized. The results for the fit indices, as displayed in Table 7, showed that the two remaining non-mediated power models provided a strong fit to

![Fig. 5. Final structural model—Mn–s.](image_url)
the data. The final Mn–m and Mn–sc structural models are displayed in the Appendix (A1 & A2). Both models align with the results of the Mn–s model in that the paths from the power bases to the relationship factor prove significant in a positive direction and the two power bases tend to significantly covary with one another. The paths from relationship to performance (manufacturer and supply chain) were also significant as were the paths between relationship and satisfaction. Like the Mn–s model, the path from performance to satisfaction was non-significant.

The results from the three non-mediated power models discussed in this and the previous section show evidence for the positive effect of non-mediated power sources upon the buyer–supplier relationship. The subsequent power-affected relationship was found to significantly influence the performance of the supplier, manufacturer, and supply chain as well, offering confirmation of the value of fostering effective relationships.

4.2.3. Coercive-mediated (Mc–s, Mc–m, Mc–sc) structural models

The three coercive-mediated power models (Mc–s, Mc–m, Ms–sc) were fit using an identical procedure as above. The fit indices (Table 7) verify an acceptable fit for the Mc–s structural model is displayed in Fig. 6. The final structural models for Mc–m and Mc–sc are displayed in the Appendix (A3 & A4). Both coercive power and legal legitimate power were found to retain significant negative effects upon the relationship with legal legitimate seeming to have a consistently stronger effect. Furthermore, the covariance between coercive and legal legitimate power were found to be positive and significant. The remaining paths of the model align with previous results in that the paths from relationship to performance, as well as from relationship to satisfaction were found to be positive significant while the performance-satisfaction paths were found to be non-significant. In all, the fit of the coercive-power models show that the coercive and legal legitimate power bases tend to have a detrimental effect upon the buyer–supplier relationship environment.

4.2.4. Reward-mediated (Mr–s, Mr–m, Mr–sc) structural models

The final results for the fitting the reward-mediated power model (Mr–s) are displayed in Fig. 7. The final structural models for Mr–m and Mr–sc are displayed in the Appendix (A5 & A5). Once again, support was found to indicate acceptable model fit. The paths between reward power and relationship maintained a positive significance, but the p-value for the paths retained a value slightly greater than 0.01. This indicates that though significant at some levels, the reward–relationship paths were not as strong as the power–relationship paths found in the non-mediated
and coercive-mediated models. As in the previous models, the relationship-performance and relationship satisfaction paths were found to retain positive significance, and the performance-satisfaction paths were found to be non-significant.

With the above results we provide evidence supporting the theoretical research suppositions of the effect of power upon the nature of the relationship between buyer and supplier. The findings may be summarized as follows:

- Non-mediated power sources (expert and referent) were found to retain significant positive effects on supply chain buyer–supplier relationships.
- Coercive-mediated power sources (coercive and legal legitimate) maintain significant negative effects on supply chain buyer–supplier relationships.
- Reward-mediated power was found to have a positive effect on supply chain buyer–supplier relationships, but this significance was not found to be as strong as that of the other power effects.
- In all models, the power-affected supply chain buyer–supplier relationship was found to have a significant positive effect on both performance and satisfaction. The paths between performance and satisfaction, however, consistently were found to be non-significant.

As can be seen, the first three findings are consistent with the Maloni and Benton (2000) study. The fourth finding presented in this section will be directly translated into the testing of the research hypotheses. The results and discussion are provided in the next section.

5. Results and discussion

The results of the hypothesis tests are reviewed and interpreted, yielding insight into influences of power on supply chain relationships and supplier satisfaction. These results show the importance of effective power management as an approach to enhance the integration of the supply chain. This leads to a critical awareness of supply chain power influences for both practitioners and researchers.

5.1. Effects on satisfaction—hypotheses

Satisfaction with regard to this research may be defined as a feeling of contentment with the supply chain relationship no matter what power imbalance exists. Four supplier satisfaction hypotheses were developed. H1 examines the effect of the buyer–supplier relationship on supplier satisfaction, conceptualizing that a stronger relationship should increase such supplier satisfaction. Similarly, the remaining three hypotheses examine the significance
of the (supplier, manufacturer, and supply chain) performance versus supplier satisfaction links. The hypotheses are given as follows:

**H1.** The degree of relationship ($Y_3$) has a significant positive effect on supplier satisfaction ($Y_1$).

**H2.** Supplier performance ($Y_{2a}$) has a significant positive effect on supplier satisfaction ($Y_1$).

**H3.** Buyer performance ($Y_{2b}$) has a significant positive effect on supplier satisfaction ($Y_1$).

**H4.** Supply chain performance ($Y_{2c}$) has a significant positive effect on supplier satisfaction ($Y_1$).

Hypothesis H1 examines the significance of the $\beta_{13}$ (relationship–satisfaction) path. If the path coefficient is significantly greater than zero then a significant relationship would exist and H1 would be accepted. Likewise, the significance of the $\beta_{12a}$ (supplier performance–satisfaction), $\beta_{12b}$ (manufacturer performance–satisfaction), and $\beta_{12c}$ (supply performance–satisfaction) paths offer grounds to accept or reject hypotheses H2, H3, and H4, respectively.

5.2. Effects on satisfaction—results

In Table 8 we display the outcome of the satisfaction driven hypotheses. First, the relationship-satisfaction paths retained highly significant positive relationships, indicating that the quality of the buyer–supplier relationship has a potent effect on supplier satisfaction. Thus, H1 is consistently accepted for all models, substantiating that the buyer–supplier relationship serves as a fundamental driver of supplier satisfaction.

Despite the significant results for the relationship-satisfaction links, the results of the tests for the performance-satisfaction path significances (Table 8) consistently proved to be non-significant. This represents a counter-intuitive result that does not support distribution channel research (Skinner et al., 1992). In eight out of nine cases, a non-significant relationship was found between any of the performance measures (supplier, manufacturer, or supply chain) and satisfaction. H2 is rejected for the three supplier performance models (Mn–s, Mc–s, and Mr–s), as is H3 for all manufacturer performance...
models (Mn–m, Mc–m, and Mr–m). One of the supply chain performance models (Mn–sc), however, resulted in a significant negative relationship between supply chain performance and satisfaction, though the p-value was only slightly less than 0.10. The performance-satisfaction paths in the other two supply chain performance models (Mc–sc and Mr–sc) were also non-significant. Given the aggregate results of the nine models with respect to performance-satisfaction paths, virtually no evidence existed to establish performance as a driver of supplier satisfaction.

5.3. Effects on satisfaction—insights

The results of the satisfaction hypothesis tests provide for some of the most intriguing results of the research in that the relationship-satisfaction path remained significant but in most model the performance-satisfaction paths did not. (In the one case that it was significant the coefficient was negative). Thus, supplier satisfaction seems to be driven primarily by the nature of the buyer–supplier relationship rather than by performance. Conceptually, the suppliers should be most concerned with their own ultimate performance, even in a supply chain integrated environment yet the suppliers appear to be more concerned with the nature of the relationship. Thus, if the power holder is attempting to promote supplier satisfaction, it should emphasize a relationship driven supply chain strategy rather than a performance based strategy.

The results for satisfaction influence hypotheses are indicative of the orientation of supplier strategy in the automobile industry. Specifically, it appears that the suppliers are most concerned with the alignment of their firm with the manufacturers. In other words, suppliers place strategic emphasis on the maintenance of their relationship with their buyers rather than on their own performance or on that of the supply chain. Such a conclusion may be explained by results from one or both of two rationales. First, since the suppliers are far removed from the end customers in the industry and from subsequent ultimate performance of the supply chain, they are myopically unable to see their own true performance. Second and more likely, the suppliers may subscribe to the concept of success by association in which alignment with a proven manufacturer partner will automatically translate into improved supplier performance. Thus, performance is viewed by the supplier as a fixed result of its association with the manufacturer.

The finding that supplier satisfaction is driven by the supply chain relationships does not necessarily lessen the importance value of performance in the relationship; In fact, it actually establishes the role of performance as an accepted, omnipresent industry factor. The suppliers realize that they must generate performance within the supply chain. However, the suppliers also appear to believe that as long as they can maintain their relationship with the manufacturer, this performance will be created as a natural output.

5.4. Managerial implications

The automobile industry in the United States represents a breeding ground for supply chain satisfaction research. The industry consists of five manufacturers that account for 85% market share, and these manufacturers source from a supplier base of thousands. Such an oligopolistic buying structure has created an asymmetric power environment. With a few manufacturers comprising a large percentage of the suppliers’ sales, the supplier must bow to the authority of the buyers or risk financial collapse. This power imbalance is delineated in the demographics of the survey respondents from this research as the automotive manufacturers accounted for an average of 23.52% of respondent business.

To compound the problems created by the power imbalance, firms in the automobile industry are faced with intense competition. Each year the manufacturers are pressed to build higher quality, technologically advanced cars while maintaining competitive prices. The supplier base is directly affected by competitive pressure. The industry power imbalance has allowed the manufacturers to relinquish many of the responsibilities for product and process improvement to the suppliers. These suppliers are the key to maintaining the competitive capacities of the manufacturers, and the suppliers that cannot perform will be systematically exiled to financial ruin.

To recognize the synergy from coordination between manufacturer and suppliers as well as among the suppliers themselves, there has been an industry-
wide inclination toward integration of the supply chain. The members of the supply chain synthesize processes and strategies, allowing the entire chain to work together to attack pressures for cost reduction, faster cycle times, and increased quality benchmarks. Supplier satisfaction grants the supply chain a potential source of competitive advantage and is becoming an increasingly important part of the industry strategy.

The intense coordination necessary for effective supply chain integration necessitates a reduced supplier base. Twenty years ago manufacturers produced vehicles with thousands of suppliers, successful firms are now manufacturing better cars with just hundreds of suppliers. The large pie of purchased parts and materials thus gets divided among fewer players, and more is at stake for the suppliers. The suppliers must strive to become best practice in order to gain the critical preferred status with the manufacturers, and these preferred suppliers must maintain best practice or face effortless replacement from the large base of competitors. This intensifies the power imbalance within the industry.

Manufacturers in the automobile industry have been aware of their power advantage, and suppliers have long suffered from competitive, coercive power influences from these manufacturers. The use of such coercive strategy is best exemplified by some of the most powerful automotive firms. Some of the largest manufacturer in the industry purchase more $100 billion dollars of components and materials from suppliers annually. Some of these firms have capitalized on its buying power, maintaining a demanding attitude in its supplier relations.

Representatives from some of the automotive firms may not care about their suppliers’ opinions. They do, however, understand their use of coercive power, and as long as they feel it is the best supplier management strategy to take, their power strategy will not change. This signifies the main dilemma in power-satisfaction relationship: the power target (supplier) cannot alter the situation. It is the power source (auto manufacturer) that must enact the change in the relationship, finding some motivation to change its opportunistic tendencies.

Perhaps the most valuable contribution of this research is that it offers evidence for incentives to avoid the use of coercive power. This research has shown that relational uses of power through expert and referent as well as reward sources can be used to strengthen the nature of supply chain satisfaction between buying and selling firms. Thus, power may be utilized as an approach to promote effective integration of the supply chain. The research has also indicated that these enhanced supply chain relationships can yield satisfaction to all members of the supply chain, including the power source. Hence, the power source should manage its own power influences for its own good.

This discussion highlights the importance of power awareness as well as recognition of power as a valuable approach for increasing the satisfaction of the entire supply chain. Thus, practitioners need to take a long, hard look at their own awareness of power within the supplier-manufacturer relationship. They must understand power influences as well as the prevalent existing power bases. The power source must become conscious of its available power bases and subsequently promote the positive bases while carefully controlling the harmful, coercive bases. The power holder must create an environment of trust to assure the target that competitive power sources will not be exercised in any fashion.

The role of supply chain management in industry will only intensify, and the findings of this research suggest that power-satisfaction relationships must become a prominent part of supply chain strategy. Dominant firms that choose not to manage their power advantage effectively may risk not only harm to the rest of the supply chain but to themselves as well. Thus, it is the contention of this research that these firms will be unable to sustain supply chain management as a competitive advantage and will be surpassed by those that are able to develop a more relationally oriented chain.

6. Conclusions

The purpose of this research was to assess satisfaction in the industrial supply chain. Four supplier satisfaction hypotheses were developed. The first hypothesis examined the effect of the buyer–supplier relationship on supplier satisfaction, proposing that a stronger relationship should increase
such satisfaction. Similarly, the remaining three hypotheses examined the significance of the (supplier, manufacturer, and supply chain) performance versus supplier satisfaction links.

The three primary objectives of this research were to:

- Investigate how power driven supply chain relationships affect supplier satisfaction.
- How does power influence supplier satisfaction between supply chain members (buyer–seller).
- Measure how power influences satisfaction in the supplier of the automobile industry.

Each of the study objectives of the research was achieved. This study provides the first empirical evidence for the measurement of supply chain power-satisfaction. In all models, the power-affected supply chain buyer–supplier relationships were found to have a significant positive effect on both performance and supplier satisfaction. The paths between performance and satisfaction, however, were consistently found to be insignificant.

Thus, supplier satisfaction seems to be primarily driven by the nature of the buyer–supplier relationship as opposed to performance. Conceptually, it might be assumed that suppliers should be more concerned with their own ultimate performance, even in a supply chain integrated environment, yet, this study empirically shows that suppliers appear to be more concerned with the nature of the relationship. Thus, if the power holder is attempting to promote satisfaction, it should emphasize a relationship-driven supply chain strategy rather than a performance based strategy. Furthermore, this strategy has the additional benefit of enhancing performance for both parties. A relationship-driven strategy is clearly the best choice for those who wish to prosper in the competitive global environment.

**Acknowledgments**

We wish to thank the following automobile manufacturing executives for their assistance with this research: Jeff Trimmer, Daimler–Chrysler Corporation, Dave Curry, Honda of America, Gunter Schmirler, General Motors Corporation, and 229 participating anonymous executives associated with the supplying firms.

**Appendix A**

**A.1. Final structural model—Mn–m**

\[
Y_3 = 0.3256 \ Y_4 (4.50) + 0.4267 \ Y_5 (5.66)  \\
Y_{2b} = 0.4171 \ Y_3 (4.45)  \\
Y_1 = 1.4768 \ Y_3 (15.5) - 0.0523 \ Y_{2b} (-0.94)
\]

\( r \)-Squared = 0.72 (\( t\)-value)  \( r \)-Squared = 0.10 (\( t\)-value)  \( r \)-Squared = 0.93 (\( t\)-value)
A.2. Final structural model—Mn–sc

\[ Y_3 = 0.3300 \, Y_4 (4.56) + 0.4230 \, Y_5 (5.63) \]
\[ Y_{2c} = 0.4318 \, Y_3 (4.94) \]
\[ Y_1 = 1.5126 \, Y_3 (15.52) - 0.1237 \, Y_{2c} (-2.00) \]

r-Squared = 0.72 (t-value)
r-Squared = 0.10 (t-value)
r-Squared = 0.93 (t-value)

A.3. Final structural model—Mc–m

\[ Y_3 = -0.1548 \, Y_6 (-3.86) - 0.2436 \, Y_7 (-6.69) \]
\[ Y_{2b} = 0.3688 \, Y_3 (3.95) \]
\[ Y_1 = 1.4282 \, Y_3 (15.37) - 0.0076 \, Y_{2b} (-0.13) \]

r-Squared = 0.40 (t-value)
r-Squared = 0.08 (t-value)
r-Squared = 0.91 (t-value)

A.4. Final structural model—Mc–sc

\[ Y_3 = -0.1556 \, Y_6 (-3.87) - 0.2417 \, Y_7 (-6.64) \]
\[ Y_{2c} = 0.3825 \, Y_3 (4.40) \]
\[ Y_1 = 1.4539 \, Y_3 (15.38) - 0.0681 \, Y_{2c} (-1.09) \]

r-Squared = 0.40 (t-value)
r-Squared = 0.11 (t-value)
r-Squared = 0.92 (t-value)
A.5. Final structural model—Mr–m

\[ Y_3 = 0.1555 \ Y_8 \ (2.52) \]
\[ Y_{2b} = 0.3921 \ Y_3 \ (4.17) \]
\[ Y_1 = 1.4562 \ Y_3 \ (15.35) - 0.0307 \ Y_{2b} \ (-0.54) \]

\[ r^-\text{Squared} = 0.04 \ (t\text{-value}) \]
\[ r^-\text{Squared} = 0.09 \ (t\text{-value}) \]
\[ r^-\text{Squared} = 0.93 \ (t\text{-value}) \]

A.6. Final structural model—Mr–sc

\[ Y_3 = 0.1569 \ Y_9 \ (2.55) \]
\[ Y_{2c} = 0.4054 \ Y_3 \ (4.63) \]
\[ Y_1 = 1.4864 \ Y_3 \ (15.36) - 0.0952 \ Y_{2c} \ (-1.52) \]

\[ r^-\text{Squared} = 0.04 \ (t\text{-value}) \]
\[ r^-\text{Squared} = 0.12 \ (t\text{-value}) \]
\[ r^-\text{Squared} = 0.93 \ (t\text{-value}) \]

References


