

THE PERVASIVE EFFECTS OF NETWORK CONTENT

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While network research has become increasingly important to our understanding of organizations, there is growing speculation that the current structural approach may misspecify the nature of network effects by ignoring variation in the content of relational ties (e.g., Podolny and Baron 1997). Network research to date has focused on the structural properties of networks—the overall patterns of connection—to the neglect of qualitative dimensions of relationships (Ibarra 1992). Several recent studies have explicitly called for new research dedicated to “delineating the critical role of tie content” in organizational networks (Gulati and Westphal 1999: 499). Studying tie content, according to these authors, would mean looking closely at the nature of the underlying relationship between actors rather than assuming that content either doesn’t matter or that all ties are essentially instrumental (Adler and Kwon 1999). Variations in tie content are not well understood, although they have been linked to outcomes as various as strategic alliances among firms and individual promotion within firms (Gulati and Westphal 1999; Podolny and Baron 1997).

The present study will attempt to advance knowledge of this neglected aspect of network theory by examining how variations in network content among individuals affect organization-level processes and outcomes. The findings indicate that the nature of relationships among organization members—whether affective or instrumental in content—has a pervasive effect on organizational processes and financial performance. Instrumental ties, in particular, constitute a major asset in increasing firms’ market performance. I trace this outcome to two sources: group heterogeneity and task orientation. Recruitment and selection based on weak, instrumental ties increases organizations’ compositional diversity (McPherson and Smith-Lovin 1987; Blau 1977) and commitment to task performance (Elsass and Graves 1997). Both characteristics enhance decision quality, and ultimately organizational performance, by increasing informational resources and “constructive controversy” (Tjosvold, Wedley and Field 1986). In contrast, groups based on affective ties can become “overembedded” (Uzzi 1996), limiting the pool of information available for decision-making, and inhibiting debate in favor of social cohesion. By testing these theories about group composition and motivation in a network framework, this study will shed light on the undertheorized qualitative dimensions of network effects.

THEORETICAL BACKGROUND

Network Content and Organizational Performance

Though we already have a language to describe the intensity of network ties—“strong” or “weak” (Granovetter 1973)—there have been increasing calls to more closely specify the content or quality of those ties (e.g., Gulati and Westphal 1999). Thus far, the few studies which have addressed the issue have classified network ties into two “ideal types”: instrumental bonds, such

as those among co-workers, and affective bonds based on similarity/attraction processes, such as those between family and friends (Podolny and Baron 1997; DiMaggio 1992; Krackhardt 1992).

Though the two categories often overlap, distinguishing between them is useful as a way of entering into an exploration of the impact of network content on organizational performance. For example, Gargiulo and Bernassi (1999) found that strong and socially-cohesive network ties severely limit the flow of information into a firm, preventing managers from optimizing their organization's fit with the environment. As Burt put it, "efficiency mixes poorly with friendship" (1992: 24). The existing evidence suggests the following hypothesis:

H1: Increases in the relative quantity of instrumental ties among individual members will increase an organization's financial performance.

Contextual Factors: Group Composition, Information Diversity and Task Orientation

A major concern of this study is to open the "black box" of contextual factors that affect the relationship between individual-level networks and firm-level outcomes. This implies examination of group-level characteristics and processes. The existing literature suggests that network content becomes an asset to organizations when it increases information flow and "constructive controversy" (Tjosvold, Wedley and Field 1986). Two factors are crucial in producing these effects: group composition and task orientation.

Compositional Heterogeneity and Access to Information

Research in organizational demography indicates that social networks affect the information pool available to firms by driving the selection and recruitment processes that draw individuals into organizations (Jehn, Northcraft and Neale 1999). Strong, affective ties produce demographically homogenous groups (McPherson and Smith-Lovin 1987; Blau 1977; such groups have correspondingly homogenous sources of ideas (Granovetter 1973) which constitute a liability in rapidly-changing competitive environments. In contrast, weaker instrumental ties draw together individuals from a wider variety of social and functional backgrounds, creating a larger toolkit of ideas from which organizations can draw; numerous studies have found this to be a major source of competitive advantage (Watson, Kumar and Michaelson 1993; Ancona and Caldwell 1992; Eisenhardt and Schoonhoven 1990; Nemeth 1986). This suggests the following testable hypothesis:

H2: Increases in the relative quantity of instrumental network ties among individual members will enhance organizational performance by causing increases in group heterogeneity.

Task Orientation and Decision Making

Variation in the content of network ties not only affects *what* organization members know, but also their willingness to disclose and debate the information they have (Adler and Kwon 1999; Krackhardt and Stern 1988). For example, affective bonds among individuals can militate against the expression of diverse opinions in decision making groups (Beach 1997). In effect, network ties based on similarity/attraction exert a kind of "centripetal force" that encourages a socially comfortable consensus at the expense of decision quality. The ability of affective ties to cloud the judgement of organization members has been noted particularly in studies of boards of

directors: strong social bonds between executives and board members can produce significant liabilities for organizations by dampening the board's willingness to exercise oversight authority (Gulati and Westphal 1999; Pfeffer 1992; Middleton 1987). As a result, Powell and Smith-Doerr write, "the ties that bind may also be the ties that blind" (1994: 393).

In this way, the content of network ties among members has a direct impact on a workgroup's decision process. Willingness to sacrifice some degree of social cohesion for the sake of decision quality is a hallmark of task orientation, a quality of work groups defined as "clear acceptance on the part of the individual of the salience and legitimacy of standards of excellence in performance" (Mullen and Copper 1994: 225). In other words, task commitment involves adherence to instrumental ends. In a meta-analysis of 66 studies of organizational performance, Mullen and Copper found that task orientation was the common denominator among successful organizations, ranging from corporations to the military to sports teams. These findings suggest the following hypothesis:

H3: Increases in the relative quantity of instrumental ties among individual members will enhance organizational performance by causing increases in task orientation.

METHOD

Sample

To test the three hypotheses, I surveyed 3,000 investment clubs nationally. Investment clubs are organizations composed of 10 to 15 people who pool their money to invest in the stock market; an estimated 11 percent of the U.S. adult population is involved in an investment club (National Association of Securities Dealers 1997). Though voluntary, investment clubs are formal organizations with hierarchical leadership structures and assets (stocks) owned in common; in addition, most are incorporated, and all must file corporate tax returns with the IRS. Like other business organizations, their main business is to make decisions so as to maximize profits. The main criteria for selecting this organizational domain were (1) salience and observability of network content among members, (2) variance in those ties both within and between organizations, and (3) comparability among organizations in terms of task characteristics and outcome measures. A total of 1279 investment clubs returned survey data—a response rate of 43 percent. Within the groups, an average of 70 percent of members responded to an individual-level questionnaire, providing data on over 11,000 people.

Measures

The dependent measure in this study was the internal rate of return on investment clubs' stock portfolios. This figure was standardized to allow comparison among club performance levels independent of market conditions, amount of money members contributed to the portfolio, and the length of time over which the portfolio had been building.

The independent variable—network content—was operationalized as the number of instrumental ties linking organization members, net of affective ties among them. Based on participant-

observation and survey pre-testing, instrumental ties were defined as those formed through work and school, while affective ties were defined as bonds of friendship and family.

Previous research on investing indicated that it was important to examine the impact of four types of individual demographic characteristics on organizational performance: gender, income, age, and investing experience (Barber and Odean 1998; Jianakoplos and Bernasek 1998; Barsky et al. 1997). With these variables, I created an index for groups' demographic diversity using Teachman's (1980) entropy index or the coefficient of variation (Allison 1978). To test for the appropriateness of aggregating individual responses to the group level, I calculated the eta squared for each variable, which indicates whether two individuals within a group are more similar than two members of different groups. The results exceeded the threshold level of .20 suggested by Georgopoulos (1986), indicating that aggregation is acceptable. The index has a coefficient alpha of .91.

Like group heterogeneity, task orientation was treated as a latent variable, based on multiple measures drawn from previous research. There is no single set of accepted indicators for task orientation, but most approaches have four key measurements in common: quantity and variety of information individuals contribute for group discussion; individuals' willingness to engage in constructive debate; and their commitment to high levels of task performance (e.g., Bettencourt, Charlton and Kernahan 1997; Burningham and West 1995; Walther 1995). Using this literature as a model, I developed four self-report indicators of task orientation in investment clubs and created an index. To test for the appropriateness of aggregating individual responses to the group level, I calculated the eta squared for each variable, which indicates whether two individuals within a group are more similar than two members of different groups. The results exceeded the threshold level of .20 suggested by Georgopoulos (1986), indicating that aggregation is acceptable. This index had a coefficient alpha of .93.

RESULTS

Tables 1 and 2 report the results of a confirmatory structural equation model (Joreskog 1979; Bollen 1989). I modeled these relationships using Amos (Analysis of Moment Structures) software (Arbuckle 1997) and used the standard form of estimation—maximum likelihood. The RMSEA index (Browne and Cudeck 1993) is .05, indicating a good fit. The X^2 is 23.31, with 13 degrees of freedom. Table 1 summarizes the direct, indirect and total effects of each variable on group performance, with total effects in descending order of magnitude. Table 2 shows the standardized parameter estimates and explained variance in each latent construct.

Insert Tables 1 and 2 about here

Hypothesis 1 was supported: increases in the net number of instrumental ties at the individual level increased organizational performance. In fact, net instrumental ties had the largest effect of any variable in the model when direct and indirect effects are totaled (.35). This provides support for examining network content as a factor in organizational outcomes.

Hypothesis 2 was partially supported: as predicted, groups in which instrumental ties predominate were more diverse on gender, age and investment experience than groups based primarily on affective ties. The relationship of this heterogeneity to organizational performance was complex, though ultimately positive. On the one hand, the direct effects of increased group heterogeneity on organizational performance are negative (-.20), consistent with results in the literature on organizational demography (see Williams and O'Reilly 1998 for a review). On the other hand, this liability was overcome by the indirect effects of heterogeneity on performance, through increases in task orientation, which had a significant positive impact on profits (.26).

Finally, Hypothesis 3 was supported: increases in net instrumental ties in workgroups caused a corresponding increase in financial performance by enhancing task orientation (.35).

DISCUSSION AND IMPLICATIONS FOR FUTURE RESEARCH

This study has attempted to contribute to the literature in organizational theory by suggesting that researchers should study not only the form but the content of networks. Drawing on mid-level theories of group composition and group process, I posited that instrumental ties among individuals would enhance performance at the organization level in two ways: by increasing compositional heterogeneity, which enlarges the information pool available to decision-makers; and by increasing task orientation, making decision-makers more willing to engage in constructive debate.

The data indicate that overall, increasing the net number of instrumental network ties among organization members promotes organizations' financial performance both directly and indirectly. However, the relationships are complex—as in the case of compositional heterogeneity, which creates both a liability and an asset for organizational performance. This suggests that we must carefully specify intervening mechanisms when modeling relationships between social structure and firms' goal attainment.

As network research develops theoretically, it faces the challenges of creating causal models that affect the circumstances under which some kinds of social networks aid firms in achieving their goals. This study has offered a contribution to the field by highlighting a different dimension of networks than is usually considered in the literature. Future research should continue to unpack this "black box," enlarging our understanding of the contextual factors shaping the impact of network content. In addition, future research could take a longitudinal approach, examining whether the content and implications of network ties change over time as a result of extended contact in a new setting.

REFERENCES AVAILABLE FROM AUTHOR

Table 1
Direct, Indirect and Total Effects on Group Performance

Variable	Direct Effect	Indirect Effect	Total Effect
Net Instrumental Ties	.24	.11	.35
Task Orientation	.26		.26
Group Heterogeneity	-.20	.25	.05

Table 2
Standardized Parameter Estimates and Explained Variances¹

Part A:		Structural Equation Model		
Dependent Variable	Net Instrumental Ties	Group Heterogeneity	Task Orientation	Performance
Net Instrumental Ties		.34* (.08)	.35* (.10)	.24** (.04)
Group Heterogeneity			.96** (.14)	-.20* (.07)
Task Orientation				.26* (.12)
R ²		.59	.57	.64
Part B:		Measurement Models ²		
Latent Variables Indicators	Group Heterogeneity	Task Orientation	R ²	
<i>Gender</i>	.99* (.18)		.89	
<i>Age</i>	.82* (.13)		.77	
<i>Income</i>	.82** (.04)		.75	
<i>Investing Experience</i>	.81* (.15)		.75	
<i>Profit Motive</i>		.99** (.05)	.90	
<i>Express Dissent</i>		.51* (.10)	.48	
<i>Diversity in Idea Sources</i>		.98** (.14)	.87	
<i>Participation</i>		.51* (.08)	.50	

1 Numbers in parentheses are standard errors. Model $X^2 = 23.31$ ($df=13$);
 $RMSEA = .05$. * $p < .05$ ** $p < .005$ $N=1245$ for all cases

2 The variables Net Instrumental Ties and Performance are equivalent to their sole indicators.