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Generalizations about trust in marketing channel relationships using meta-analysis [1]

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Abstract

This meta-analysis examines the role of trust in marketing channels. First, the analysis of pairwise relationships involving trust indicates that trust, on average, exhibits a robust and strong relationship with other channel relationship constructs under a wide range of different conditions. Next, we explored systematic patterns of variation in the correlations. The results demonstrate that the use of experiments, samples drawn from multiple industries, and US data tend to produce larger effects than the use of field studies, samples drawn from a single industry, and European data respectively do. Various other methodological characteristics of studies did not have significant effects. Finally, we examined the role of trust in a nomological net, involving some of the most frequently studied antecedents and consequences of trust. We find that trust contributes to satisfaction and long-term orientation over and beyond the effects of economic outcomes of the relationship. Both trust and economic outcomes—not just one or the other—are conducive to relationship marketing success. © 1998

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1. Introduction

In many industries, interfirm relationships are undergoing a fundamental change. Firms are increasingly looking to have fewer but more intense relationships with their channel partners. This trend is driven by both efficiency and effectiveness concerns. By concentrating on fewer suppliers for their inputs and fewer channel members for distribution, firms believe that they can reduce system costs through the adoption of technologies such as Just-In-Time (JIT) and Electronic Data Interchange (EDI). For example, it is estimated that such cooperative systems between manufacturers and retailers could squeeze US$30 billion and US$33 billion in excess costs out of the US and European food industry, respectively (Kumar, 1996). Fewer partners can also help motivate suppliers to become more involved in the firm's new product development efforts and motivate channel partners to develop joint marketing programs (Johan-

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son and Mattson, 1985). However, such exclusive relationships also increase the firm's vulnerability to opportunism by partners. Trust is therefore considered an essential ingredient for such relationships to realize their full potential. The partnership between Wal-Mart and Procter & Gamble in the United States is an example of the power of trust in transforming channel relationships and unleashing the benefits of partnerships based on trust (Kumar, 1996). Similarly in Europe, Albert Heijn and Heineken, as well as Marks & Spencer and its suppliers have developed relationships based on mutual trust.

Recognizing the importance of trust a decade ago, Dwyer et al. (1987, p. 28) implored that ''trust deserves priority attention''. Since the Dwyer et al. (1987) article, researchers in marketing have increasingly incorporated trust within their empirical models of channel relationships. Table 1 includes 24 studies which have empirically examined the antecedents and/or consequences of trust in marketing channels. These studies have examined over 60 constructs in attempts to determine how trust is created and how it affects other relationship outcomes. Clearly, the overwhelming emphasis has been on developing and testing new theory, rather than on establishing empirical generalizations. Thus, despite this extensive research, no consensus has been established about the relationship between trust and other variables. The problem, as Barwise (1995) recently observed, is that while most research in marketing is empirical, little of it even attempts to establish any generalizations. Given the importance of the construct and current status of research, we believe that a comprehensive mapping of the research on trust is worthwhile.

At least three issues can be identified that should be addressed. First, the increasing proliferation of constructs that are being related to trust calls for conclusions regarding the current status of trust research, as well as for recommendations with respect to directions for future research. Which constructs have been studied so extensively in relation to trust that more research effort is unnecessary? And which variables have been neglected? Which constructs have consistently proven to be strongly related to trust, and for which have the magnitude of relationships involving trust been small, or even null? Second, trust has been examined in a variety of research environments with diverse methods and measurement instruments. It is crucial to understand which methodological decisions can impact results and which do not. Third, while the central role of trust in relationship building and maintenance has often been noted in the marketing channels literature, with the exception of Morgan and Hunt (1994) it has seldom been explicitly examined. It remains to be established whether the findings of Morgan and Hunt (1994) concerning the mediating role of trust are generalizable across the research stream, and whether plausible alternatives regarding trust's central role in channel relationships can be ruled out.

To shed light on these issues, we propose to use meta-analysis—a powerful technique for quantitatively integrating research findings across a number of individual studies. While meta-analysis has often been employed in marketing (e.g., Assmus et al., 1984; Brown and Stayman, 1992; Churchill et al., 1985; Tellis, 1988), to the best of our knowledge, it has not been applied in the channels area.

Through meta-analysis we aim to: (1) reflect on the definition of trust, (2) map the constructs that have been examined empirically in relation to trust, (3) reveal which of these constructs exhibit a strong relationship with trust, (4) demonstrate which methodological choices matter and which do not, (5) test a causal model which posits a key mediating role for trust in marketing channel relationships, and (6) identify areas for future empirical investigations of trust.

The next section describes the research domain and specifies a number of characteristics that may influence the strength of the relationship between trust and other variables.

2. Literature review

2.1. Selection of studies

Empirical studies appearing in the marketing literature investigating trust in channel relationships were identified by means of a computer bibliographic search and issue-by-issue searches of the *AMA Proceedings*, *EMAC Proceedings*, *International Journal of Research in Marketing*, *Journal of Business Research*, *Journal of Consumer Research*, *Journal of*

Marketing, *Journal of Marketing Research*, *Journal of Retailing*, *Marketing Letters*, and *Marketing Science*. The literature search covered the 1970–1995 period. In all, 24 empirical papers containing 27 independent samples were uncovered. A table of the studies and their principal features is presented in Table 1.

An examination of Table 1 reveals that: (a) the large majority of studies were field studies, only seven being experiments; (b) the samples were drawn from five countries, although more than 75% were conducted in the United States; (c) about 70% considered distribution channels for consumer products, and the remainder studied distribution channels for industrial products; (d) the majority consisted of commercial channel members (retailers, wholesalers, or manufacturers) as opposed to end users; (e) a minority of studies sampled multiple industries; and (f) about 80% of the samples focused on the buyer side (e.g., dealer reporting on supplier) and 20% on the seller side of the dyad (e.g., supplier reporting on distributor).

2.2. Definition of trust

Inspired by interpersonal research (Deutsch, 1958; Larzelere and Huston, 1980), most channel studies define trust as ''the extent to which a firm believes that its exchange partner is honest and/or benevolent'', or some variant thereof. Trust in the partner's *honesty* is a channel member's belief that one's partner is reliable, stands by its word, fulfils promised role obligations, and is sincere (Anderson and Narus, 1990; Dwyer and Oh, 1987).

Trust in the partner's *benevolence* is a channel member's belief that its partner is genuinely interested in one's interests or welfare and is motivated to seek joint gains. A benevolent partner subordinates immediate self-interest for long range group gain (Anderson et al., 1987; Crosby et al., 1990) and will not take unexpected actions that would have a negative impact on the firm (Andaleeb, 1995; Anderson and Narus, 1990).

Despite conceptual agreement for the most part, studies differ in their operational measurement of trust. Except for four cases (Ganesan, 1994; Geyskens and Steenkamp, 1995; Kumar et al., 1995a,b), studies tend to include one or both aspects of trust in a single, global, unidimensional measure of trust. Three studies measure the two facets of trust individually and then average them into a general measure of trust (Geyskens and Steenkamp, 1995; Kumar et al., 1995a,b). All of these studies implicitly agree with Larzelere and Huston (1980, p. 596) who were concerned that ''while benevolence and honesty are conceptually distinct, they may turn out to be so intertwined . . . that they are operationally inseparable''. In contrast, Ganesan (1994) investigated the two facets independently and concluded that the two facets did demonstrate different relationships with other variables. One question that remains unanswered is whether there are any substantive benefits from measuring and examining the two facets of trust in isolation from each other or is a single global measure adequate.

2.3. Correlates of trust

Amazingly, the studies identified above have examined over 60 constructs as antecedents and consequences of trust. To systematically review such large numbers of constructs, meta-analysis studies typically adopt some categorization typology (e.g., Churchill et al., 1985; Tellis, 1988). For this study, we will use an adapted version of the political economy framework (Arndt, 1983; Stern and Reve, 1980). The original political economy framework distinguishes between five broad categories of channel constructs: (1) external political economy, (2) internal economic structure, (3) internal economic processes, (4) internal sociopolitical structure, and (5) internal sociopolitical processes.

Since the original political economy framework, considerable research has been conducted in the channels area. Some of the original Stern and Reve (1980) categories have been more popular than others. Besides, a number of new constructs which cannot easily be accommodated in the original framework have been explored. To be able to incorporate all of the constructs within the categories of the political economy framework required some modifications. We replaced the two original categories of internal economic structure and internal economic processes with the Dwyer and Welsh

Table 1
Summary of major empirical trust research

	Study	Empirical setting	Conceptualization of trust	Operationalization of trust	Empirical results	
					Antecedents	Consequences
1	Andaleeb, 1991 (*AMA*)	Laboratory experiment of 120 US business school students reporting on relationship with supplier (liqueur)		Honesty + Benevolence Experimental manipulation		Satisfaction (+) Stability (+)
2	Andaleeb, 1995 (*IJRM*)	Laboratory experiment of 120 US business school students and 72 US managers in role of distributor reporting on relationship with supplier (liqueur)	Willingness of a firm to rely on the partner's behaviors, especially when those behaviors have outcome implications for the firm bestowing trust	Honesty + Benevolence Experimental manipulation		Cooperation (+) Control (−) Influence stance (threats) of partner (−)
3	Andaleeb et al., 1992 (*AMA*)	Field study of 88 US suppliers reporting on relationship with distributors (OEM)	Firm's willingness to risk involvement and vulnerability in the relationship with the partner, in which responsibility is vested in the partner to act on the firm's own behalf in the belief that the decision will produce positive outcomes or not produce negative outcomes for the firm	Honesty + Benevolence		Desire to continue (0) Satisfaction (+)
4	Anderson et al., 1987 (*JMR*)[a]	Field study of 71 US independent sales agencies reporting on relationships with a total of 492 US principals (electronic components)	Willingness to accept short-term dislocations because of confidence that such dislocations will balance out in the long run	Benevolence 2 items α not reported		Time allocated to principal (+)
5	Anderson and Weitz, 1989 (*MS*)	Field study of 95 US independent sales agents reporting on relationships with a total of 690 US principals (electronic components)	Firm's belief that its needs will be fulfilled in the future by actions undertaken by the partner	Global scale 2 items $\alpha = 0.84$	Age (+) Communication (+) Cultural similarity (0) Goal congruence (+) Power asymmetry (−) Reputation of partner (+) Support by partner (+)	Perceived continuity (+) Communication (+)

6	Anderson and Narus, 1990 (*JM*)	Field study of 249 US distributor firms and 213 US manufacturer firms reporting on relationship with one another (cross-section of industries)	Firm's belief that partner will perform actions that will result in positive outcomes for the firm, as well as not take unexpected actions that would result in negative outcomes for the firm	Distributor side: Global scale 1 item Manufacturer side: Benevolence 3 items α not reported	Communication (+) Cooperation (+)	Conflict (−) Satisfaction (+)
7	Busch and Wilson, 1976 (*JMR*)	Laboratory experiment of 132 US junior level students reporting on relationship with salesman (life insurance)		Honesty 4 items α not reported	Referent power of partner (+) Expert power of partner (+)	
8	Childers et al., 1984 (*AMA*)	Field study of 80 US agents reporting on relationship with principals (insurance)	Belief that the partner will carry out its responsibilities and duties in an honest and straightforward manner	Honesty + Benevolence 15 items $\alpha = 0.94$		Conflict (−) Cooperation (+)
9	Crosby et al., 1990 (*JM*)	Field study of 151 heads of US households reporting on relationship with agents (life insurance)	Confident belief that the partner can be relied upon to behave in such a manner that one's long-term interests will be served	Honesty + Benevolence 7 items $\alpha = 0.89$	Expertise of partner (+) Similarity (0) Relational selling behavior by partner (+)	Anticipation of future interaction (+) Sales effectiveness of partner (0)
10–11	Dahlstrom and Nygaard, 1995a,b (*EMAC* and *JR*, respectively)	Field study of 40 Polish, 29 East-German, and 216 Norwegian dealers reporting on relationship with franchisors (gasoline stations)	Willingness to rely on partner in whom one has confidence	Benevolence 5 items $\alpha = 0.80$ in Poland $\alpha = 0.62$ in East Germany $\alpha = 0.87$ in Norway	Centralization (0,0,0) Formalization (0, +, +)	Performance (+, −, +)
12	Dion, 1991 (*EMAC*)	Field study of 21 US industrial buyers and 105 US salespeople reporting on relationship with one another (cross-section of industries)		Benevolence 5 items $\alpha = 0.94$	Adaptive selling by partner (0) Similarity (+)	Expertise of partner (+) Sales performance of partner (+)
13	Dwyer and Oh, 1987 (*JMR*)[a]	Field study of 157 US dealers reporting on relationship with manufacturers (automobiles)	A firm's expectations that partner desires coordination, will fulfill its obligations, and will pull its weight in the relationship	Honesty + Benevolence 4 items α not reported	Centralization (−) Formalization (+) Participation in decision making (+)	

Table 1 (continued)

	Study	Empirical setting	Conceptualization of trust	Operationalization of trust	Empirical results	
					Antecedents	Consequences
14	Ganesan, 1994 (*JM*)	Field study of 120 US retail buyers and 52 US vendors supplying to those retailers reporting on relationship with one another (department store chains)	Belief that partner is credible and benevolent	Retailer side: Honesty + Benevolence 12 items $\alpha = 0.89$ Vendor side: Honesty + Benevolence 12 items $\alpha = 0.78$	Relationship age (0) Specific investments by partner (+) Reputation of partner (+) Satisfaction with previous outcomes (+)	Long-term orientation (+)
15	Geyskens and Steenkamp, 1995 (*EMAC*)	Field study of 417 small US dealers and 289 small Dutch dealers reporting on relationship with suppliers (automobiles)	Belief that partner is honest and benevolent	Honesty + Benevolence 10 items $\alpha = 0.92$ in the US $\alpha = 0.89$ in the Netherlands		Affective commitment (+, +) Calculative commitment (−, −)
16	Grönhaug and Haugland, 1988 (*EMAC*)	Field study of 17 US and European importers reporting on relationship with Norwegian exporter (salmon)	Belief that partner is willing to act according to promises and joint interests	Honesty + Benevolence 6 items $\alpha = 0.69$	Culture (0) Dependence (−) Experience (0) Formalization (−)	
17	John and Reve, 1982 (*JMR*)	Field study of 99 Norwegian wholesalers and 99 Norwegian retailers reporting on relationship with one another (cross-section of industries)	Extent to which firm feels confident that partner will adhere to channel decisions and agreements, and information is shared openly	Wholesaler side: Honesty 4 items $\alpha = 0.78$ Retailer side: Honesty 4 items $\alpha = 0.71$	Domain consensus (+) Goal compatibility (+) Satisfaction (+)	
18	Kumar et al., 1995a (*JMR*)[a]	Field study of 417 small US dealers and 289 small Dutch dealers reporting on relationship with suppliers (automobiles)	Belief that partner is honest and benevolent	Honesty + Benevolence 10 items α not reported	Age (0) Distributive fairness (+) Procedural fairness (+) Environmental uncertainty (−) Outcomes given alternatives (+)	
19	Kumar et al., 1995b (*JMR*)	Field study of 417 small US dealers reporting on relationship with suppliers (automobiles)	Belief that partner is honest and benevolent	Honesty + Benevolence 10 items $\alpha = 0.92$	Total interdependence (+) Interdependence asymmetry (−)	

20	Morgan and Hunt, 1994 (*JM*)	Field study of 204 US independent retailers reporting on relationship with suppliers (automobile tires)	Confidence in partner's reliability and integrity	Honesty 7 items $\alpha = 0.95$	Communication (+) Opportunism of partner (−) Shared values (+)	Commitment (+) Cooperation (+) Decision-making uncertainty (−) Functionality of confict (+)
21	Rose and Young, 1991 (*AMA*)	Laboratory experiment of 56 US students in role of industrial buyers reporting on relationship with supplier (commodity industrial chemical)		Honesty + Benevolence 4 items $\alpha = 0.85$	Competitive orientation (−)	
22	Scheer and Stern, 1992 (*JMR*)	Laboratory experiment of 233 US MBA students in role of marketing manager of distributor company reporting on relationship with supplier (medical equipment)	Belief that partner can be relied on to fulfill its future obligations and to behave in a manner that will serve the firm's needs and long-term interests	Honesty 4 items $\alpha = 0.86$	Reward vs. penalty influence by partner (+) Contingent vs. noncontingent influence by partner (0) Positively (vs. negatively) framed influence by partner (+) Favorable outcomes (+)	
23	Schurr and Ozanne, 1985 (*JCR*)	Laboratory experiment of 103 US industrial buyers reporting on relationship with (computer programmed) supplier (high-tech plugs, socket, and cable)	Belief that partner's word or promise is reliable and that partner will fulfill its obligations in an exchange relationship	Honesty + Benevolence Experimental manipulation		Distributive bargaining (−) Integrative bargaining (0) Mutual self-disclosure (0) Level of agreement reached (+) Attitude toward partner (+) Attitude toward loyalty (+) Reject partner as too tough (−) Total concessions (0)
24	Stern et al., 1973 (*JMR*)	Laboratory experiment of 282 US students in role of manufacturer or wholesaler reporting on relationship with one another (hospital instruments)		Honesty + Benevolence 2 items α not reported	Conflict (−) Superordinate goal (0) Exchange-of-persons (0)	

[a] Trust was included in a measure of interorganizational climate or relationship quality. The results are presented for this overall measure.

(1985) terms of 'channel decision structure' and 'channel decision influence patterns'. We refer to the categories of external political economy, internal sociopolitical structure, and internal sociopolitical processes using the descriptions put forward by Stern and Reve, i.e., 'environmental uncertainty', 'power/dependence patterns' and 'sentiments and actions', respectively. Given the large and diverse range of constructs belonging to the latter category, we split it into two conceptual categories: a 'sentiments' category, referring to the channel members' affective responses toward their partner or their relationship, and an 'actions' category, referring to the patterns of behavior that emerge in a relationship. Furthermore, consistent with the assertion of Arndt (1983, p. 52) that the political economy framework puts too little emphasis on economic performance, we included a seventh category of 'performance' in our classification framework (cf. John and Reve, 1982).

The effect size metric selected for the analysis was the zero-order Pearson product-moment correlation coefficient between trust and the construct in question, because it is easily interpretable and scale-free (Rosenthal, 1986). For studies that did not report correlations, Student's *t* and *F*-ratios with one *df* in the numerator were converted to correlation coefficients by means of formulas given by Hunter and Schmidt (1990, p. 272). In total, 171 product-moment correlations involving trust from 26 independent samples reported in 23 articles and a total of 4548 subjects (of which 3550 were channel members and 998 were simulated channel members) were used in the meta-analysis. [2] The number of samples and data points is similar to the number found in meta-analyses by Sultan et al. (1990) and Szymanski et al. (1995). All 'harvested' pairwise relationships were categorized according to the underlying construct being associated with trust. In most instances, this was accomplished by accepting the construct designation employed in a study. However, in certain instances it was necessary to infer the appropriate construct category on the basis of the terminology of the conceptualizations and operationalizations. [3]

All 171 correlations involving trust were classified into one of eight categories, i.e., the seven categories of the adapted political economy framework, and an eighth category for 'other' constructs. Forty-three correlations could not be classified according to the political economy dimensions, mainly because they referred to intrafirm as opposed to interfirm characteristics. Each study was independently coded for potential conceptual and methodological moderator variables (to be described below) by one of the authors and one other coder. The average interrater agreement was 97%. Differences were resolved by discussion with one of the other authors serving as arbiter. Below, the succinct overview of the results of the classification is given. See Table 2 for a summary overview of the correlations reported in the empirical studies. For each construct, we also indicated whether it is generally posited in the literature as an antecedent or a consequence of trust.

2.3.1. Environmental uncertainty

The environment has a significant effect on decision making uncertainty in marketing channel relationships (Achrol and Stern, 1988). As Achrol and Stern (1988) demonstrate, there are a number of dimensions that contribute to environmental uncertainty. Some studies have examined the general effects of environmental uncertainty on trust (Dahlstrom and Nygaard, 1995b; Kumar et al., 1995a). Other studies have investigated the effects of individual dimensions such as environmental munificence (referring to a rich availability of resources sought in inputs and outputs markets) (Dwyer and Oh, 1987), environmental diversity (the degree to which elements of the environment are heteroge-

[2] For one sample (Andaleeb et al., 1992), only the sign of the results was given. No correlation coefficients, *t*- or *F*-ratios were reported. Consequently, this sample could not be included in the analyses.

[3] Some articles contain more than one correlation between trust and a specific construct. For instance, Ganesan (1994) reports correlations for two measures of dependence. If we included each correlation as a separate study in the meta-analysis, a disproportionate weight would be given to this investigation in relation to studies that only investigated one measure. In resolving this issue, we followed the basic recommendations of Hunter and Schmidt (1990) by averaging the correlations and reporting the data as a single study.

Table 2
Overview of pairwise relationships involving trust

Category of adapted political economy framework Specific construct [Study][a]	Antecedent (A) or consequence (C)[b]	Number of *r*'s	Total sample size	Weighted mean *r*	Range *r*'s[c]
Environmental uncertainty					
Overall environmental uncertainty [10,18,20]	A	6	1195	−0.210	−0.300 to 0.200
Environmental volatility [4,14]	A	3	664	−0.405	−0.490 to −0.065
Environmental diversity [14]	A	2	172	0.074	0.065 to 0.095
Environmental munificence [13]	A	1	167	0.101	n.a.
Channel decision structure					
Centralization [4,10,13,22,23]	A	7	1255	−0.274	−0.500 to 0.150
Formalization [2,10,13,16]	A	7	661	−0.076	−0.596 to 0.300
Participation in decision making [13]	A	1	167	0.474	n.a.
Channel decision influence patterns					
Coercive power use [2,6,23]	A	4	544	−0.239	−0.519 to −0.035
Partner's coercive power use [6,22]	A	3	670	−0.132	−0.306 to 0.137
Acquiescence [20]	C	1	204	0.451	n.a.
Power / dependence patterns					
Dependence [2,14,16,19,20]	A	7	1002	0.084	−0.460 to 0.167
Interdependence asymmetry [4,5,6,19]	A	5	2061	−0.055	−0.137 to 0.186
Partner's dependence [14,19]	A	3	589	0.248	0.182 to 0.426
Total interdependence [5,19]	A	2	1107	−0.031	−0.180 to 0.215
Transaction specific investments [14]	A	2	172	0.186	0.185 to 0.187
Partner's transaction specific investments [14]	A	2	172	0.472	0.464 to 0.475
Actions					
Cooperation [2,6,8,9,20,21]	A	8	1145	0.600	0.220 to 0.836
Communication [4,5,6,9,20,23]	A	7	2102	0.381	0.080 to 0.589
Partner's support [4,5,10,12]	A	6	1572	0.497	−0.110 to 0.640
Manifest conflict [6,8,18,19,24]	C	5	1127	−0.672	−0.820 to −0.228
Willingness to invest [18]	C	2	706	0.506	0.476 to 0.526
Functionality of conflict [6,20]	C	2	453	0.452	0.406 to 0.488
Partner's opportunistic behavior [13,20]	A	2	371	−0.647	−0.759 to −0.460
Exit [20]	C	1	204	−0.396	n.a.
Sentiments					
Affective commitment [14,18,19,20,22,23]	C	7	1393	0.590	0.290 to 0.756
Satisfaction [6,9,13,17,22,23]	C	7	1040	0.675	0.500 to 0.860
Expectation of continuity [5,9,18]	C	4	1547	0.511	0.290 to 0.590
Goal compatibility [5,17,20]	A	4	1092	0.622	0.357 to 0.690
Partner's distributive fairness [18]	A	2	706	0.432	0.350 to 0.485
Partner's procedural fairness [18]	A	2	706	0.711	0.705 to 0.715
Calculative commitment [15]	C	2	706	−0.285	−0.394 to −0.115
Domain consensus [17]	A	2	198	0.561	0.489 to 0.625
Performance					
Outcomes given comparison level / comparison level of alternatives [6,18,20,22]	A	6	1510	0.430	0.243 to 0.637
Satisfaction with previous outcomes [14]	A	2	172	0.365	0.326 to 0.452
Partner's sales effectiveness [9]	C	1	151	0.255	n.a.
Other constructs	n.a.	43	n.a.	0.243[d]	−0.460 to 0.770

[a] Study numbers correspond to those in Table 1.
[b] Where causal ordering has been subject to debate, the classification is consistent with the majority of distribution channels research.
[c] n.a. = not applicable.
[d] The weighted mean of the *absolute* values of the correlation coefficients is reported.

neous and complex) (Ganesan, 1994), or environmental volatility (the extent to which market and demand changes are rapid) (Anderson et al., 1987; Ganesan, 1994). The effects of environmental uncertainty on trust have usually been negative.

2.3.2. Channel decision structure

Dwyer and Welsh (1985) conceive the channel decision structure as having four dimensions: centralization (the degree to which decision making is concentrated in high levels of the hierarchy), formalization (the degree to which internal decision making is governed by explicit rules and fixed policies), participation (the degree of participation in decision making), and specialization (the extent of task differentiation). The relationships of the first three of these dimensions with trust have been explored in past research. Overall, it was found that trust is adversely affected by centralization. The results for formalization were inconsistent, and participation has only been included in a single study.

2.3.3. Channel decision influence patterns

Operating within each relationship are the decision instruments employed to influence and enforce compliance with the decisions (Arndt, 1983; Stern and Reve, 1980). In general, the use of threats (Andaleeb, 1995), penalties, or negatively framed influence strategies (Scheer and Stern, 1992) have an adverse effect on trust. On the other hand, trust positively affects acquiescence with the marketing policies of one's partner, but this relationship has only been explored in one study.

2.3.4. Power / dependence patterns

A number of different dependence-type of constructs have been related to trust. In general, 'unilateral' dependence constructs such as partner's and own dependence as well as partner's and own transaction specific investments are positively correlated with trust (e.g., Ganesan, 1994). Other researchers have combined partner's and own dependence to derive the constructs of interdependence asymmetry and/or total interdependence (Anderson and Weitz, 1989; Anderson and Narus, 1990; Kumar et al., 1995b). On average, interdependence asymmetry and total interdependence appear to have a small negative effect on trust, but the variation in correlation coefficients is considerable.

2.3.5. Actions

As Table 2 indicates, the interest in channel member actions or behaviors in relation to trust has been pervasive and continuing. For example, levels of trust have been shown to increase as partner support increases, and as opportunistic behavior by the partner decreases. Trust, on its turn, has a positive impact on willingness to invest, and a negative effect on manifest conflict and exit, but the latter relationship has only been investigated in a single study. Although causal ordering has been debated for communication and cooperation, the preponderance of conceptual and empirical evidence favors the conclusion that communication and cooperation operate as antecedents of trust (e.g., Anderson and Narus, 1990; Crosby et al., 1990). The rationale is that, when asked about their trust, channel members give a present state report; in contrast, channel member reports on communication and cooperation tap recent past experiences when the partners in a relationship have worked together (Anderson and Weitz, 1989; Anderson and Narus, 1990). Overall, action variables seem to have strong relationships with trust.

2.3.6. Sentiments

Channel members' sentiments concerning their partners or their relationships have been well-documented. For example, feelings of goal compatibility, domain consensus, and fairness have consistently been shown to increase trust. Greater levels of trust increase affective commitment and expectations of continuity, and decrease calculative commitment. The question of causal ordering has also been debated for the trust–satisfaction relationship. In line with Anderson and Narus' (1990, p.46) conceptualization of satisfaction as ''the focal consequence of working partnerships'', we posit satisfaction as a consequence of trust. Satisfaction is a *global* evaluation of fulfilment in the relation (Dwyer and Oh, 1987), to which trust may contribute. In general, sentiments are found to have strong and consistent relationships with trust.

2.3.7. Performance

Performance variables that have been investigated include outcomes given comparison level (Anderson

and Narus, 1990), outcomes given comparison level for alternatives (Kumar et al., 1995a), satisfaction with or favorability of previous performance outcomes (Ganesan, 1994; Scheer and Stern, 1992), and the partner's sales effectiveness (Crosby et al., 1990). Most authors have argued that economic performance precedes trust (e.g., Anderson and Narus, 1990; Ganesan, 1994; Scheer and Stern, 1992). In general, a strong positive effect has been found of economic performance on trust.

The political economy framework should be seen as ''an attempt to chart out or classify the total field of channel interaction'' in a number of categories (Stern and Reve, 1980, p. 53). Constructs belonging to the same category are more alike than constructs belonging to different categories. *Since trust itself belongs to the category of sentiments, we expect that on average, it will be more strongly correlated with other sentiments variables than with constructs that belong to the other categories of the adapted political economy framework.*

2.4. Study characteristics as potential moderator variables

As indicated above, the effect size varies by the type of construct involved, with the largest effect sizes being expected for sentiments constructs. In addition, study characteristics may be hypothesized to contribute to variation in effect sizes (e.g., Assmus et al., 1984). As is typical in meta-analysis, the coded study characteristics can be categorized as variables related to measurement and operationalization of constructs or to other study design features (Farley and Lehmann, 1994). In our investigation, we include the operationalization of trust and six study design features that are often mentioned in the marketing channels literature as being potentially detrimental to the generalizability of study results. The six study design characteristics are the side of the dyad, type of product, type of sample, reference frame, number of industries, and national setting.

2.4.1. Side of the dyad, type of product, and type of sample

The majority of trust studies has solely focused on the buyer side of the dyad reporting on the seller side. Anderson and Narus (1990), Ganesan (1994), to John and Reve (1982) are exceptions in collecting data from both buyers and suppliers. Approximately two-thirds of the studies involved consumer product channels of distribution (e.g., Crosby et al., 1990; Ganesan, 1994). Others have examined trust in industrial product channels (e.g., Anderson and Weitz, 1989; Schurr and Ozanne, 1985). The type of sample studied in organizational trust research is quite heterogeneous, ranging from (1) manufacturers (Anderson and Narus, 1990), (2) distributors (Anderson and Narus, 1990; Dwyer and Oh, 1987), (3) wholesalers (John and Reve, 1982), (4) independent sales agencies (Anderson et al., 1987; Anderson and Weitz, 1989), (5) retailers (Ganesan, 1994), to (6) final consumers (Busch and Wilson, 1976; Crosby et al., 1990). The first five sample types can be categorized broadly as commercial channel members (Stern and El-Ansary, 1992, p. 14), as opposed to the last sample type which concerns end users. No firm hypotheses are possible about these three study characteristics. *Although side of the dyad, type of product, and type of sample are often mentioned as factors that could potentially limit the generalizability of the results, the literature offers no suggestions as to their likely impact.*

2.4.2. Reference frame

While most of the studies are field studies, a number of studies (e.g., Andaleeb, 1995; Scheer and Stern, 1992) were conducted under laboratory conditions. *Because laboratory experiments permit tighter control, they might be expected to elicit larger effect sizes than field studies* (Farley et al., 1981).

2.4.3. Number of industries

Most empirical studies draw their sample from one particular industry, mainly the automobile industry (e.g., Morgan and Hunt, 1994). However, some researchers have drawn samples from multiple industries (e.g., Anderson and Narus, 1990; Ganesan, 1994; John and Reve, 1982). Multiple industries yield more variation in the data than a single industry. This should increase the range on the constructs of interest and consequently have a positive effect on the magnitude of the correlation coefficient. *Hence, it may be hypothesized that empirical relations of trust with other constructs are stronger in studies involving multiple industries.*

2.4.4. National setting

Most trust correlations are based on data from the US market, but work has also been done on European data. Cross-cultural comparisons should provide useful insight for both European and North American researchers (Möller and Wilson, 1992). We expect trust correlations to be stronger in studies conducted in the US than in individual European countries. Large countries such as the US are more culturally heterogeneous. Substantial within-country differences should result in more variation in the data and a tendency toward stronger effects than would be found in smaller and more homogeneous European countries. In addition, although management theories in general and channel theories in particular may seem to generalize fairly easily across cultures, ''parameters do not generalize as easily'' (Farley and Lehmann, 1994, p. 112). *Since the US is more heterogeneous than individual European countries, we expect larger effect sizes in the US.*

2.4.5. Operationalization of trust

Many researchers have included both benevolence and honesty in their operationalization of trust. Others have included only one of these two dimensions (e.g., Anderson and Narus, 1990), or have measured the construct globally with no reference to any of its facets (Anderson and Weitz, 1989). Theoretical arguments indicate that both dimensions are necessary to capture the construct of trust. *Given that the content validity of a trust scale that comprises both benevolence and honesty is expected to be higher than scales using only a single component or global scales, it is hypothesized that the former type of operationalization yields stronger relations with other constructs.*

3. Analysis of pairwise relations involving trust

3.1. Procedure

Each sample in our meta-analysis yields more than one pairwise relationship involving trust. Since effect sizes calculated for any one sample are typically correlated, statistical methods that treat them as independent are inappropriate (Raudenbush et al., 1988). To account for the interdependence among multiple correlation coefficients within studies, we used generalized least squares (GLS) regression. Modeling within-sample dependencies using GLS should lead to more accurate error rates and ensure that samples that provide more data do not unduly influence the results.

The dependencies among the correlations are represented by their variance–covariance matrix. For a single sample, the asymptotic variances and covariances of the set of correlations involving trust and another channel construct are (Becker, 1992b; Becker and Schram, 1994):

$$\mathrm{Var}(r_{\mathrm{trust},x}) = \left(1-\rho^2_{\mathrm{trust},x}\right)^2/n, \tag{1}$$

$$\begin{aligned}\mathrm{Cov}(r_{\mathrm{trust},x}, r_{\mathrm{trust},y}) &= \left[0.5\left(2\rho_{x,y}-\rho_{\mathrm{trust},x}\rho_{\mathrm{trust},y}\right)\right.\\ &\quad\left.\times\left(1-\rho^2_{\mathrm{trust},x}-\rho^2_{\mathrm{trust},y}-\rho^2_{x,y}\right)+\rho^3_{xy}\right]/n,\end{aligned} \tag{2}$$

where $r_{\mathrm{trust},x}$ is the sample correlation between variables trust and x, $\rho_{\mathrm{trust},x}$ is the corresponding population correlation, and n is the sample size. The ρ's are typically estimated by substituting sample values for the population correlations. [4] The matrix of variance and covariance values for study i is denoted as Σ_i and the full covariance matrix is denoted as Σ. Correlations from different samples are assumed to be independent (Raudenbush et al., 1988). Therefore, the structure of Σ is that of a block diagonal matrix, with the Σ_i stacked along the diagonal. All remaining elements of Σ are zero. The error vector has variance–covariance matrix Σ, and the estimates for the linear model can be estimated with the usual GLS formulas. GLS estimation techniques for meta-analysis are described in detail by Becker (1992a,b) and Becker and Schram (1994).

[4] Note that the computation of covariances among correlations requires not only the correlations which are related, but also other correlations from the study's correlation matrix. Busch and Wilson (1976), Schurr and Ozanne (1985), and Stern et al. (1973) did not report the data needed to estimate covariances among the correlations involving trust. Therefore, these studies were omitted from the GLS analysis. Twenty-three samples reported in 20 articles had sufficient data for the computation of covariances for the GLS analysis. In total, the GLS analysis used 154 correlations involving trust (and a total of 4185 subjects) for which variance–covariance matrices could be obtained.

3.1.1. Robustness model

The most basic level of empirical generalization pertains to whether there exists a general relation between trust and other channel relationship constructs, regardless of the 'design' variables representing the construct involved, methodological characteristics, etc. (cf. Barwise, 1995). The robustness of the pairwise relations across a wide variety of different constructs and conditions was examined by applying GLS to a simple model that specifies each individual correlation r_{ij} as a function of a common population correlation α plus error, u_{ij}:

$$|r_{ij}| = \alpha + u_{ij} \qquad u_{ij} \sim N(0, \Sigma). \tag{3}$$

The errors u_{ij} are assumed to have an approximately multivariate normal distribution with variance–covariance matrix Σ. Note that the *absolute* value of the correlation coefficient was used, which is consistent with our focus on the strength of the relationship, regardless of the sign. Given the central role of trust in channel relations (e.g., Dwyer et al., 1987; Morgan and Hunt, 1994), we expect that trust exhibits a robust, generalized relationship with other channel relationship constructs.

Even when the grand mean effect size is significant, that does not imply that the 154 effect sizes are homogeneous, and that possible variation in effect sizes is only due to random error. A chi-square homogeneity test (Hedges and Olkin, 1985) was conducted to assess the significance of the variance in the effect sizes. Heterogeneity indicates that the grand mean effect size must be considered an *average* rather than a common correlation value, and that the variability in effect sizes may be due to moderator variables.

3.1.2. Moderator model

To explain the variance in trust correlations by substantive and methodological characteristics, we added the type of construct with which trust is correlated and the study characteristics discussed above, coded as dummy variables, to Eq. (3). The following moderator model was estimated:

$$|r_{ij}| = \Sigma\beta_k C_k + \Sigma\gamma_l M_l + u_{ij} \qquad u_{ij} \sim N(0, \Sigma), \tag{4}$$

where r_{ij} is defined as above, and β and γ are vectors of regression coefficients, to be estimated by using GLS. $\boldsymbol{C}_k$ $(k = 1, \ldots, 8)$, and $\boldsymbol{M}_l$ $(l = 1, \ldots, 7)$ are vectors of dummy variables representing the following systematic effects: [5]

Type of construct

$\boldsymbol{C}_1$ = environmental uncertainty (1 = yes; 0 = no)
$\boldsymbol{C}_2$ = channel decision structure (1 = yes; 0 = no)
$\boldsymbol{C}_3$ = channel decision influence patterns (1 = yes; 0 = no)
$\boldsymbol{C}_4$ = power/dependence patterns (1 = yes; 0 = no)
$\boldsymbol{C}_5$ = actions (1 = yes; 0 = no)
$\boldsymbol{C}_6$ = sentiments (1 = yes; 0 = no)
$\boldsymbol{C}_7$ = performance (1 = yes; 0 = no)
$\boldsymbol{C}_8$ = other constructs (1 = yes; 0 = no)

Methodological characteristics

$\boldsymbol{M}_1$ = side of the dyad (1 = respondents are buyers; 0 = respondents are sellers)
$\boldsymbol{M}_2$ = type of product distribution channel (1 = consumer; 0 = industrial)
$\boldsymbol{M}_3$ = type of sample (1 = commercial channel member; 0 = end user)
$\boldsymbol{M}_4$ = reference frame (1 = experiment; 0 = field study)
$\boldsymbol{M}_5$ = number of industries sampled (1 = multiple; 0 = one)
$\boldsymbol{M}_6$ = national setting (1 = USA; 0 = Europe)
$\boldsymbol{M}_7$ = operationalization of trust (1 = honesty and benevolence; 0 = other scale)

3.2. Results

The grand mean of the absolute values of the correlation coefficients between trust and a variety of different constructs across different conditions was 0.422 ($p < 0.001$). The value of 0.422 is the single best point estimate of the strength of the relation between trust and its antecedents and consequences. This can be considered a medium to large effect size (Cohen, 1988).

Finding a significant generalized correlation between trust and other constructs does not imply that the reported correlations are necessarily homoge-

[5] Because we included a dummy variable for each construct category, we did not include an intercept in Eq. (3).

Stem	Leaf
0.8	46
0.7	00267
0.6	002344579
0.5	001112233555668999
0.4	011122233556666778889999
0.3	0133445667888
0.2	02224445669
0.1	00012445566788999
0.0	11123334566899
−0.0	76654221
−0.1	844221
−0.2	875421
−0.3	964310
−0.4	966610
−0.5	9620
−0.6	0
−0.7	664
−0.8	2

Fig. 1. Stem-and-leaf display of 154 effect sizes. (*Note*: The first three entries are read as 0.84, 0.86 and 0.70.)

neous. Fig. 1 gives a stem-and-leaf display of the 154 effect sizes (r). Even after taking absolute values, the correlations range from 0.010 to 0.860, indicating that the variation in $|r_{ij}|$ is quite large. The chi-square homogeneity test (Becker and Schram, 1994) indeed revealed that there is a significant heterogeneity among the 154 trust correlations ($\chi^2(153) = 5189.74$; $p < 0.0001$). This was to be expected because the studies varied in terms of moderator variables expected to be significantly related to correlations involving trust, and our concern is now with the explanation of this heterogeneity. [6]

The moderator model specified in Eq. (4) was estimated to uncover systematic influences of two basic categories of variables—viz., the type of construct with which trust is correlated, and study characteristics—on the strength of the correlations involving trust. The estimated regression coefficients and significance levels are reported in Table 3. As expected, sentiments were, on average, most strongly correlated with trust in the partner. With the exception of the regression coefficients for environmental uncertainty and channel decision structure, and the regression coefficients for environmental uncertainty and 'other' constructs, all the other regression coefficients for the construct categories were significantly different from each other (p's < 0.05).

The magnitude of the correlation coefficient does not vary as a function of the side of the dyad, type of product, and type of sample investigated. Contrary to

Table 3
The impact of substantive and methodological characteristics on correlations involving trust ($n = 154$)

Predictor	Unstandardized coefficient[a]	p
Environmental uncertainty (β_1)	0.203[a,g]	< 0.001
Channel decision structure (β_2)	0.213[a]	< 0.001
Channel decision influence patterns (β_3)	0.095[b]	0.082
Power/dependence patterns (β_4)	−0.125[c]	0.020
Actions (β_5)	0.392[d]	< 0.001
Sentiments (β_6)	0.449[e]	< 0.001
Performance (β_7)	0.302[f]	< 0.001
Other constructs (β_8)	0.171[g]	< 0.001
Side of dyad (γ_1)		
Buyer	−0.003	0.926
Type of product (γ_2)		
Consumer	0.058	0.948
Type of sample (γ_3)		
Commercial channel member	0.001	0.357
Reference frame (γ_4)		
Experiment	0.035	< 0.001
Number of industries (γ_5)		
Multiple	0.156	0.003
National setting (γ_6)		
USA	0.158	< 0.001
Operationalization of trust (γ_7)		
Honesty and benevolence	−0.000	0.991

[a] Coefficients sharing the same superscript are not significantly different from one another.
Explained variance = 0.632.

[6] It is informative to compare the grand mean r and the chi-square homogeneity test from the GLS analysis to the values that would have been obtained from a weighted least squares analysis (where individual study effects are weighted by an estimate of the inverse of the variance) in which all interdependencies between correlations within studies are ignored. The average correlation of the 154 correlations under the assumption of independence is 0.399, which is slightly smaller than the value of 0.422 from the GLS analysis. The homogeneity value obtained under the assumption of independence is $\chi^2(153) = 7925.65$ ($p < 0.0001$), which is considerably larger than the value of 5189.74 from the GLS analysis. Hence, the results appear more variable than warranted when the interdependencies are not modeled.

Table 4
Subgroup effect sizes by moderator variables

	Environmental uncertainty	Channel decision structure	Channel decision influence patterns	Power/ dependence patterns	Actions	Sentiments	Performance	Other constructs
Buyer vs. seller								
r	0.263 vs. 0.166[a]	0.295 vs. −	0.318 vs. 0.137	0.148 vs. 0.223	0.512 vs. 0.615	0.571 vs. 0.518	0.373 vs. 0.606	0.247 vs. 0.215
N	10 vs. 2	14 vs. 0	8 vs. 1	16 vs. 5	29 vs. 3	25 vs. 5	7 vs. 2	39 vs. 2
Consumer vs. industrial product								
r	0.183 vs. 0.490	0.478 vs. 0.330	0.457 vs. 0.239	0.187 vs. 0.115	0.575 vs. 0.464	0.538 vs. 0.629	0.405 vs. 0.421	0.247 vs. 0.243
N	11 vs. 1	12 vs. 2	3 vs. 6	16 vs. 5	19 vs. 14	23 vs. 7	6 vs. 3	14 vs. 29
Commercial channel member vs. end user								
r	0.258 vs. −	0.295 vs. −	0.295 vs. −	0.155 vs. −	0.519 vs. 0.474	0.570 vs. 0.478	0.424 vs. 0.255	0.228 vs. 0.413
N	12 vs. 0	14 vs. 0	9 vs. 0	21 vs. 0	31 vs. 2	28 vs. 2	8 vs. 1	37 vs. 6
Experiment vs. field study								
r	− vs. 0.258	0.498 vs. 0.253	0.405 vs. 0.205	0.117 vs. 0.155	0.367 vs. 0.526	0.605 vs. 0.564	0.331 vs. 0.417	0.232 vs. 0.246
N	0 vs. 12	3 vs. 11	5 vs. 4	2 vs. 19	5 vs. 28	4 vs. 26	1 vs. 8	16 vs. 27
Multiple industries vs. one industry								
r	0.095 vs. 0.287	− vs. 0.295	0.127 vs. 0.415	0.226 vs. 0.133	0.591 vs. 0.499	0.533 vs. 0.572	0.425 vs. 0.403	0.370 vs. 0.235
N	4 vs. 8	0 vs. 14	3 vs. 6	10 vs. 11	7 vs. 26	9 vs. 21	4 vs. 5	7 vs. 36
USA vs. Europe								
r	0.301 vs. 0.206	0.358 vs. 0.144	0.295 vs. −	0.153 vs. 0.460	0.521 vs. 0.501	0.604 vs. 0.517	0.393 vs. 0.439	0.257 vs. 0.046
N	7 vs. 5	7 vs. 7	9 vs. 0	20 vs. 1	27 vs. 6	16 vs. 14	7 vs. 2	39 vs. 4
Honesty and benevolence vs. other trust scale								
r	0.198 vs. 0.331	0.370 vs. 0.235	0.400 vs. 0.271	0.200 vs. 0.108	0.561 vs. 0.495	0.538 vs. 0.608	0.402 vs. 0.422	0.186 vs. 0.261
N	7 vs. 5	7 vs. 7	3 vs. 6	15 vs. 6	14 vs. 19	17 vs. 13	5 vs. 4	21 vs. 22
Column								
r	0.258 vs. 0.379[b]	0.295 vs. 0.377	0.295 vs. 0.376	0.154 vs. 0.403	0.518 vs. 333	0.567 vs. 0.320	0.411 vs. 0.371	0.243 vs. 0.420
N	12 vs. 159	14 vs. 157	9 vs. 162	21 vs. 150	33 vs. 138	30 vs. 141	9 vs. 162	43 vs. 128

[a] Should be read as: the average correlation between environmental uncertainty and trust is 0.263 among buyers vs. 0.166 among sellers.
[b] Should be read as: the average correlation between environmental uncertainty and trust is 0.258 vs. an average correlation of 0.379 for all the other constructs that were correlated with trust.

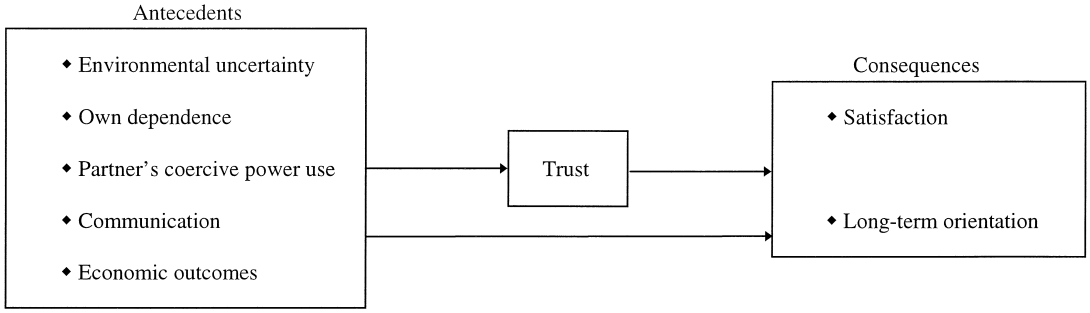

Fig. 2. Hypothesized model. (*Note*: Correlations between exogenous variables are not shown.)

our expectations, the operationalization of trust also did not affect the size of the correlation. The effects of reference frame ($p < 0.001$), number of industries ($p = 0.003$), and national setting ($p < 0.001$) on the size of trust correlations were statistically significant and directionally consistent with expectations. The use of experiments, multiple industries, and US data tend to produce larger effects than the use of field studies, a single industry, and European data do.

The meta-analysis explains 63.2% of the variability in correlations involving trust, which compares favorably with the fit of meta-analyses in other areas (Farley et al., 1995). It indicates that a moderator-adjusted meta-analytic estimate is substantially more precise than the grand mean of 0.422.

For illustrative purposes, Table 4 presents weighted mean correlations after Fisher *z*-transform per type of construct and study characteristic. [7, 8] Following Cohen (1988), the average effect sizes involving sentiments and actions can be regarded as large, and for economic performance, the effect size is medium to large. The average effect size for environmental uncertainty, channel decision structure, and channel influence patterns is medium, while the correlations with power/dependence patterns tend to be small. Table 4 also shows some gaps in previous research efforts. For example, there is a lack of published studies on European data linking trust to channel decision influence patterns, power/dependence patterns, and performance, on experimental studies incorporating environmental uncertainty or performance, and on the role of channel decision structure in the formation of trust among sellers and end users. Even more striking, there is a total lack of studies involving trust in non-Western settings.

4. Causal model analysis

Above, we have concentrated on the analysis of pairwise relationships involving trust. The assessment of the robustness of the pairwise relations involving trust is descriptive in scope. In the moderator analysis, the interest is still in descriptive/predictive (rather than in explanatory) causation, but the magnitude of the descriptive relation varies across levels of the moderator (Shadish, 1996). The moderator analysis allows one to predict the effect size, given the correlate involved and the methodological characteristics of the study.

In this section, we expand the meta-analysis of previous research on trust by examining *explanatory* processes, delineating and testing the role of trust in a nomological net. Thus, we combine two powerful

[7] The computation of weighted mean correlations per type of construct and study characteristic does not require a GLS analysis. Consequently, Table 4 is again based on the complete set of 171 product-moment correlations involving trust (cf. Tables 1 and 2).

[8] The average correlation per methodological level is not shown because it produces misleading results. For example, the average effect size for European studies (0.404) is slightly larger than the effect size for US studies (0.365) although Table 3 indicates the opposite. This is due to the fact that the European set does not contain correlations involving power/dependence and channels decision influence constructs, and these constructs tend to have rather low correlations with trust in the first place. In regression analysis, one controls for all the other variables. Computation of the column totals presents no serious biasing problems because the methodological factors did not have large moderating effects.

methodologies, structural equation modeling and meta-analysis, in order to use all available research evidence to obtain more robust and generalizable estimates of the nomological relations involving trust (Hom et al., 1992).

We examine the relation between trust and some of its key antecedents and some of its key consequences and test the mediating role of trust with respect to the relations between these antecedents and these consequences. Our causal model is shown in Fig. 2. [9] Three considerations were made in deciding which constructs to include in our model. First, the constructs included in the model had to be theoretically relevant, for example as shown by the frequency with which they have been related to trust (see also Table 2). Second, a construct could only be included if a sufficient number of studies relating it to every other construct in the model was available. Third, to maximize generalizability, the constructs are chosen to represent different categories of the adapted political economy framework.

Antecedents of trust. The model posits antecedent effects of environmental uncertainty, own dependence, partner's coercive power use, communication, and economic outcomes on trust. In the face of high environmental uncertainty, a channel member wants to remain flexible and develop relatively temporary relationships with multiple channel partners and consequently exhibits lower trust in any one partner (Ganesan, 1994; Kumar et al., 1995a). When the partner firm frequently uses coercive power and threatens the channel member, either in taking some actions that it otherwise would not have taken or in foregoing some other positive outcomes, the channel member is expected to view its partner as exploitative rather than accommodative (Frazier and Summers, 1986), and it will experience lower trust. Communication enhances trust by improving the atmosphere of the dyad and by aligning perceptions and expectations (Anderson and Weitz, 1989; Morgan and Hunt, 1994). A review of past economic outcomes from the relationship leads to a channel member's assessment of the extent to which the partner firm will follow through on its current promises. On the basis of these estimates, the channel member engages in or refrains from trusting its partner (Anderson and Narus, 1990; Scheer and Stern, 1992). When economic outcomes are high, the channel member attributes a good deal of credit to the partner for achieved outcomes, and the channel member's attraction to and trust in the partner will increase. Conversely, when economic outcomes are low, the channel member will become frustrated and attribute blame to the partner firm, leading to decreased trust (Frazier, 1983b). [10] Although there is no consensus on whether dependence should increase or decrease trust, channels researchers agree that dependence, which is considered to be central to explaining channel sentiments, is causally antecedent to trust (Andaleeb, 1996; Reve and Stern, 1985). A meta-analysis by aggregating evidence from several studies should help establish the sign of the effect.

Consequences of trust. Satisfaction and long-term orientation are modeled as consequences of trust.

[9] The constructs commitment and expectation of continuity are closely related; both pertain to perceptions about the future continuance of the relationship. In line with Ganesan (1994), we collectively refer to these constructs as 'long-term orientation'. Similarly, outcomes given comparison level (outcomes obtained from a relationship compared with expectations based upon knowledge and experience) is very similar to outcomes given comparison level for alternatives (outcomes obtained from a relationship compared with the best alternative relationship), as outcomes available from the best alternative relationship are a part of the firm's experience and contribute to the firm's expectations. We therefore use results for both constructs as measures of 'economic outcomes'. Environmental uncertainty, environmental volatility, environmental diversity and environmental munificence are combined into the summary construct 'environmental uncertainty', since ''uncertainty can be viewed as one outcome of the other environmental dimensions'' (Dwyer and Oh, 1986, p. 195). The resulting presumption is, then, the more volatile and diverse and the less munificent, the more uncertain the environment.

[10] Consistent with the best available conceptual and empirical evidence, economic outcomes are modeled as an antecedent of trust (Anderson and Narus, 1984, 1990; Kumar et al., 1995a, 1992; Scheer and Stern, 1992). Other studies suggest that relational attitudes precede economic outcomes (Crosby et al., 1990; Ross et al., 1997). In fact, channel relationships are dynamic, and thus, feedback relationships should occur with economic outcomes influencing the parties' trust, and the accumulation of trust increasing future economic outcomes. Since our data are cross-sectional as opposed to longitudinal, we cannot unequivocally capture the causal sequence of the constructs. This issue will be taken up in Section 5.

Table 5
Average intercorrelations among constructs in the model[a]

	1	2	3	4	5	6	7	8
1. Trust	0.871							
2. Environmental uncertainty	−0.261	0.726						
3. Own dependence	0.084	−0.066	0.826					
4. Partner's coercive power use	−0.132	0.100	0.114	0.818				
5. Communication	0.381	−0.166	0.043	0.058	0.844			
6. Economic outcomes	0.424	−0.199	0.111	0.067	0.324	0.898		
7. Satisfaction	0.675	−0.007	0.147	−0.137	0.314	0.333	0.864	
8. Long-term orientation	0.534	−0.174	0.193	−0.192	0.453	0.311	0.472	0.792

[a]Entries below the diagonal represent meta-analytically derived weighted mean correlations. Entries on the diagonal are weighted mean Cronbach alpha coefficients.

When a channel member trusts its partner, it will feel secure by way of an implicit belief that the actions of the partner will result in positive outcomes or not result in negative outcomes. This evaluation should lead to high satisfaction (Andaleeb, 1996). In the longer run, relationships characterized by trust are so highly valued that parties will desire to commit themselves to such relationships (Ganesan, 1994; Morgan and Hunt, 1994).

The key role of trust. Several authors (e.g., Dwyer et al., 1987; Morgan and Hunt, 1994) have argued that trust plays a central role in relationship building and maintenance. Trust leads to cooperative behaviors that are conducive to relationship marketing success. Morgan and Hunt (1994) present a 'key mediating variable' model in which trust is positioned as a key variable, mediating the relations between important antecedents (e.g., communication) and consequences (e.g., conflict). The mediating role of trust is also implicit in other studies, examining the relation between various antecedents and consequences (e.g., Anderson and Narus, 1990; Ganesan, 1994). These studies do not suggest that trust accounts for the total effect of antecedents on relationship consequences, but that trust acts as an important mediator.

Critical to establishing the key role of trust in affecting important relationship outcomes (such as satisfaction and commitment), is to rule out alternative explanations. Perhaps the most plausible competing alternative is economic in nature. In this view, the consequences of trust are best predicted by the economic outcomes of the relationship and therefore, trust becomes redundant once the effects of such economic outcomes are considered. Our causal model allows us to test this rival view. We believe that previous research on trust in which economic outcomes have also been considered, suggests that behavioral processes involving trust are crucial to understand cooperative channel relationship building. *Hence, trust is conceptualized as a key mediator variable, influencing satisfaction and long-term orientation, even when we control for economic outcomes and other antecedents.*

4.1. Procedure

The set of studies used for the causal model analysis is not identical to the set of studies used for the analysis of the pairwise relations. In principle, any study that reports a correlation between any pair of constructs specified in Fig. 2 provides information that can be incorporated in the estimation of the causal model. [11] On the other hand, some papers used for the bivariate relations may not contain correlations with one or more constructs that are included in the causal model (e.g., Busch and Wilson, 1976; Childers et al., 1984). In total, 43 studies

[11] For example, suppose that we wanted to predict trust from two antecedent variables communication and economic outcomes. Any study using at least two of these variables would contain at least one correlation of interest. In order for $r_{\text{trust,communication}}$ to be estimated, there must be at least one study with both trust and communication; estimation of $r_{\text{communication,economic outcomes}}$ requires at least one study with both communication and economic outcomes. However, there is no need for a study in which all three variables occur together (Hunter and Schmidt, 1990, p. 503).

Table 6
Analysis of the meta-analytical structural equations model

Path coefficients

Independent variable	Trust	Satisfaction	Long-term orientation
Environmental uncertainty	−0.135[b]	0.304[b]	0.050
Own dependence	0.063[a]	0.120[b]	0.207[b]
Partner's coercive power use	−0.192[b]	−0.101[b]	−0.236[b]
Communication	0.297[b]	0.063[a]	0.372[b]
Economic outcomes	0.339[b]	0.034	0.030
Trust		0.808[b]	0.425[b]
R^2	0.382	0.702	0.588

Indirect effects (I.E.) via trust

Antecedents	Satisfaction		Long-term orientation	
	I.E.	Rel. imp. I.E.	I.E.	Rel. imp. I.E.
Environmental uncertainty	−0.123[b]	29%	−0.065[b]	57%
Own dependence	0.051[a]	30%	0.027[a]	12%
Partner's coercive power use	−0.155[b]	61%	−0.082[b]	26%
Communication	0.240[b]	79%	0.126[b]	25%
Economic outcomes	0.273[b]	89%	0.144[b]	83%

[a] $p < 0.05$.
[b] $p < 0.001$.

provided information for the causal model analysis. [12] The pooled correlation matrix consisting of sample-size weighted average correlations is portrayed in Table 5.

The causal model was estimated using LISREL 8. Every construct (latent variable) is measured by a single indicator. Error variances for the indicators were fixed at $(1 - \alpha)$ (cf. Anderson and Gerbing, 1988), where α is the sample-size-weighted average reliability across studies for the construct in question. The median sample size ($n = 1214$) from the meta-analysis of relationships among constructs in the model was used.

4.2. Results

The key mediating variable model depicted in Fig. 2 yielded an adequate overall model fit: $\chi^2(1) = 1.35$ ($p = 0.245$), GFI = 1.00, CFI = 1.00, RMSEA = 0.017, and RMSR = 0.002. The standardized path coefficients are reported in the top half of Table 6. All antecedents exert a significant effect on trust. The performance construct 'economic outcomes' and the actions construct 'communication' have the greatest (positive) effect on trust. Own dependence has a small positive effect on trust. This is consistent with the analyses of the pairwise relations. Trust is inversely related to environmental uncertainty and partner's coercive power use.

More important for the purposes of our present study is that trust has a significant effect on satisfac-

[12] The following studies provided at least one correlation coefficient: the 'trust' studies 2, 4, 5, 6, 9, 10, 11, 13, 14, 16, 17, 18, 19, 20, 22, and 23 (see Table 1 for the meaning of these study numbers), and Anderson and Narus (1984), Anderson and Weitz (1992), Boyle and Dwyer (1995), Brown and Frazier (1978), Brown et al. (1983, 1995a,b), Dwyer (1980), Dwyer and Gassenheimer (1992), Dwyer and Oh (1986), Frazier (1983a), Frazier et al. (1989), Frazier and Rody (1991), Frazier and Summers (1986), Ganesan (1993), Gaski (1986), Gassenheimer et al. (1994), Gassenheimer and Ramsey (1994), Heide and John (1990), Heide and Stump (1995), Hunt and Nevin (1974), Koenig (1990), Leuthesser and Kohli (1995), Lewis and Lambert (1991), Olsen and Granzin (1993), Ping (1990, 1991, 1995), Skinner et al. (1992). This latter set of studies was retrieved using the computer bibliographic search and issue-by-issue searches of the publication outlets mentioned earlier in the paper.

tion and long-term orientation, even when we control for the antecedents of trust. This indicates that trust is not redundant, once economic outcomes are taken into account. Interestingly, the effect of trust on satisfaction and long-term orientation is even substantially larger than the direct effect of economic outcomes (which is not significant) or any of the other antecedents. This attests to the key role of trust in marketing channels.

The mediating role of trust can be examined by evaluating the statistical significance of the indirect effects of the antecedents on the consequences via trust, and the relative magnitude of the indirect effect of an antecedent with its direct effect. [13]

The bottom half of Table 6 provides the indirect effect of each antecedent on each consequence, through the mediating role of trust. The mediating role of trust is significant for each construct. On average, trust mediates 49% of the effects of environmental uncertainty, own dependence, partner's coercive power use, communication, and economic outcomes on satisfaction and long-term orientation. Thus, strong support is found for the mediating role of trust in marketing channel relationships.

5. Discussion and conclusions

5.1. Contribution

To the best of our knowledge, the present study is the first quantitative synthesis of previous research in the marketing channels domain. Our study shows the potential of meta-analysis for empirical generalizations in channels research. More specifically, the paper makes a number of important contributions. We find that trust exhibits a robust and rather strong relationship of 0.422 with other channels relationship constructs under a wide range of different conditions. This provides quantitative evidence across a wide range of studies for the contention that trust is central to relationship marketing (e.g., Morgan and Hunt, 1994; Takala and Uusitalo, 1996), and supports the considerable amount of research attention devoted to trust in the marketing channels literature.

Second, we identify that the relations with other constructs observed in the literature are far from homogeneous. Systematic patterns in the strength of the correlations could be identified. The constructs related to trust can be ordered in the following way in terms of the strength of the relationship with trust: (1) sentiments, (2) actions, (3) performance, (4) channel decision structure, (5) environmental uncertainty, (6) channel decision influence patterns, and (7) power/dependence patterns. These findings suggest that when building trust is an important organizational goal, managerial focus on sentiments (such as goal compatibility and fairness), actions (such as communication, opportunistic behavior, and support), and economic outcomes may be most effective. In other words, relationships are not prisoners of the environment and power structure, but whether trust develops depends on how parties feel and behave and on the outcomes developed.

Results also suggest that the use of experiments and samples drawn from multiple industries tends to produce larger effects than the use of field studies and samples drawn from a single industry did, confirming our hypotheses. Further, we hypothesized that US studies yield larger effect sizes than studies conducted in a European country because the US is more heterogeneous. This hypothesis was also supported which suggests that the US is actually quite a good laboratory for the (Western) world.

Main effects that were not significant are also of interest. No evidence is found that the relations are systematically affected by whether the buyer or the seller was investigated, the sample consisted of commercial channel members or end users, involved consumer or industrial products, or the operationalization of trust included the two facets of honesty and benevolence or not. This implies that limitations in the study design may be less detrimental with respect to yielding generalizable results than sometimes assumed or feared.

Another important contribution of the present analysis is the potential of our moderator model to serve as benchmark for future empirical findings

[13] A problem arises when direct and indirect effects differ in sign. A solution proposed by Alwin and Hauser (1975) is to consider the absolute value of the effects in studying the relative importance of the indirect effects. We used the formula: $\frac{|\text{indirect effect}|}{|\text{indirect effect}| + |\text{direct effect}|}$.

concerning trust, either for studied or for unstudied combinations of constructs, situations, etc. It allows future research to build more explicitly on the accumulated evidence of past studies on trust. More specifically, it provides a context for interpreting the results of subsequent investigations by revealing whether effects are smaller, typical, or larger than those that were obtained in the area in the past. The estimated value for a particular correlation is constructed by adding the estimates of the appropriate β_k and γ_l's. When effects deviate substantially from model predictions, the researcher should try to identify the causes. To illustrate the computations, the expected (population) correlation between trust and a channel decision influence patterns construct ($C_3 = 1$) in a European ($M_6 = 0$) field study ($M_4 = 0$) among commercial ($M_3 = 1$) sellers ($M_1 = 0$) in industrial markets ($M_2 = 0$) in a single industry ($M_5 = 0$) which incorporates both honesty and benevolence as dimensions of trust ($M_7 = 1$) equals $0.095(\boldsymbol{\beta}_3) + 0.035(\boldsymbol{\gamma}_3) - 0.000(\boldsymbol{\gamma}_7) = 0.130$ (note that no previous research has examined the relation involving trust and channel decision influence patterns in Europe).

The estimates provided by the moderator model can also be used to conduct power analyses for primary data collection (Cohen, 1988). Once the expected effect size is known, power calculations can identify with some precision the necessary sample size to achieve statistical significance in future research, given the specific setting used. For example, for the effect size of 0.130 above, assuming a *p*-level of 0.05, and a desired power of 0.50, a sample size of 227 is minimally needed (Cohen, 1988). Thus, if the reviewer is to have a 0.50 probability of rejecting the null hypothesis at $p = 0.05$ when the population effect size is 0.130, he or she will need a sample of 227 cases. If the desired power is 0.80 (as recommended by Cohen, 1988), the sample size should be above 459.

Analysis of causal effects involving trust contributed several additional insights. The recent theory of Morgan and Hunt (1994) on the mediating role of trust proved to be generalizable across the research stream. Trust is certainly not redundant once its antecedents, and especially economic outcomes are taken into account. In fact, the effect of trust on satisfaction and long-term orientation is larger than the direct effect of any of its antecedents. Moreover, the effect of economic outcomes on satisfaction and long-term orientation is nearly completely mediated by trust. Building trust is a very effective way to increase satisfaction and long-term orientation.

A final contribution of the present paper is methodological. In our model, effect sizes are pooled within and across studies. Within-study effect sizes are typically correlated, and statistical methods that treat them as independent are inappropriate and may lead to erroneous conclusions (Raudenbush et al., 1988). The issue of correlated effect sizes has hitherto been ignored in meta-analyses in marketing (e.g., Brown and Peterson, 1993; Brown and Stayman, 1992; Peterson, 1997). In this paper, we introduce in marketing a procedure to account for the interdependence of effect sizes within studies. GLS is a versatile technique that can handle a variety of different error structures.

5.2. Implications for future research

This meta-analysis opens a variety of future research issues. First, the distinction between trust, satisfaction, and commitment has not always been clear in the marketing channels literature. A number of authors have found these three evaluative constructs to be highly similar if not identical concepts, reflecting a channel member's generalized positive affect toward its channel partner (e.g., Crosby et al., 1990; Dwyer and Oh, 1987; Scheer and Stern, 1992). Andaleeb (1996), Anderson and Narus (1990), and Morgan and Hunt (1994), among others, found trust, satisfaction, and commitment to be differentially related to a set of antecedents and consequences, which implies that the constructs are distinct. Our causal model results reinforce this by showing a number of differential relations with other constructs. For example, environmental uncertainty has a negative effect on trust, a nonsignificant effect on long-term orientation, and a positive effect on satisfaction. Communication has a large effect on trust and long-term orientation, but a small effect on satisfaction. Future research could add value to the contemporary state of knowledge about channel member trust by distinguishing between trust, satisfaction, and commitment on a conceptual basis and operationalizing them accordingly.

Consistent with the political economy approach and the majority of constructs related to trust in previous research, our meta-analysis focused on dyadic relationships between trust and other channel constructs. However, network theorists (e.g., Mattson and Johanson, 1992; Möller and Wilson, 1992) argued that, in addition to analyzing dyads, it is important to examine the position of firms in networks of exchange relationships. They recognized that ''trust is an important concept in the network approach'' (Johanson and Mattson, 1987, p. 44). Future research could enrich the present work on trust—which largely has had a dyadic character—by considering antecedents and consequences located in the focal relationship's embedded network context. Some potentially useful constructs that might be related to trust are 'anticipated constructive effects on network identity', 'anticipated deleterious effects on network identity' (Anderson et al., 1994), 'improved market position', and 'improved market relations' (Haugland and Reve, 1990). There are numerous examples that such network effects are potentially very powerful in shaping channel relationships. When manufacturers such as Goodyear Tire and Rubber Company or Compaq Computer Corporation aggressively pursue larger, faster growing channels including mass merchandisers such as Wal-Mart or category killers such as Circuit City, it infuriates their traditional independent dealers (Kumar, 1996). In response, these independent dealers start developing private labels or adding other manufacturers' brands to their assortment. Similarly, some suppliers felt that General Motors had betrayed their trust by allegedly sharing proprietary supplier designs with competing suppliers. This has resulted in a competitive advantage for Chrysler as automobile suppliers now present their newest designs first to Chrysler rather than General Motors. Furthermore, in 1990, Chrysler was rated lower on trust than Ford Motor and General Motors by suppliers. Today, Chrysler ranks higher in supplier trust than its two main competitors (Dyer, 1996).

Table 4 provides a picture of the current state of knowledge on channel member trust. As such, it pinpoints gaps in prior research and provides guidance to what kind of studies are likely to add materially to our degree of knowledge (Farley et al., 1995). For example, our knowledge of channel member trust is dominated by US distribution channels for consumer goods within one particular industry. There is a lack of studies on the role of environmental uncertainty in the formation of trust among sellers and end users in distribution channels for industrial products. Studies on the effects of channel decision structure and channel decision influence patterns on trust from the seller's or the end user's perspective are also needed. Moreover, there is a total lack of research on trust in non-Western settings, including studies involving emerging markets of Asia, Eastern Europe, and Latin America, although the construct of trust also plays an important role in these countries (e.g., Fukuyama, 1995).

The mediating role of trust is not uniform across the two consequences. For satisfaction, the indirect effects were on average 58%. The mediating role of trust with respect to long-term orientation was somewhat less prominent, the average relative importance of the indirect effects being 41%. One potential explanation is based on the different time orientation of the constructs satisfaction and long-term orientation. Several authors have called satisfaction the ultimate outcome of marketing channel relationships (e.g., Anderson and Narus, 1990). This is true, if we take a short-term view of relationships (Dwyer et al., 1987). Long-term orientation, on the other hand, is clearly a long-term relationship outcome (Dwyer et al., 1987).

The present data suggest that, over time, the importance of trust will decrease, whereas the importance of other key relationship factors (such as communication and power structure) will increase. However, these conclusions are based on cross-sectional data. In this respect, the present meta-analysis suffers from the same weakness as the primary studies on which it is based. There is an urgent need for longitudinal studies involving the same set of firms over an extended period of time. Such research would make a great contribution to our understanding of the process dynamics and the cumulative effects of individual exchange episodes in establishing long-term relationships. This would make possible better inferences about the development of channels constructs over time, their causal sequence, and feedback effects.

Our review of trust demonstrates that channel researchers have devoted considerable attention to

main effects relating trust to various constructs. Given this, our final recommendation is that future research should instead explore more complex interactive patterns related to trust. Recently, several papers (e.g., Brown et al., 1995b; Mohr et al., 1996) have demonstrated the effects of interactions on commitment. Based on this research, it seems that some of the more promising interactions on trust may be between economic outcomes and power/dependence relations or environmental uncertainty.

Last but not least, it should be noted that meta-analysis should never be considered a substitute for new primary research (Cooper and Hedges, 1994). Primary research and meta-analysis are complementary parts of a programmatic stream of research. Meta-analysis is based on primary studies, and quantitative research synthesis using meta-analysis helps to ensure that the next wave of primary research goes in the most illuminating direction. Trust, as our paper demonstrates, is a critical concept in marketing channel relationships. Through this meta-analysis, we have attempted to map out what is known and what is unknown about the role of trust. We hope that it provides guidance to those intending to pursue research on trust in marketing channels.

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