Buyer-Seller Relationship Taxonomies in Stable and Unstable Environments

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Abstract

Most research focuses on the way different variables correlate across relations not how they come together and co-exist within relations. Here, we describe a taxanomic study of buyer-seller relations, based on measures of relationship atmosphere, in which we compare the types emerging in stable versus unstable conditions. The results show how relationships in transition can be confused with other types of relations and pose different types of management problems.
Keywords: buyer-seller relations, cluster analysis, typology, stability, relationship atmosphere

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Introduction

Research on buyer-seller relations tends to be variables rather than relationship focused. Models of variables measuring different dimensions of relations are estimated based on correlations across relations (e.g. Iacobucci and Hibbard 1999). Less attention is given to the way dimensions are integrated within relations to form different types of relationships. But relationship management requires attention being given to the whole relation, not just individual variables in isolation. Buyer-seller relations are complex, largely self-organising systems where each relation dimension operates in the context of other dimensions. What this means is that the development and understanding of relationship management must be based on an understanding of the different types of relations that exist and the problems they pose.

Buyer-seller business relations develop over time in a particular context based on the experience and results of interactions taking place and the effects of connected relations and the broader market and socio economic context (Eyuboglu and Buja 2007). Relations that exist and persist represent particular configurations of dimensions that sustain and reproduce each other in a particular environment. They represent a fit with their environment and internally. This could involve highly cooperative, trusting, committed relations, looser, arms-length forms, or adversarial, untrusting, opportunistic relations. Such configurations may be described as different types of relationship "attractors" in the sense that relations gravitate towards such states over time and, if disturbed from one such attractor, they either move back to it or to another attractor state (Wilkinson and Young 2002). Relationship attractors can be more or less stable in the sense that they are able to withstand and recover from various types of external challenges and disturbances. This presents problems for taxanomic studies because they are in danger of assuming transitional forms are various types of attractors. This paper contributes to research on relationship types by addressing this issue. We describe the results of a taxonomic study of stable versus unstable or transitional buyer-seller relations that demonstrate how the inclusion of unstable and transitional relations in a sample can distort results. Our findings have implications for future research in these areas and for the development of relationship management concepts and methods.

Taxonomies of Buyer-Seller Relations

Various types of buyer-seller relations have been proposed in the literature but they are for the most part theoretical speculations with limited if any empirical foundation, or they focus on only one or two dimensions of relations. A few studies have developed more comprehensive empirically based schemes. Bensaou (1999) classifies relations in a 2x2 matrix according to the relative dependence of parties involved. This is based on a multidimensional study of supply relations in the car industry in the US and Japan and an earlier cluster analysis (Bensaou and Venkatraman 1995). Young and Wilkinson also end up classify relations in a 2x2 matrix based on multidimensional measures of cooperation and competition, using a diverse sample of buyer-seller relations. Cannon and Perrealt (1999) focus on measures of behavioural connectors that "reflect the manner in which the two parties interrelate and conduct commercial exchange" (p. 441). They use clustering methods to identify eight types of industrial purchasing relationships. Lastly, Wong, Wilkinson and Young (in press) identify five relationship types based on measures of atmosphere and compare their taxonomy to the other three.

The IMP group describes firm relations in terms of actors, activities, resources and schemas (Hakansson and Snehota 1994, Welch and Wilkinson 2002). The focus of our research is relationship atmosphere, which we view as the primary context in which all interactions take place in a relation. It refers to the types of bonds that develop among actors in a relation including: Power and Dependence, Cooperativeness and Competitiveness, Trust and Opportunism, Understanding and Non-Understanding, Closeness and Distance, and Commitment and Non-commitment (Hallén and Sandström 1991). These bonds include the main dimensions of buyer-seller relations that have been researched in the literature. An atmosphere develops over time as a result of the business and social interactions taking place. It is both being and becoming. By this we mean that at any time the atmosphere shapes actions, responses and interactions and the schemas and resources committed but it is reproduced, reinforced or changed through the experience and results of ongoing interactions. A stable relation is one in which the atmosphere retains its essential form over time despite the problems and challenges it faces. Different, stable forms of atmosphere represent types of relationship attractors, or dynamic equilibriums that are able to cope with the problems and issues confronting them.

Methodology

The data used comes from a research program designed to develop a comprehensive database of buyer-seller relations in business markets. A comprehensive questionnaire was administered to a sample of firms drawn from a combination of industry lists and the personal and professional networks of students involved in a marketing course. Respondents were asked to nominate relations they were familiar with that their firm had with suppliers (or business customers), which represent four different levels of performance, from very good to very poor. One of these was selected at random as the focus of the interview, with each having equal chance of selection. Two mirror versions of the questionnaire were developed, one for buyers and one for sellers. This was developed based on previous scales reported in the literature and on the basis of earlier research, including a pilot study and a survey of business relations (Wong et al, in press). It includes measures of all dimensions of relationship atmosphere as well as other aspects of the focal relationship's history, performance and behaviour. The quality of the interviews was ensured in various ways including training of the student interviewers, careful scrutiny of completed questionnaires

and interviewer reports and call backs to 10% of the sample. The sample is not designed to be representative of business relations in general but to ensure sufficient variety to be able to identify different types of relations (Milligan 1996). A wide variety of industries, products and services are included. Respondents were a mix of middle and senior level managers, with 74% of informants indicating they were centrally involved in the relation. In 47% of cases second informants were identified and interviewed and this sample was used as a holdout sample to assess the reliability and validity of measures and cluster results. Cases with missing values were replaced by the second informant where possible. The resulting sample was 345 valid cases i.e. relationships.

Space precludes a detailed description of the measures of the six dimensions of relationship and other measures used to profile relations. Details are given in Wong et al (in press). More than one measure of each atmosphere dimension was developed, for example measures of power-dependence included measures of relative power, total level of interdependence and relative influence. Alpha's range from 0.66 to 0.93, which was acceptable for analysis, and the holdout sample confirmed reliability and discrimination. Principal components analysis was used to summarise the measures of atmosphere into five orthogonal components for the purpose of cluster analysis (Everitt 1974). Cooperativeness, Trust, Commitment, Understanding and Closeness loaded on one component and the combined measure was called relationalism, akin to MacNeil's (1980) concept of a relational continuum. Measures of Competitiveness, Relative Influence, Relative Dependence and Absolute Dependence loaded strongly (>0.8) on different components, indicating discriminant validity. A formative measure of the degree of change in a relation's environment and behaviour over the past 12 months was developed, including number of competitors, price-cutting, capital, market size, products/service range, and promotion. Based on the median score, the sample was divided into a more stable sample of 170 and a less stable sample of 175. The more stable sample is assumed to comprise relations more likely to have reached a dynamic equilibrium or attractor, whereas the unstable sample is more likely to be relations in transition. Some apparently unstable relations could represent more complex attractors in which it cycles among different states but we are unable to detect these with cross sectional data. For each sample, cluster analysis was used to identify types of relations in terms of the five measures of relationship atmosphere. A two-stage procedure was used. First, hierarchical cluster analysis, from 3 to 10 clusters, was used to identify the appropriate number of clusters, based on the agglomeration coefficient as clusters are combined (Everitt 1974; Hill and Brennan 2000). The distance measures used are squared Euclidean distance, average linkage and Ward's method (Everitt 1980; Milligan and Sokol 1980; Punj and Stewart 1983; Milligan 1996). K-means, non-hierarchical cluster analysis is used to further refine and evaluate the short list of potential solutions identified in the first stage. K-means allows for reallocation of relations to clusters based on similarity in order to maximize within group homogeneity and between group heterogeneity (Everitt 1980). The stability and robustness of the solutions were tested using five random subsamples (66%), the exclusion of outliers and re-running the analysis and a replication/cross validation procedure described by McIntyre and Blashfield (1980).

Results

A five cluster solution resulted for the stable sample (Table 1). St1 has high levels of relationalism, benevolence, interdependence and a slight dependence asymmetry favouring the respondent. St2 are very opportunistic and the respondent's firm is dominated by the other in terms of dependence and influence exercised. St3 is similar to St2 with the dominance now

favouring the respondent's firm. St4 has the highest levels of independence but the respondent's firm is also strongly influenced by the other. Finally, St5 are not relational and are opportunistic, with the respondent's firm dominant yet influenced by the other.

Table 1: Stable Environment Cluster Profiles (Cluster Means).

Type of Relationship	N	Relationalism (highly un-relational – highly relational)	Non-Opportunism (highly opportunistic – highly non-opportunistic)	Absolute level of dependence (highly independent – highly interdependent)	Relative Dependence (R>X– X>R)	Relative Influence (R>X– X>R)
St1	45	0.796 [d]	0.979 [c]	0.450 [c]	-0.140 [a b]	-0.190 [b]
St2	28	-0.059 [b c]	-0.639 [a]	0.571 [c]	1.283 [c]	0.879 [c]
St3	49	-0.429 [b]	-0.454 [a]	0.167 [b c]	-0.582 [a]	-0.802 [a]
St4	26	0.265 [c]	0.177 [b]	-1.403 [a]	0.273 [b]	0.540 [c]
St5	22	-1.595 [a]	-0.690 [a]	-0.384 [b]	-0.156 [a b]	0.533 [c]

Note: means with the same superscript letter are not significantly different ($p<0.05$), based on Scheffe' test. Mean(s) in the lowest range indicated with letter a, next highest b, and so on.

An eight cluster solution fitted the unstable sample best, indicating that there are more ways to be unstable than stable (Table 2). Un1 is very relational, benevolent, and interdependent and, although dependence is balanced, the respondent's firm is seen as more influential. Un2 is relational, benevolent and independent, with any dependence favouring the respondent's firm. Un3 has the lowest relationalism scores but they are benevolent with the respondent's firm heavily influenced by the other. Un4 has high levels of opportunism, asymmetric dependence favouring the other firm, and higher levels of interdependence and relationalism. Un5 has asymmetric dependence and influence with relatively higher levels of relationalism, benevolence and interdependence. Un6 are very independent, although respondents are seen as having much more influence. Un7 are more interdependent, the respondent's firm is dominant in terms of relative dependence and influence, and they rate low on opportunism. Lastly, Un8 is highly non-relational, opportunistic and independent, or the respondent's firm is more dependent and very influenced by the other.

Table 2: Unstable Environment Cluster Profiles (cluster means)

Type of Relationship	**N**	**Relationalism** (highly un-relational – highly relational)	**Non-Opportunism** (highly opportunistic – highly non-opportunistic)	**Absolute level of dependence** (highly independent – highly interdependent)	**Relative Dependence** (R>X– X>R)	**Relative Influence** (R>X– X>R)
Un1	31	0.938 [d]	0.776 [d]	1.041 [d]	0.044 [b c]	-0.564 [a b]
Un2	28	0.699 [d]	0.689 [d]	-0.879 [a b]	-0.317 [a b]	0.162 [b c]
Un3	15	-1.653 [a]	0.371 [c d]	-0.610 [b c]	-0.179	0.816 [c d]
Un4	24	0.186 [c d]	-1.241 [a b]	0.512 [d]	0.825 [c]	-0.001 [b c]
Un5	30	0.397 [c d]	0.296 [c d]	0.159 [c d]	0.833	1.280 [d]
Un6	12	-0.684 [b]	0.122 [c d]	-1.571 [a]	-0.440 [a b]	-1.186 [a]
Un7	28	-0.198 [b c]	-0.366 [b c]	0.318 [d]	-0.907 [a b]	-1.043 [a]
Un8	7	-1.637 [a]	-1.801 [a]	-0.734 [a b c]	-1.244 [a]	0.466 [c d]

Note: means with the same superscript letter are not significantly different ($p<0.05$), based on Scheffe' test. Mean(s) in the lowest range indicated with letter a, next highest b, and so on.

Discussion and Conclusions

The resulting clusters may be compared to the five cluster solution for the total sample is reported in Wong et al (in press). These are: *Disgruntled Followers,* very competitive or opportunistic relations in which the dominant firm is not the respondent's and usually the supplier and the weaker firm is smaller and very dependent; *Manipulative Leaders,* the counterpart of disgruntled followers, being competitive and opportunististic but the respondent's firm is dominant; *Benevolent Independents* have very low opportunism, low interdependence; *Arm's Length,* rate low on relationalism, are opportunistic and power is

unequal but interdependence is low; and *Close,* are relational, with unequal power and dependence favouring the respondent's firm.

The five clusters for the stable sample match these five types (St1 = *Close*; St2 = *Disgruntled Follower*; St3 = *Manipulative Leader*, St4 = *Benevolent Independents;* St5 = *Arms Length*). *Benevolent Independents* appear in two forms, as St4 and as part of St1 (18 of 30), which indicates they can sometimes appear to be more like *Close* relations in stable environments. The eight clusters for the unstable sample suggest various manifestations of instability in relationship atmosphere. Two distinct forms of *Disgruntled Follower*, *Manipulative Leader* and *Arm's Length* relations appear to exist, suggesting that, in more turbulence environments, these relationship types may gravitate towards distinct variants. A pairwise comparison of these shows that both subtypes of *Disgruntled Followers* (Un4 and Un5) have high levels of relationalism, interdependence and dependence asymmetries. The differences is opportunism ($p<0.001$) and relative influence ($p<0.001$) with Un4 being more opportunistic and the respondent's firm much less influenced by the other. Greater opportunism (Un4) is associated with more complex products ($p<0.05$), such that each party may possess their own specialist knowledge, which serves to balance influence in the relation. Neither firm may be privy to the other's knowledge and believe the other is holding out on them, which leads to more opportunism, especially in changing conditions. The two forms of *Manipulative Leaders* (Un6 and Un7) differ in terms of relationalism ($p<0.001$) and interdependence ($p<0.05$). Un7 is more relational and interdependent and has more heterogenous assortments ($p<0.05$), more individually negotiated ($p<0.071$) and more frequent transactions ($p<0.075$). Such relations are more demanding, requiring closer, more understanding atmospheres. Further, Un7 operates in less unstable environments ($p<0.05$) than Un6, which may make it easier to be more cooperative and relational. Un6 relations are challenged by poorer future prospects for the other firm ($p<0.05$) and decreasing trends in business levels ($p<0.067$). Lastly, the subtypes of Armslength relations (Un3 and UN8) have high levels of independence, influence asymmetries and low relational orientation but differ in terms of opportunism and relative dependence. Un8 are more opportunistic with more asymmetric dependence suggesting a more extreme form of Arm's Length relation as firms try to protect themselves from uncertainty by remaining flexible.

Our results suggest interesting challenges and responses as relations adapt to different types of partners and exchange conditions and to change and instability in the environment. We cannot estimate the incidence of different types of relations in different industries and markets because our sample is not designed to be representative but, instead, to include a variety of relations. The incidence of different types of relations is likely to vary by industry and according to the volatility of the environment. Hence we must be careful in drawing samples of relations and be more aware of the mix of relations included. This is because variations in the mix of types will affect the results of statistical analyses and model estimates potentially leading to biased and misleading results, as suggested in the simulation analysis reported in Wong et al (in press).

References

Anderson, J., C. and J. Narus, A. (1990). "A Model of Distributor Firm and Manufacturer Firm Working Partnerships." *Journal of Marketing* 54 (1): 42-58.

Bensaou, M. (1999). "Porfolios of Buyer-Supplier Relationships." *Sloan Management Review* (Summer) 35-44.

Bensaou, M. and Venkatraman, N. (1995) "Configurations of Interorganizational Relationships: A Comparison between U.S. and Japanese Automakers" *Management Science*, 41 (9): 1471-1492

Cannon, J., P. and W. Perreault, D. (1999). "Buyer-Seller Relationships in Business Markets." *Journal of Marketing Research,* 36 (4): 439-460.

Everitt, B. (1974). *Cluster Analysis*. London, Halsted Press.

Everitt, B. (1980). *Cluster Analysis*. New York, John Wiley & Sons, Inc.

Eyuboglu, N. and Buja, A. (2007) "Quasi-Darwinian Selection in Marketing Relationships" *Journal of Marketing,* 71 (4) 48-62

Hakansson, H. and I. Snehota (1994). *Developing Relationships in Business Networks*. London, Routledge.

Hallén, L. and M. Sandström (1991) "Relationship Atmosphere in International Business" in S. J. Paliwoda. ed. *New Perspectives in International Marketing*. London, Routledge**:** 108-125.

Hill, E., W. and J. Brennan, F. (2000). "A Methodology for Identifying the Drivers of Industrial Clusters: The Foundation of Regional Competitive Advantage." *Economic Development Quarterly,* 14 (1): 65-96

Iacobucci, D. and J. Hibbard, D. (1999). "Toward an Encompassing Theory of Business Marketing Relationships (BMRs) and Interpersonal Commercial Relationships (ICRs): An Empirical Generalization." *Journal of Interactive Marketing,* 13(3): 13-33

Macneil, I. (1980). *The New Social Contract*. New Haven, CT, Yale University Press.

McIntyre, R. M. and R. K. Blashfield (1980). "A Nearest-Centroid Technique for Evaluating the Minimum-Variance Clustering Procedure." *Multivariate Behavioural Research* 13: 225-238.

Milligan, G., W. (1996). Clustering Validation: Results and Implications for Applied Analyses. In P. Arabie, L. J. Hubert and S. G.De. eds. *Clustering and Classification.* River Edge, NJ, World Scientific Publications.

Milligan, G., W. and L. M. Sokol (1980). "A Two-Stage Clustering Algorithm with Robust Recovery Characteristics." *Educational and Psychological Measurement* 40: 755-759.

Milligan, G., W. and M. Cooper, C. (1985). "An Examinaton of Procedures for Determining the Number of Clusters in Data Set." *Psychometrika* 50 (June): 159-79.

Punj, G. and D. Stewart, W. (1983). "Cluster Analysis in Marketing Research: Review and Suggestions for Application." *Journal of Marketing Research* 20 (May): 134-48.

Welch, C. and Wilkinson, I.F. (2002) "Idea Logics and Network Theory in Business Marketing" Journal of Business to Business Marketing, 8 (3): 27-48

Wong, C., Wilkinson, I. and Young, L (in press) "Towards an Empirically Based Taxonomy of Buyer-Seller Relations in Business" *Journal of the Academy of Marketing Science*

Wilkinson, I. F. and Young, L. C. (2002) "On Cooperating: Firms, Relations and Networks" *Journal of Business Research* 55 (2): 123-132

Young, L., C. and I. Wilkinson, F. (1997). "The Space Between: Towards a Typology of Interfirm Relations." *Journal of Business-to-Business Marketing* 4(2): 53-97