The Social Capital of French and American Managers

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Accumulating empirical evidence on American managers shows that social capital effects on performance are a function of the information and control benefits of bridging structural holes — the disconnections between nonredundant contacts in a network. Is that network form of social capital unique to Americans? France seemed to us a productive site for comparative research because the image from past research is that French managers are more regulated than Americans; more regulated by bureaucratic authority and more regulated by peer pressure, with both amplified by the greater reliance in France on internal labor markets. People comfortable with knowing their place in a chain of bureaucratic control could be uncomfortable with the negotiated control exercised by network entrepreneurs, so the positive association between structural holes and performance in the United States could be negligible or even reversed for French managers.

We use network and performance data on two study populations of senior managers, one in France and one in the United States, to describe social capital similarities and differences between the populations. ∫ The network form of social capital is similar in the two populations: More successful French managers, like Americans, tend to have networks rich in structural holes. The French and American managers make similar distinctions between kinds of relationships. Relations that bridge structural holes are similarly detached from routine work activities for the French and the Americans. ∫ The interesting difference is that social capital develops differently in the two populations. The French managers operate with a less porous social boundary around their firm and associate negative emotions with bridge relations. Reinforcing Aix-en-Provence observations on the significance of adult education for Franco-German differences in organization, we find that exposure to peers in other firms via executive education is for our French managers the only factor positively associated with the social capital of bridge relationships.

The brokerage principle in network theory says that there is a competitive advantage to building bridge relationships. Resources flow disproportionately to people who provide indirect connections between otherwise disconnected groups. Brokerage is the principle underlying the structural hole theory of social capital, and the competitive advantage the theory predicts for entrepreneurial managers (Burt, 1992). The theory draws on lines of network argument that emerged in sociology during the 1970s (most notably Granovetter, 1973, on the strength of weak ties; Freeman, 1977, on betweenness centrality; Cook and Emerson, 1978,

on the benefits of having exclusive exchange partners; and Burt, 1980, on the structural autonomy created by network complexity). More generally, sociological ideas elaborated by Simmel (1922) and Merton (1957), on the autonomy generated by conflicting affiliations, are mixed in hole theory with traditional economic ideas of monopoly power and oligopoly, to produce network models of competitive advantage.

This is the gist of the argument: The division of labor drives production specialization such that people and organizations focus on their immediate tasks to the exclusion of adjacent tasks. With people and organizations focused on their immediate production tasks, holes emerge in the social organization of production; functional groups lose track of other functions and the external environment. The result is multiple rates of return to exchange relations because disconnections between individuals (in other words, holes in the structure of the market), leave some people unaware of the benefits they could offer one another. A structural hole between two groups need not mean that people in each group are unaware of the other. It simply means they are focused on their own activities such that they have little time to attend to activities in other groups.

Individuals connected to separate groups are more likely to see the value of work that coordinates production across certain groups, and to know which individuals from the groups need to be involved in the project. These managers, termed "entrepreneurs" in the structural hole argument after the original meaning of the term, are rich in the social capital of information and control benefits associated with relations that bridge structural holes. They monitor information more effectively than bureaucratic control. They move information faster, and to more people, than memos. Entrepreneurial managers know the parameters of organization problems early. They are more mobile than a bureaucracy, easily shifting network time and energy from one solution to another. More in control of their immediate surroundings, entrepreneurial managers tailor solutions to the specific individuals being coordinated, replacing the boiler-plate solutions of formal bureaucracy. To these benefits of faster, better solutions, add cost reductions;

entrepreneurial managers offer coordination less expensive than the bureaucratic alternative.

In sum, managers with networks rich in structural holes operate somewhere between the force of corporate authority and the dexterity of markets, building bridges between disconnected parts of the firm where it is valuable to do so. Empirical evidence is consistent with the social capital prediction (see Burt, 1999, for review): Individuals with networks rich in structural holes receive more positive evaluations (Burt, Jannotta, and Mahoney, 1998; Mizruchi and Sterns, 1998; Mehra and Kilduff, 1999; cf., Krackhardt and Stern, 1988; and Rosenthal, 1996, on teamwork), earlier promotions (Burt, 1992; Sparrowe and Popielarz, 1995; Gabbay, 1997; Podolny and Baron, 1997), and higher compensation (Burt, 1997a; Erickson, 1998; Bielby and Bielby, 1999).

SOCIAL CAPITAL OUTSIDE THE US

Our research question for this paper is whether the structural-hole phenomenon is peculiar to Americans. The image of network entrepreneurs negotiating for advantage has a market flavor associated with the American economy, and the available evidence of social-capital effects on manager performance is limited to American managers. Given social capital as any network form that creates competitive advantage, it is reasonable to ask whether social capital in other societies has the same network form observed in the United States.

FRANCE IN PARTICULAR

We will be reporting results on the social capital of managers in a French firm, results obtained using the same instruments and methods that have been used to study the social capital of American managers. France seemed to us an interesting site for comparative research on social capital because the image of French organizations thrust upon us by past research is an image of social boundaries between insiders and outsiders, and coordination by bureaucratic authority — precisely the lines of demarcation that typically define the structural holes across which network entrepreneurs broker communication.

The popular image of French business is one of dense elite networks organized around state planning agencies, state-owned firms, and graduation from the "right" schools (grande écoles such as the Ecole Polytechnique, discussed as X because of the crossed belts on the chest of the school's military uniform, and the Ecole Nationale d'Administration, discussed by its initials simply as ENA; e.g., Barsoux and Lawrence, 1990; Boltanski, 1990; Orrù, 1996; Schmidt, 1996; Szarka, 1992; with Schmidt providing a detailed account of the national government's productive intervention in the economy during the 1980s). Anecdotes abound on interpersonal ties among the elite, but systematic data are virtually non-existent. Kadushin (1995) provides an exceptional glimpse into the cohesion of an inner-circle of the French financial elite (28 people selected from a broader network of 125), showing that the strongest predictor of a friendship between two people is them having both graduated from ENA (the other strong predictor is having the same political preference). Frank and Yasumoto (1998) provide a still closer look at Kadushin's data, revealing systematic avoidance of hostile acts between members of cohesive subgroups within the inner circle. The important qualification here is that people at the very top of almost all social systems appear to outsiders to be a cohesive elite (e.g., see Domhoff, 1967; Moore, 1978; Useem, 1984, for network images of an American elite similar to Kadushin's center-periphery network image of the French financial elite; cf. Mizruchi, 1992:chap. 4).

In this paper, we are less interested in the managers discussed in newspapers than the managers who do the work. There is an army of senior French managers below the level of CEO, or the top 28 people in finance. Like the top people, senior managers below the top tend to be graduates of a grande école, but less often one of the top schools in Paris. To understand what social capital means to this vast majority of French managers, one has to get inside the organizations behind the mass media headlines.

Much of what we know about French organization per se can be traced to Crozier's (1964) study of two government enterprises in the late 1950s: the manufacturing plants of the government tobacco monopoly, and a large (4,500 person) agency within the postal system. Crozier's (1964:107-108) central

observation concerns the bureaucratic form of the organizations, here describing the tobacco establishments:

> The ideal of bureaucracy is a world where people are bound by impersonal rules and not by personal influence and arbitrary command. The organizational system of the Monopoly has gone a long way toward realizing this ideal. It is primarily characterized by the extent of impersonal ruling. People at the posts of command do not have much leeway. Their response to most eventualities has been fixed in advance; their subordinates know this and can, therefore, act accordingly.

Crozier's primary inference from his observations is that control by bureaucratic authority is integral to French organization, not peculiar to his two case studies, because bureaucratic authority resolves an emotional tension fundamental in French culture. The French are deeply committed to individual liberty at the same time that they take it for granted that authority, indeed the absolute authority of <u>bon plaisir</u> giving unfettered control to the ruler, is needed for co-operation within an organization. Bureaucratic rules relieve the tension between these contradictory commitments because when you obey your boss, you obey the rules, not the individual. Crozier (1964:222-223) summarizes:

> . . .the French bureaucratic system of organization is the perfect solution to the basic dilemma of Frenchmen about authority. They cannot bear the omnipotent authority which they feel is indispensable if any kind of co-operative activity is to succeed. . . . A bureaucratic system of organization of the French type makes it possible to retain something of the independence of another time within the framework of modern organization. One always obeys the rules, but one need not submit to other men's whims.

Personal relationships that cut across lines of bureaucratic control — the very substance of social capita — would amplify the tension, and are therefore avoided. Crozier (1964:214-215) notes in the postal agency:

> They reported that they very rarely had friends in the agency. They reiterated that they preferred having their friends outside. Even among those who had friends, the friendships seemed never to develop into articulate groups. There were very few associations of any sort — no cultural, educational, or leisure joint activities worth mentioning. . . .More friendships were reported in the Industrial Monopoly, but they did not develop into cliques or even into stable informal groups. Cliques were viewed with great disfavor, and groups that could cut across several categories were inconceivable. . .

.Cliques that cut across categories are especially objectionable, since they inevitably foster favoritism, the system's cardinal sin.

Using personal relations to work around lines of bureaucratic control is an invitation to exclusion (Crozier, 1964:223): "To compromise, to make deals, to adjust to other people's claims is frowned upon; it is considered better to restrict oneself and to remain free within the narrower limits one has fixed or even those one has had to accept." In fact, speaking as if directly to the issue of networks that span structural holes, Crozier (1964:52) speculates:

> Our division head might make better decisions if he tried to establish for himself some special channel of information, or if he were ready to trust one or several of his subordinates. But if he did either, he would probably have to combat accusations of favoritism and to face the possibility of a serious deterioration of the climate, whatever the soundness of the end result. . . .Routine remains the safest way for him, whatever his own feelings. One may wonder more about the (very infrequent) innovating decisions than about the reiteration of routinized behavior.

More succinct in summary, Crozier (1964:220) writes; "If a group member shows initiative, he risks being deserted by his fellows and being deeply humiliated."

FRANCE RELATIVE TO ELSEWHERE

Subsequent research has enriched Crozier's image of the French. It has enriched the image with a deeper understanding of the connection between French culture and bureaucracy, but a particularly useful quality of subsequent research has been its comparative content.

Case Studies

Noteworthy in this regard is the research collaboration between sociologists and economists at Aix-en-Provence describing metalworking and petrochemical operations in matched French and German organizations (Maurice, Sellier and Silvestre, 1982; Rose, 1985), and d'Iribarne's (1989, 1991, 1994) description of a French aluminum smelter relative to aluminum smelters in eight other countries.

Like Crozier before them, the Aix scholars emphasize the bureaucratic form of French organizations, but give it a more subtle rationale. The French and German study organizations perform similarly with the same technology, but true

to Crozier's image, there is more bureaucracy in the French ones. There are more supervisory job categories in the French organizations, and a larger proportion of the workforce hold such jobs, especially middle management jobs (e.g., Maurice et al., 1982:61-65). The more elaborate bureaucracy is traced to the French educational system. Crozier (1964:238-244) saw the education system as an important factor in that growing up under autocratic teachers, studying an abstract curriculum, with fierce peer competition was preparation for later life in the same conditions under French bureaucratic control. However, Crozier proposed no mechanism to link the educational and economic systems other than their similarity in organizational form. French culture was held to shape both systems. With observations across industries and cultures, the Aix scholars offer a more precise image of external forces shaping the organization. The German educational system sorts students into distinct curriculum tracks leading to occupation-related educational credentials. Graduates have a professional identity above and beyond their employer. Skill within a profession is the principal criterion for promotion and compensation. The French educational system sorts students primarily by abstract reasoning. Sorted by general ability rather than occupation-related skills, graduates have an identity less defined by a profession than by a sense of their relative (high or low) position in society. French firms more than German firms have to provide occupation-related training, but there is no incentive to provide the German training that prepares people to work in a profession regardless of employer. Rather, company-sponsored training emphasizes company-specific concepts and methods which creates dependence on internal labor markets within French companies.[1] The result is that promotion and compensation is determined more by seniority in France than in Germany, and French managers are notably less mobile than their German counterparts (Maurice et al., 1982:Chaps. 1-2). Thus, the Aix research corroborates Crozier's

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[1]With their focus on societal forces shaping organizations, the Aix scholars explicitly reject the concept of an internal labor market with its focus on processes within the firm (Maurice et al., 1982:197-212). Nevertheless, the Aix research shows French firms relying more on promotion from within, and it is in that specific sense that we mean the research shows the French more dependent on internal labor markets.

image of bureaucracy in French organizations, but grounds it in a more precise mechanism by which external societal conditions, most notably the educational system, are responsible for the French reliance on bureaucratic authority.

In contrast to Crozier's cultural determinism (d'Iribarne, 1994), and to the Aix emphasis on societal factors (d'Iribarne, 1991), d'Iribarne's (1989) close observation of employees in a French aluminum plant relative to similar plants in the United States and elsewhere led him to focus on peer pressure within status categories. He reports frequent negotiations over control in the French plants (d'Iribarne, 1994:83-84; cf. Berry, 1995:111; Maurice et al., 1982:Chap. 3), guided by peer pressure, discussed as an honor principle, in which employees are motivated to do their duty (d'Iribarne, 1994:85):

> The sense of duty that emerged from the interviews conducted in the factory had its roots neither in respect for contracts or the law nor in any search for consensus. It was based rather on the dedicated fulfillment of obligations that traditionally fall to the particular occupational category to which each individual belongs. Many expressions such as 'doing one's job', 'doing one's work properly', 'I do my job as normal', 'a supervisor has to do that' and 'that's part of my function as a technician' reflected this form of the sense of duty. Such a notion of duty is accompanied by vigorous resistance to situations of dependency, as far as the design and execution of work are concerned, on people (management, other departments) outside the occupational group to which one belongs.

With respect to social capital, the difference between Crozier and d'Iribarne is a matter of emphasis more than contradiction. While Crozier emphasizes the central role of bureaucratic rules, he too notes instances of his bureaucrats negotiating over application of the rules (see d'Iribarne, 1994:86-88, for page references). Scholars familiar with network theory should recognize in d'Iribarne's honor principle the network mechanism of peer pressure created by competition among structurally equivalent peers (e.g., Burt, 1987; Mizruchi, 1992; Marsden and Friedkin, 1994), and note that although d'Iribarne's Frenchmen differ from Crozier's in the source of regulation over their behavior — d'Iribarne's regulated by peer pressure, Crozier's regulated by bureaucratic authority — both scholars describe employees operating under tight controls within their organizations. Even

the difference in emphasis should not be overstated. Crozier (1964:191) too notes control by peer pressure:

> . . .where there can be no cliques that unite people of different strata, the peer group — i.e., the group of equal members of the same stratum — becomes the only force that stands between the individual and the organization. . . .Deviant impulses will be severely sanctioned, and the discipline imposed by the peer group will be one of the main forces, apart from the rules, which regulate behavior. . . .The importance of the peer group was marked in our two case studies, and especially in the Industrial Monopoly, by the remarkable concordance of answers among members of the same group for all relevant matters, and also by the discrepancy between private opinion, which could be deviant, and publicly expressed opinion, which had to follow the official line.

Chains of command in the corporate hierarchy define a person's status group — clear chains of command means clearly defined status groups — and peer pressure aligns people within status groups. The case studies thus present French employees regulated twice over, first by bureaucratic authority outside the job category, then by peer pressure within the category. It is this regulation, whether by bureaucratic authority or peer pressure, that contradicts the idea of social capital created by a network that cuts across the chains of command defining structural holes in an organization.[2]

Survey Research

Survey research generalizes the felt reality of the case studies in supporting Crozier's image of French organizations. Even convenience samples of managers show a more bureaucratic perspective in France. For example, Laurent (1983) reports opinion polls of 817 managers from the United States and nine European countries in executive education programs. French managers were more likely than managers from any of the other nine countries to agree with the opinion that organizations were primarily an authority system (Laurent, 1983:82; cf. Hofstede,

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[2]More bureaucracy should not be read as a competitive disadvantage. Ziegler (1995) describes how France moved more effectively than Germany to introduce digital switching devices in their telecommunication industry because the task required technological consensus across organizations, which was better provided by a state-sponsored technical elite. On the other hand, Germany moved more effectively than France to convert the machine tools industry to computer-aided manufacturing because the task involved diffusing new technology to many small machine-tool companies, and that task was better performed by decentralized professional groups.

1991:140-142, for a similar result comparing M.B.A. students from Britain, France, and Germany). Lubatkin et al. (1998) offer a more controlled inference to the same end. To learn about national variation in acquisition management, they surveyed 753 top managers in 275 British and French firms recently acquired by British or French firms. Consistent with Crozier's image of the French, they find that the French firms were more likely to control key strategic questions in an acquired firm, and were more likely to exercise control by using their own managers to staff key positions in an acquired firm (as in the pantouflage movement of senior civil servants to senior positions in state-owned business enterprises to ensure enterprise coordination with government policy, e.g., Schmidt, 1996). Thus, Lubatkin et al. (1998:673-674) confirmed their initial expectation: ". . .that French firms, more than British firms, will exercise tighter, more direct managerial control . . . when establishing headquarters-subsidiary linkages."

The most ambitious effort continues to be Hofstede's (1980) surveys conducted between 1967 and 1973 with tens of thousands of IBM employees in 40 countries.[3] Although IBM had a strong, conservative organization culture at the time (in fact, competitors still judged the IBM culture in the late 1970s to be the strongest in the industry, Kotter and Heskett, 1992:155-165), opinion differences between country offices were expected because employees were (Hofstede, 1980:40): "almost exclusively nationals of the country, except in the first years of the creation of new subsidiaries. This applied all the way through the level of country general manager with few exceptions." Hofstede's study continues to be widely cited (e.g., the Social Science Citation Index reports 212 citations to the study in 1998 alone) and has been a template for subsequent studies of business values (e.g., McGrath, Macmillan, and Scheinberg, 1992). We use the study to

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[3]Survey instruments evolved over the course of the study, involving more than 40 countries and repeated interviews with some respondents (Hofstede, 1980:46): "With 65 countries (66 including the U.S.) and about 88,000 different respondents on about 117,000 questionnaires, the HERMES data bank represents probably the largest body of survey data ever collected with one instrument up to that time." The comparative work across countries, however, was based on a subset of the data — from employees in marketing and service within 40 of the 66 countries (Hofstede, 1980:41). The 1980 edition is no longer in print. Our page references are to the 1984 abridged edition available in 1999. Scores on the four culture dimensions for the 40 countries, excluded from the abridged edition, are listed on page 315 of the 1980 edition.

show that it's broad survey results are consistent with case studies showing employees more regulated within French organizations, and to put our Franco-American comparison into broader perspective.

——— Figure 1 About Here ———

Figure 1 is a summary of the international differences in Hofstede's study. With a judicious blend of factor analyses, intuition, controls for occupational differences between countries, and comparisons to country-specific studies, Hofstede concluded that there were four dimensions to business culture. The 40 countries studied are listed in Figure 1 with coordinates on the horizontal (X) and vertical (Y) axes of the spatial map in the figure. To the right of the coordinates are each country's standardized scores on Hofstede's four dimensions. The spatial map in Figure 1 is a multidimensional scaling in which two countries are close together to the extent that they have the same scores on the four dimensions of business culture. For example, Great Britain and the United States are close to one another in the spatial map because they have similar business cultures. Look at their respective scores on the four dimensions to see that the two countries are similarly below average on Power Distance, have the highest scores on Individualism, are similarly below average on Uncertainty Avoidance, and similarly above average on Masculinity.[4] Reducing the business culture of a country to four numbers involves heroic simplification. Bear in mind that Hofstede's study is a survey so it is less useful for the description it provides of any one culture than it is

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[4]We obtained the spatial map in Figure 1 by computing the Euclidean distance between business cultures in each pair of countries: $(d_{ij})^2 = (PD_i - PD_j)^2 + (UA_i-UA_j)^2 + (I_i-I_j)^2 + (M_i-M_j)^2$, where d_{ij} is the distance between countries i and j, and PD_i is country i's z-score on the Power Distance dimension of business culture. We then applied Kruskal's (1964) nonlinear multidimensional scaling algorithm to the (40,40) matrix of distances to obtain the X-Y coordinates that best preserved relative distances between the countries. The two-dimensional solution is a good summary of international differences. Input distances are correlated .92 with distances in Figure 1(.16 stress coefficient). Adding a third dimension improves the map's descriptive accuracy (.05 stress coefficient). However, we present the two-dimensional solution because three-dimensional maps are difficult to read, and the third dimension primarily distinguishes countries on Masculinity, which is not central to our Franco-American comparison. Two principal components describe 89% of the variance in Power Distance, Individualism, and Uncertainty Avoidance. We present z-scores on the culture dimensions in Figure 1 because raw scores only have meaning relative to one another, so the mean and standard deviation are an informative frame of reference for judging a country high or low on a culture dimension. Each z-score is a country's raw score, minus the average for all 40 countries, quantity divided by the standard deviation of scores across the 40 countries. The spatial map in Figure 1 is virtually identical if based on Euclidean distances computed from raw scores on the four culture dimensions (.99 canonical correlation between coordinates for the raw-scores and coordinates for the z-scores).

useful as a frame of reference for discussing relative magnitudes of difference between cultures. Britain and the United States have similar business cultures in Figure 1, but closer inspection reveals very different views of management (Guillén, 1994:266-278).

Franco-American differences on each of Hofstede's culture dimensions are consistent with the image of employees more regulated within French organizations. For example, IBM's French employees were more comfortable with power differences between levels of their organization. Power Distance refers to employee comfort with superiors having more power than subordinates. The questions combined to measure Power Distance (Hofstede, 1980:65): ". . .deal with the perceptions of the superior's style of decision-making and of colleagues' fear to disagree with superiors, and with the type of decision-making which subordinates prefer in their boss." The higher score for France is consistent with the image of more regulation within French organizations (at the bottom-right in Figure 1, Power Distance in France is 1.4 standard deviations higher than the score for the United States).

IBM's French employees were more comfortable with rules and rituals. Uncertainty Avoidance concerns the extent to which employees cling to rules and rituals to give them a sense of control over the future. The questions combined to measure Uncertainty Avoidance concern rule orientation, employment stability, and stress (Hofstede, 1980:110). The higher score for France is consistent with the image of more regulation within French organizations (score for France is 1.7 standard deviations higher than the score for the United States).

IBM's French employees were less comfortable with individual initiative. Individualism concerns the extent to which employees prefer independence, Tönnies' Gesellschaft over Gemeinschaft. Employees high on Individualism opine that they want a job that leaves time for their personal life, involves challenging work, and in which they have the freedom to devise their own approach to the job (Hofstede, 1980:148, 156). The lower score for France is consistent with the image of more regulation within French organizations (United States score is the higher than for any other country, French score is .8 standard deviations lower).

IBM's French employees expected more support from their organization. Hofstede's Masculinity dimension concerns the extent to which employees are assertive more than nurturing. Employees high on Masculinity claim to be motivated by earnings, recognition, and advancement, while those low on Masculinity focus on having a good working relationship with the person to whom they report, colleague cooperation, living in a desirable area, and employment security (Hofstede, 1980:176, 188). The lower score for France is consistent with the image of more regulation within French organizations (score for the United States is above average, French score is below average).

Beyond corroborating the image of more regulation within French organizations, Figure 1 puts our Franco-American comparison into broader perspective. The principal dimension of differences among the 40 countries is along the horizontal axis of the spatial map in Figure 1, and our Franco-American comparison spans a distance along that axis from the USA at the left of the spatial map to France just to the right of the map's center. The horizontal axis corresponds to the first principal component of Hofstede's four culture dimensions, and that first principal component describes 48% of the variance in all four dimensions. More specifically, Hofstede's culture dimensions are indicated in Figure 1 by gray arrows projecting from the center of the map (based on each dimension predicted by the X and Y axes in the map). International differences in Power Distance and Individualism are well described in Figure 1 along the horizontal axis (R^2 is .81).

Our Franco-American comparison is a contrast between two clusters in Figure 1. A cluster of countries just above the horizontal axis to the left of the spatial map contains "individualistic" countries in which Power Distance is low and Individualism is high. The United States is in this individualistic cluster. The right half of the map is a separate cluster of "bureaucratic" countries in which Power Distance is high and Individualism is low. The bureaucratic cluster is more differentiated, but there is a clear gap in the middle of the space between the two clusters. France is in the bureaucratic cluster to the right. It might seem odd to group together the European, Latin, and Asian countries to the right in Figure 1 —

until one thinks about the importance of status in societies ordered by bureaucratic authority, whereupon there is similarity between d'Iribarne's (1989) emphasis on the peer pressure associated with doing one's duty in France, and claims that Asian managers are motivated to preserve "face" (e.g., Kim and Nam, 1998).

In other words, our comparison of French with American managers should resemble a comparison of French with German managers (Maurice et al., 1982; Ziegler, 1995), or French with British managers (Calori et al., 1997; Lubatkin et al., 1998). All three comparisons involve managers under more regulation within their organizations compared to managers under less regulation. Other comparisons could be expected to replicate our Franco-American comparison. French managers could be compared to managers in individualistic countries other than the United States, countries adjacent to the United States in Figure 1 such as Australia, Canada, or Ireland. Or, Americans could be compared to managers in bureaucratic countries other than France, countries such as Brazil, Spain, or the Philippines.

In sum, of the many ways that cultures differ in Hofstede's study, our Franco-American comparison, like the research we discussed comparing France with Germany and Britain, lies along the principal dimension of international differences — the difference between individualistic and bureaucratic cultures distinguished on the horizontal axis in Figure 1.

IMPLICATIONS FOR SOCIAL CAPITAL

France could be a productive site for comparative research on social capital because French managers are more regulated than Americans; more regulated by bureaucratic authority and more regulated by peer pressure, with both amplified by the greater reliance in France on internal labor markets. More regulation could have any or all of the following implications for social capital: fewer personal relationships across structural holes, less comfort with such relationships when they do occur, and less productive use of such relationships. People comfortable with knowing their place in a chain of bureaucratic control could be uncomfortable with the negotiated control exercised by network entrepreneurs — ça c'est

déclassé, or worse: The positive association between structural holes and performance in the United States could be negligible or even reversed for French managers.

Still, the network form of French social capital remains an empirical question. The influential observations by Crozier, the Aix scholars, and d'Iribarne that so define how we view French organizations describe conditions decades past. The seven years for which the Aix scholars observed their study firms notwithstanding, French firms today operate in a more global economy and reflect the general corporate trend toward more decentralized, flexible authority structures in which the social capital of structural holes is so valuable. [5] French managers, especially middle managers, have an increasing autonomy and span of control (Schmidt, 1996: 393ff.). This is not to say that a French preference for authority rather than negotiation has disappeared (e.g., Crozier, 1989), or that the transition away from bureaucratic hierarchy won't be more difficult in France (than in countries further to the left in Figure 1 such as Germany, Britain, or the United States, e.g., Rose, 1985:80ff). The point is only that decentralization has created opportunities for autonomy, which could allow network entrepreneurs to add value with relationships that span the structural holes in their organization. In fact, Jean-René Fourtou, CEO of Rhône-Poulenc, one of the largest French corporations, emphasizes the importance of what we have been discussing as structural holes. Quoted in the business magazine Fortune, Fourtou emphasizes the importance of le vide, referring to the empty space between groups (November 25, 1996, p. 165); "Le vide has a huge function in organizations. . . . Shock comes when different

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[5]Moreover, there are more and less bureaucratic organizations in every country, even within a single company. Within the United States, for example, staff officers in a financial company work under more bureaucratic control than do the company's investment bankers, but both kinds of managers show higher performance when they have a network that spans structural holes (Burt, 1999:Figure 3). The military is an familiar extreme-case of bureaucratic control, yet observers long ago saw the American military shifting from bureaucratic to negotiated control (Janowitiz, 1957:108): "Although military formations are still organized on the basis of discipline, military command involves an extensive shift from domination to manipulation as a basis of authority. Manipulation implies persuasion, negotiation, and explanation of the ends of the organization. . . .the professional soldier is required more and more to acquire skills and orientations common to civilian administrators and even political leaders. . . .Not only must the professional soldier develop new skills necessary for internal management; he must develop a 'public relations' aptitude, in order to relate his formation to other military formations and to civilian organizations."

things meet. It's the interface that's interesting. . . . If you don't leave <u>le vide</u>, you have no unexpected things, no creation. There are two types of management. You can try to design for everything, or you can leave <u>le vide</u> and say, 'I don't know either; what do you think?'"

RESEARCH DESIGN

Our research design relies on the studies of American social capital as a baseline. These studies support the hypothesis that performance is higher for managers with a network that spans structural holes (see Burt, 1999, for review). The design for this study was to obtain performance and network data on senior managers in a French firm and ask if their social capital differs in any systematic ways from the social capital of comparable American managers. This is not a research design that would allow us to draw inferences about all French managers, any more than the usual research results on managers in an American firm would be sufficient foundation for drawing inferences about all American managers. The best we can do is to reject the hypothesis that the network form of social capital observed among American managers is unique to Americans. It will be clear from our results that social capital has the same network form in at least one study population of French managers.[6]

DATA

We have data on two study populations of managers at the top of organizations that are global market leaders, one in the United States, the other in France. Our

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[6]Luthans and his colleagues used a similar research design. Luthans, Hodgetts and Rosenkrantz (1988) report a network effect on performance for American managers drawn from several firms. Luthans, Welsh and Rosenkrantz (1993) then used the Luthans et al. (1988) study as a frame of reference for research showing a similar association in a sample of managers in a Russian textile factory. Performance was measured in these two studies by the ratio of a manager's rank to his or her years with the firm (which, presuming an internal labor market, measures the speed with which a manager has been promoted across ranks), and networks were measured with an observer's count of the frequency with which a manager was seen (Luthans et al., 1988: Chap. 1; Luthans et al., 1993:751): "interacting with outsiders and socializing/politicking during working hours." In both studies, managers were most often observed performing the traditional functions of planning, solving problems, monitoring performance, exchanging routine information and processing paperwork, but network activity was the variable most associated with performance. Ours is a similar point with respect to French managers, but advances in network analysis allow us to make more precise statements about network structure and its effects.

data on the Americans come from another project and are described in detail elsewhere (Burt, 1992, 1995, 1997a). We use these Americans as a frame of reference in studying the French managers because they are similar to the French managers in several ways, and we have nearly identical network data on the two study populations.

The two populations are similar in three ways. The most obvious is organization size. Both study populations come from organizations that are global market leaders with tens of thousands of employees. The American firm is a leading electronic components and computer company. The French firm is a leading chemical and pharmaceutical company.

Research and development is a central focus in both firms. Their products define the leading edge of technology in markets where the leading edge is lucrative and moves quickly. Managers in both firms discuss and evaluate colleagues in terms of their familiarity with the latest technology. Research and development is not everywhere characteristic of the French firm, but it is certainly characteristic of the division to which we had access — 97% of the study population managers have graduate degrees of some kind, 37% of which are doctorates or the French equivalent.

Third, both populations are composed of senior managers. From the American firm, we have a probability sample of 170 men in the three ranks beneath vice-president. Putting aside the few employees at higher rank (on whom we do not have data), and the few women in the study-population ranks (Burt, 1998), the 170 men represent the top three percent of their firm's employees. Our background and performance data on each manager come from the company's personnel files (Burt, 1992:118-131). The managers represent diverse corporate functions; sales and service (32%), marketing (16%), engineering and production (25%), and the usual administrative functions such as information systems, finance, and human resources (27%). They vary in age from their early thirties to mid-sixties (43.2 mean) and have been with the firm for one to thirty years (11.5 mean).

From the French firm, we have data on 60 managers who are a representative sample of the 85 managers in the three ranks beneath the most

senior people (ranks beneath <u>Directeur Général</u>) in a division which, at the end of 1996, contained 9% of the firm's employees and contributed 23% of its operating income. Again, our background and performance data on each manager come from the company's personnel records. The managers vary in rank from function heads (<u>Etat Major</u>) down to heads of product groups (<u>Chef</u>, or <u>Cadre</u>), and work in diverse functions; sales and service (12%), engineering and production (20%), marketing (22%), research and development (20%), as well as the usual administrative functions such as information systems, finance, human resources (26%). They vary in age from their mid-thirties to late fifties (48.9 mean), and have been with the firm for one to thirty-five years (20.8 mean). A large portion of the study population returned completed questionnaires (71%), and those who did are a representative sample of the population: There are no statistically significant differences between respondents and non-respondents on salary (0.9 t-test, P = .36) or any other of the population variables used below in Table 1 to predict salary.

PERFORMANCE

We remove the effects of demographic and human capital factors from manager performance to see how each person is doing relative to his peers (a generic use of the method of residues, e.g., Coleman, 1964: 469ff).

Early Promotion in the American Company

Compensation is an obvious performance measure, but salary in the American firm was too closely tied to job rank to make it an interesting performance variable for the corporate officers requesting the research. The interesting performance variable was how early a manager reached his current senior rank. Whether promoted internally or hired from the outside, people promoted to senior rank in large organizations have several years of experience preceding their promotion. A period of time is expected to pass before people are ready for senior rank (see Merton, 1984, on socially expected durations; Burt, 1992: 196-197, for application to these data). How much time is an empirical question. Some are promoted earlier than others.

Our performance variable in the American study population, <u>early promotion</u>, is based on the difference between when a manager was promoted to his current rank and a baseline model predicting the age at which peers had been promoted to the rank: E(age) - age. To define expected age, E(age), regress age-at-promotion-to-current-rank across background variables for manager education, race, gender, seniority in the firm, rank, function, and plant location (see Burt, 1992: 126-131, for details on the variables and the prediction). The prediction describes twelve percent of the variance in age-at-promotion-to-current-rank, and residuals have an attractive normal distribution (see Burt, 1995:610, for histogram). Early promotion is the residual from the prediction. A manager promoted to his current rank at a younger age than peers was promoted early (E(age)-age > 0).

To compare performance in the two study populations, we standardized early promotion across all 547 sample managers from the American study population (of whom we are here analyzing the 170 senior men who returned completed questionnaires) to zero mean (managers promoted to current rank at the age at which peers on average are promoted to the rank) and unit variance (so a score of 1.5, for example, means that the manager was promoted to his current rank early; one and a half standard deviations earlier than people like him were typically promoted to the rank).

Relative Salary in the French Company

We computed an early promotion variable for the French managers, but it was a poor indicator of performance because the managers are so similar in their age at promotion to rank.[7] They were, however, differentiated by compensation. Model I in Table 1 shows that a large portion of variance in annual salary (72%) can be

[7]Age and rank are more closely associated in the French firm than in the American. Expected age at promotion is 12% of the age variance in the American firm, and managers vary substantially around the average; from one manager promoted 15 years early to another promoted 13 years late. In the French firm, 91% of the age-at-promotion-to-current-rank variance can be predicted from rank, and managers are closer to the prediction; varying from one manager promoted four years early to another promoted three years late. More critically, early promotion has no correlation in the study population with relative salary (r = -.08) nor in the sample with the network constraint measure of social capital (r = .05). There appears to be a system matching ranks to age in the French firm such that being promoted to senior rank a few years early or late is a matter of chance.

predicted from a manager's rank (dummy variables distinguishing job ranks) and age (statistical tests for age-rank interaction effects on salary are not significant). The residual 28% of salary variance is our performance variable, relative salary. A manager's relative salary is the extent by which his salary was higher than the average salary expected for someone in his rank at his age: salary - E(salary), where Model I in Table 1 is the age-rank baseline that defines expected salary (salary amounts in French francs are standardized to z-scores in Table 1 to preserve confidentiality). To compare performance in the two study populations, we standardized relative salary across managers in the study population to zero mean (manager receives a salary typical for someone his age at his rank) and unit variance (so a score of 1.5, for example, means that the manager's salary is one and a half standard deviations higher than the salary typically paid to people in his rank at his age). Relative salary is the dependent variable in Model IV. Age and rank have no association with relative salary because the sample is representative of the study population and relative salary is raw salary adjusted across managers in the study population for age and rank.

——— Table 1 About Here ———

We do not have extensive background data on the French managers, but what we have reveals no background factors beyond age and rank that define expected salary. Model II in Table 1 predicts salary across all managers in the study population. Models III and IV describe only the sample managers (the two network variables at the bottom of the table are discussed in the next section).

There is a representative distribution of managers across functional and geographic areas such that there are no significant salary differences on average between areas before or after age and rank are held constant. Managers are sorted into three functional areas in Table 1 by two dummy variables: production (research and manufacturing), and corporate (such as finance, human resources, general management), which together distinguish field managers as a third category (sales and distribution). The "core location" variable in Table 1 distinguishes managers who work in the city where the firm has its largest concentration of employees (75% of this study population) from managers who work in other cities (all in France).

Seniority is a compensation factor, but its direct association with salary disappears when age is held constant. If salary is regressed across rank and seniority, measured by the years for which a manager has worked for the firm, then managers with more seniority receive higher salaries (4.1 t-test, P < .001). However, the company is primarily an internal labor market in which managers tend to stay with the firm, so seniority is closely correlated with age (r = .72). Some managers did enter at high rank so salary is more directly associated with age (r = .43) than with seniority (r = .13). The result is that the salary association with seniority disappears when age is held constant as in Table 1 (cf. Bayet and Demailly's, 1996, analysis of French salaries tracing a seniority effect to cohort-specific retirement dates and employment contracts). Time in rank is similarly irrelevant (0.3 t-test for years-in-rank added as a predictor to Model II in Table 1).

There are some factors irrelevant because of homogeneity within the study population. For example, gender can be a performance factor related to social capital (Burt, 1998; 1999), but there is only one woman in this study population so gender is irrelevant (allowing for its significance to the one female manager). In fact, the overwhelming majority of these managers are married Frenchmen. The dummy variable "minority" in Table 1 distinguishes sample managers who were female, unmarried, or not a French citizen; which is a combined total of three people. The minority managers were paid lower salaries on average than their French-married-male peers, but the amount is not statistically significant.

Education is similarly a negligible factor, even though education credentials are widely discussed as a significant career variable in France. In this population, however, everyone is from a grande école, so education credentials do not explain salary differences between the managers.[8] In fact, we have already noted that

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[8]More specifically, these are graduates from the second-tier of grande écoles; most often from regional centers outside Paris, not from the top Parisian institutions such as the Ecole Polytechnique or Ecole Nationale d'Administration (though graduates from these schools do hold positions elsewhere and higher in this company). This is a study population primarily composed of well-educated chemists and engineers who have been promoted into senior management. We have no systematic data on job histories, however, given their technical backgrounds, these managers are unlikely to have been career civil servants transferred to the company to ensure consistency with government policy (pantouflage). Further, given the internal labor market and the separation between the firm's French and American operations, these managers are unlikely to have held full-time positions in the United States, though we were told by the senior human-

most (97%) of the managers have graduate degrees of some kind, of which one in three (37%) is a doctorate or the French equivalent. Education credentials were perhaps significant for gaining entry to senior management, but competition is now on other criteria. The "advanced degree" variable in Table 1 distinguishes managers with a doctorate or the French equivalent (troisième cycle, see Lewis, 1985: 102ff.). Managers with advanced degrees were paid higher salaries on average, but the amount is not statistically significant. Graduation from the company's "executive M.B.A." program also has no association with salary. The firm owns with several others an educational facility to which it sends promising managers (see Hogarth, 1979, for details on the creation and operation of the facility). Managers complete a course of study analogous in content and duration to a Masters of Business Administration.[9] More than half of the people in the study population (59%) had graduated from the program at the time of the survey (graduates were no more likely to return completed questionnaires, 0.03 chi-square, 1 d.f.) and we will later show that graduation is associated with the kind of network a manager builds, but graduation has no direct association in Table 1 with salary.

NETWORK DATA

Each manager received a network questionnaire asking about his key contacts within and beyond the firm. Contacts were identified with questions on diverse kinds of relations such as informal discussion and socializing, political support, critical sources of buy-in for projects, authority relations with supervisor and promising subordinates, and so on. The eight core name generators are listed in Table 2 with the minimum, mean, and maximum number of contacts each question elicited per French and American manager. The French questionnaire was a replication of the American questionnaire (cf. Table 2 with Burt, 1992:123; Burt,

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resources officer that he would be surprised if managers at this level of the organization had not all visited American plants to observe their operations.

[9]The facility also offers short programs analogous to executive education programs in American business schools, but participation in the short programs is not associated with salary or the network variables to be discussed, so graduation here means graduating from the full M.B.A. program.

1997b:359). The questionnaire was translated into French by a French

sociologist, then checked for consistency with the American version by two

business professors fluent in French and English (a Frenchman working in France,

and a British citizen working in the United States). In addition to the eight core

name generators, OTHER at the bottom of the table refers to contacts named in

response to (a) a ninth work-related question limited to a single name that was

different on the French and American questionnaires, or (b) a final question asking

managers after they had assembled the list of key contacts if the list was missing

anyone significant. Finally, managers were asked to describe the connection

between each pair of contacts as especially close, distant, or something

intermediate. The American managers named 12.7 contacts on average, of whom

2.0 were outside the firm. The French named 13.9 contacts, of whom 3.0 were

outside the firm.

———— Table 2 About Here ————

NETWORK MEASURE OF SOCIAL CAPITAL

Network constraint increases with the extent to which a manager's network is

directly or indirectly concentrated in a single contact. A network concentrated in

one contact means fewer structural holes, and so less social capital. The

constraint index C varies with three conditions (see Burt, 1992: 50ff., 1995, 1998,

for details): network size (larger networks are less constraining), density (networks

of more strongly interconnected contacts are more constraining), and hierarchy

(networks in which all contacts are exclusively tied to a single contact are more

constraining). The index begins with the extent to which all of manager i's network

is directly or indirectly invested in his or her relationship with contact j: $c_{ij} = (p_{ij} +$

$\sum_q p_{iq} p_{qj})^2$, for q ≠ i,j, where p_{ij} is the proportion of i's relations invested in contact

j, and the total in parentheses is the proportion of i's relations that are directly or

indirectly invested in the connection with contact j. Sum the c_{ij} across contacts j to

get the network constraint index C for each manager. We multiply scores by 100

to discuss social capital effects per point of constraint. Constraint is distributed

similarly in the two study populations; from a minimum of 17 to a maximum of 43

around a mean of 28 across the French managers and from 18 to 48 around a mean of 29 across the American managers (0.9 t-test, P = .35).

RESULT 1: PERFORMANCE

Figure 2 contains the essential replication evidence. The horizontal axis is the network constraint index C. The vertical axis is z-score relative performance. The American results are discussed elsewhere (Burt, 1997a:348): American managers with less constrained networks are promoted to senior rank earlier than is typical for people like them at their rank in their division, while the managers with more constrained networks reach senior rank later than is typical. The French results replicate the American: French managers with less constrained networks (left side of the graph) receive salaries higher than is typical for people their age in their rank, while the managers with more constrained networks (right side of the graph) receive salaries lower than their peers. In short, there is a positive association for both the French and American managers between performance and the social capital of a network that spans structural holes.

CAUSAL ORDER

Causal order cannot be determined from these data. The structural hole argument gives a causal role to social structure, and the negative associations in Figure 2 between network constraint and performance are consistent with the argument. But the network data describe a point in time after the performance data, so the associations in Figure 2 are also consistent with a story about networks around low-performance managers collapsing to a small, dense core of friends.

——— Figure 2 and Table 1 About Here ———

Three mitigating factors alleviate concerns about causal order. First, in these study populations, relationships with key colleagues precede the performance data. Performance is measured with respect to most recent promotion and salary. The senior managers have known their key contacts in the firm for considerably longer than that (nine years for the average French respondent, 13 for the average American). Moreover, the average years for which individual managers have known their key contacts is a negligible addition to predicting relative performance

in Figure 2 (-0.9 t-test for the French, -1.5 for the Americans). Second, much of the cumulative processes leading to performance (and so preceding the network data) are held constant when we hold constant manager position and background to define performance relative to peers (and recall that rank and age account for the greater part, 72%, of study-population performance variance for the French managers). Third, there is evidence for the argument that network structure affects performance. Constrained networks around investment bankers are associated with subsequent poor performance (Burt, 1997a:349-351), and a careful reading of the evidence on the American managers can be used to argue for networks affecting promotion rather than vice-versa (Burt, 1992:173-180).

These mitigating factors notwithstanding, we cannot infer causal order from our data and so must put the issue aside for resolution elsewhere. To simplify the discussion, we follow the structural hole argument in assuming the primacy of social structure, but stay within the limits of our cross-sectional data by focusing on the strength of association between network structure and performance rather than trying to resolve which caused the other.

OTHER FACTORS

Models III and IV in Table 1 add network constraint to the baseline model predicting salary for the French managers. Compensation is significantly lower for managers with more constrained networks, holding constant the many other compensation factors in Table 1. No other factors matter except the age and rank variables used to define the age-rank baseline model. In sum, compensation factors for the managers in this study population are age, rank, and social capital.

RESULT 2: NETWORK CONTENT

We shift now from theory-testing to exploration. Given similarly positive performance effects of social capital among the French and Americans, we shift to the task of exploring the data to see how deep the similarity runs. Similarity continues on several dimensions, but we also find a striking and consequential difference.

The fact that social capital has the same network form for the French and Americans does not imply that they understand their social capital similarly. A fruitful method for studying how people understand relationships is to see how specific kinds of connections mix within relationships (cf. Romney and D'Andrade, 1964; Burt and Schøtt, 1985; Carley, 1986; Burt, 1990; Krackhardt, 1990). The idea is that two kinds of connection are substantively similar in a person's mind to the extent that the two kinds of connection occur together in the same relationships. If your friends are all people with whom you work, for example, you will have trouble deciding where work ends and friendship begins.

——— Figure 3 About Here ———

Figure 3 contains for each of our study populations a two-dimensional multidimensional scaling of joint probabilities among kinds of social connection between managers and their contacts. We follow the network analysis convention of discussing such displays as cognitive maps, or simply maps. The map to the right in Figure 3 describes distinctions in the American descriptions of their networks. The map to the left describes distinctions as the French see their networks. For example, the French managers cited 275 colleagues as most valued, 227 as essential sources of buy-in, and 115 as both, defining a joint probability of .297 between valued and buy-in. "Valued" and "buy-in" are close together in Figure 3 because the .297 joint probability of a contact being cited for buy-in and valued is higher than most other joint probabilities. The 21 kinds of social connection in Figure 3 are the nine questions in Table 2 on which a contact could be named, four levels of emotional closeness (manager feels especially close to the contact, close, less close, or distant), four levels of frequency (manager speaks to the contact daily, weekly, monthly, or less often), three levels of duration (manager has known the contact for one or two years, three to nine, or more than nine), and a duration variable "knew before" (manager knew contact before manager joined the firm).[10]

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[10]As in Figure 1, the multidimensional scalings in Figure 3 are based on Kruskal's (1964) algorithm preserving monotonic distances between points, and the spatial displays are a good summary of the data (.21 and .23 stress coefficients for the French and American maps respectively; .91 correlation between logs of the observed and predicted distances between

KINDS OF RELATIONSHIPS

The French and American managers have strikingly similar cognitive maps of their networks. Relationships are ordered from positive to negative going east to west in each map, and positioned in each map with respect to three broad categories; positive personal relationships, positive work relationships, and negative relationships. Personal relations (in the southeast of each map) are to people with whom the manager socializes and discusses personal matters such as leaving for a job with another firm. These are people to whom the manager feels especially close and with whom he speaks daily. Work relations (in the northeast of each map) are to people the manager cites as his most valued contacts at work and essential sources of buy-in for initiatives coming out of his office. These are people to whom the manager feels close, but not especially close, and with whom he speaks once a week or so. The supervisor is in the work region of both cognitive maps, but clearly apart from the contacts cited as essential sources of support. Recall that our French and American managers operate in network organizations where support from your boss can be taken for granted — relative to the essential support managers have to negotiate with senior people in other functional areas. Negative relations (to the west of each map) are with people to whom the managers feels emotionally distant, or people cited for having most made it difficult for the manager to carry out his job responsibilities.

FREQUENCY

There is also a similar tempo to their relationships. There are no significant differences between the French and Americans in their tendencies to speak daily (-0.2 t-test) or at least weekly with their key contacts (1.5 t-test), and they are equally likely to have key contacts with whom they speak monthly or less (-0.1 t-test). Connections with kinds of relations are apparent in Figure 3. Daily contact is associated with personal relations, weekly contact is on the personal side of

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elements in the French map, .90 for the American map). We began by circling three kinds of relations distinct in each map; personal discussion relations, support relations at work, and negative relations. We then rotated one map 180˚ to align the relative positions of the three kinds of relations in each map (which has no effect on distances between points in the map).

work support relations, monthly is on the negative side of work support relations, and less than monthly is closest to negative relationships. Daily and weekly contacts are rarely cited by the French or Americans as negative (7% of daily and weekly contacts cited as negative by the French and 6% by the Americans, versus 13% of monthly or less contacts for the French and 19% for the Americans).

DURATION

The French and Americans are sharply distinct in the content of their oldest relationships. The French are anchored in long-standing personal relationships to which they add recent acquaintances from work. The Americans are anchored in long-standing work relations to which they add personal relations with recent acquaintances.

This point comes in two parts. First, the French and Americans make similar duration distinctions in their colleague relationships. Log-linear association models of duration in years tabulated across the nine name generators in Table 2 show that managers in both study populations make three broad distinctions in duration; recent acquaintances known for one or two years, established relations with colleagues known for three to nine years, and old relationships with colleagues known for a decade or more. Relations one or two years old are cited on name generators different from those on which more established relations are cited, and relations a decade or more in age are cited on still other name generators. That is the second point. Figure 3 shows the French citing personal relationships as their oldest (10+ years known). Newer relationships come from the job. Americans cite support relations at work as their oldest relationships. Personal relations are with recent acquaintances.[11]

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[11]The reversed duration correlates for the French and Americans explains the reversed positions of "other" and "subordinate" in the two Figure 3 cognitive maps. Promising subordinates and people added as an after-thought to the network questionnaire tend to be recent acquaintances. Thus, "subordinate" and "other" appear at the top of the French map with people known for one or two years, and at the bottom of the American map, again with people known for one or two years.

SOCIAL BOUNDARY AROUND THE FIRM

The duration difference has implications for how managers understand the social boundary around their firm. Each dot in Figure 4 is a relationship with a colleague at the time of the survey. Relations are distinguished on the horizontal axis by the respondent manager's years at the firm and on the vertical axis by his years of acquaintance with the colleague. In other words, dots above the diagonal line in each graph are colleagues known before the manager entered the firm.

——— Figure 4 About Here ———

The point immediately apparent from the graphs is that the French managers knew far fewer of their current colleagues before joining the firm. The area above the diagonal line in the French graph is empty in comparison to the same area in the American graph. The table beneath the graphs shows the duration difference separating out the effect of seniority. French and Americans with more than 20 years seniority have small percentages of colleagues known before they joined the firm (5% and 6% respectively). Much of their working life has been spent in the firm, so it is not surprising that most of their colleague relationships originated after they joined the firm. The duration difference is more apparent for more recent arrivals. The slightly higher 6% percent of American colleagues known before joining the firm increases to 42% for managers with 11 to 20 years seniority (versus the French 15%), and then to 81% for managers with less seniority (versus the French 26%). This point is also visible in Figure 3. Contacts known before entering the firm ("knew before") are in the personal region of the French cognitive map (southeast) but the work region of the American map (northeast).

RESULT 3: ETIOLOGY

The results on network content imply that social capital accumulates in different ways for the French and American managers. Managers came to the French firm knowing few of the colleagues with whom they would have to establish relationships. Their long-standing relationships are personal, begun after they entered the firm. Friendships seem to be the foundation for social capital, but the foundation is employer-specific. The social boundary around the American firm was more porous to relationships and, by implication, to the flow of ideas and

innovations (Raider and Burt, 1996, on social capital; Arthur and Rousseau, 1996, for more diverse perspectives), so managers could be expected to be less dependent on third parties such as executive headhunters to broker connections to other firms (Finlay and Coverdill, 1999). Just as senior professors come to new university positions already knowing many colleagues from past professional activities, managers came to the American firm with relationships already established to key contacts inside the firm. Their long-standing relationships are work-related, begun before they entered the firm. Worthy colleagues seem to be the foundation for social capital, and the foundation is portable from one employer to another.

BRIDGES ACROSS STRUCTURAL HOLES

However, the more porous social boundary around the American firm need not indicate social capital. It could indicate merely a density of connections higher among people in the American computer industry than in French pharmaceuticals, or a density of connections higher among senior people in the technological region in which the American firm was located. If the people a manager knew before entering turn out to be people now in his immediate work group, then pre-existing contacts are not the foundation for his social capital, they are just people he knew before joining the firm. Social capital is a function of relationships that bridge structural holes. If the pre-existing relations are with people not routinely involved in the manager's immediate work then the pre-existing relations would be a foundation for social capital in the sense of bridging structural holes in the firm. Informal conversations with old friends in other parts of the firm would give the manager a competitive advantage in shaping and taking advantage of information in the firm.

To understand the social capital associated with pre-existing relationships, we studied individual relations for the extent to which they were bridges. A colleague relationship is a bridge when a manager has no alternative, indirect, connection to the colleague through mutual acquaintances (e.g., Harary, Norman and Cartwright, 1965:198-206; Granovetter, 1973: 1065; Burt, 1992:26-30; Wasserman and Faust, 1994: 114-115). In the Appendix, we explain how we

defined a quantitative variable and a qualitative variable to distinguish bridge relationships. The quantitative variable measures the extent to which a relationship is nonredundant with a manager's other relationships. The qualitative variable is a dichotomy between relationships that are bridges and those which are not.

CORRELATES OF BRIDGE RELATIONSHIPS

Regression results in Table 3 identify the correlates of bridge relationships. No causal order is implied. We use regression merely to identify the correlates most associated with bridge relationships. The first column for each study population is a regression model predicting the quantitative measure of nonredundancy; a positive coefficient shows that an increase in the row variable is associated with less redundant relationships. The second column is a logit model predicting the qualitative distinction between bridges and other relations; a positive coefficient shows that an increase in the row variable increases the probability of a relationship being a bridge.[12]

Correlates are listed in the rows. The first seven are relationship variables in Figure 3; kinds of relations (cited for personal discussion, support at work, the boss), emotional closeness, contact frequency, and years known. The new relationship variable (discussed below) is "executive M.B.A.," which distinguishes people who have participated in the French firm's executive education program.

——— Table 3 About Here ———

The remaining rows are controls for the manager's situation. Certain managers are more likely to be involved in bridge relations and we want to study the correlates of bridges net of manager differences.[13] The most significant

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[12]This analysis is productive because it reveals the different emotions that the French and Americans associate with bridge relationships, but there is more direct evidence that knowing colleagues before entry is not an advantage after entry. We know from Table 1 that relative salary for the French managers is independent of knowing any of their current key colleagues before joining the firm (0.8 t-test). We get the same result predicting early promotion for the Americans (-0.1 t-test). With so many of the Americans knowing colleagues before entry, we also looked at the proportion of key colleagues known before entry. This too has a negligible association with early promotion (-1.2 t-test).

[13]It would be natural to create homophily variables from the manager data. Bridges will be less likely, for example, between managers in the same location or within the same functional area. Unfortunately, many managers were reluctant to name their contacts beyond first names or initials,

control is manager performance, which has a significant association with bridge relationships in all four equations. This result connects the dyadic analysis in Table 3 with the aggregate analysis in Figure 2. Managers receiving higher compensation or promoted earlier than their peers tend to be involved in bridge relations. The other controls show that bridge relations are slightly less likely for managers in the most senior of the study population jobs, more likely for managers in corporate functions such as finance, legal, information systems, and human resources (versus field or production functions), negligibly less likely for managers in their firm's core location (which contains many of the corporate function managers), slightly more likely for managers who have been with the firm longer, and slightly more likely for managers with advanced degrees.

Bridges Independent of Duration

There is clearly no social capital content — in the sense of bridging structural holes — to the colleague relationships that managers had before entering the firm (also see footnote 12). Holding constant a manager's years with the firm (since more recent hires are so much more likely to have known colleagues before joining the firm), there is no significant tendency among the French or the Americans for bridges to be with people the manager knew before he joined the firm (seventh row of Table 3), or people the manager has known a long time (the sixth row of Table 3 is the three categories in Figure 3 of 1-2 years, 3-9 years, and 10 or more years).

Bridges Independent of Routine Work Activities

It is also clear that bridge relationships are not intrinsic to work. Colleagues cited as a manager's most valued contacts, or essential sources of buy-in, tend not to be bridge relationships (second row of Table 3). The manager's immediate supervisor (boss) has no tendency to be a bridge (third row). The colleagues with whom a manager speaks frequently tend not to be bridge relationships (fifth row).

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so we cannot identify contacts to match them with the company personnel records to create homophily variables. We do the next best thing of holding constant the bridge-relevant characteristics of the respondent manager's situation.

Emotional Content of Bridge Relationships

The French and Americans differ sharply in the emotional content of their bridge relationships, negative for the French, positive for Americans. The French tend not to cite bridge relationships for personal discussion (first row of Table 3) and the association with emotional closeness is negative (fourth row of Table 3).

The opposite is true of the Americans. The fourth row of Table 3 shows that their bridge relations have a positive emotional content. Closer study shows that the relations are less associated with extreme positive emotion than they are associated with a lack of negative emotion. The probability of a relationship being a bridge does not change with the intensity of an American's positive emotion toward a colleague (33% bridges to "especially close" colleagues, 33% to "close" colleagues, and 34% to "less than close" colleagues). The change happens when the manager feels "distant" from the colleague, whereupon the odds of the manager sustaining a bridge relationship with the colleague drops to 1%. In other words, the Americans invest in colleagues with whom they are emotionally comfortable even if the person works in a distant part of the firm. How they discover these bridge contacts we do not know. There must be social processes we have not measured that expose the Americans broadly to people outside their immediate work group — as illustrated by their broader range of contacts inside the study population long before they enter the firm. When they discover a person outside their work group who is useful to know, and with whom they are emotionally comfortable, a bridge relationship is established which is then an element in the manager's social capital.

Executive M.B.A. and Bridge Relationships

So where do the French bridges come from? There is nothing in the emotional preferences of the French managers, nor the substance of their work, associated with bridge relations. Their relative compensation is correlated in Figure 2 and Table 1 with the social capital benefits of bridge relations, but the content, closeness, frequency, and duration variables in Table 3 all have for the French negligible or negative associations with bridge relations.

The positive correlate for the French is executive training. The variable in the eighth row of Table 3, "executive M.B.A.," is a dummy variable equal to 1 for a relationship if either the manager or the colleague graduated from the company-sponsored M.B.A. program that we discussed in association with Table 1. Graduating from the program is the only variable in Table 3 — other than the control for manager performance — that has a positive association with bridge relationships for the French managers.

We can rule out certain explanations for the program effect. The effect must be more than education alone since advanced degrees have a negligible association with bridges (bottom row of Table 3), and program graduates cite technical expertise as the single item least promoted by the program (Hogarth, 1979:224). Also, the program effect does not result from the manager and colleague developing their relationship while attending the program. From the network questionnaire, we know only <u>whether</u> a cited colleague graduated from the program, not <u>when</u> s/he graduated, so we do not know which managers and colleagues attended the program together. However, we can make three inferences from the available data to support the conclusion that the program effect is not due to managers and colleagues developing relations while in the program. First, the effect does not depend on manager and colleague both graduating from the program.[14] Second, it is unlikely that managers and cited colleagues developed their relationship while attending the program because so few colleagues attend together.[15] Third, there is no empirical evidence of

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[14]The "executive M.B.A." variable in Table 3 distinguishes relations in which the manager <u>or</u> the cited colleague graduated from the program. If we break the variable into two variables, one for the manager graduating and the other for the colleague graduating, both variables significantly increase the odds of a bridge between manager and colleague (3.9 and 6.3 t-tests for nonredundancy, 3.6 and 4.1 t-tests for the logit equation predicting bridges). However, negative coefficients for the product of the two variables show that manager and colleague graduating from the program does not increase (beyond the effect of either person graduating from the program) the probability of their relationship being a bridge.

[15]The program is intended to expose managers to peers in other firms so the client firms are discouraged from sending too many colleagues to be in the same program cohort. Of the 85 managers in the study population, 50 were program graduates. The 50 graduates were spread across 19 separate cohorts; 8 graduates were the only person from the study population in their cohort, 6 were in a cohort with one other person from the study population, 3 were in a cohort with two other people from the study population, 16 were in a cohort with three colleagues, 5 were in a cohort with four colleagues, and 12 were in cohorts with five other people from the study population. If every manager developed a relationship with every colleague attending the program, then the program would be responsible for 70 relationships — which is only 6% of the 1,225 relations possible among the 50 program graduates. Therefore, to the extent we can generalize to

graduates preferring one another as cited colleagues (though graduates report a larger program effect when their boss and other colleagues are also graduates, Hogarth, 1979: 237-239).[16]

We are left with the interpretation that participating in the company-sponsored program has its effect by lowering manager suspicions of bridge relationships. Managers come to the program suspicious of bridge relationships (negative association with closeness and personal discussion in Table 3) from jobs that do not require them to build bridges (negative association with work support and frequent contact in Table 3). The program forces managers to break out of their routine frame of reference by forcing them to discuss cases and course concepts in teams with peer managers from other companies. This is evident in the qualities that graduates report to be most promoted by the program (Hogarth, 1979:224): rising above immediate concerns to see the generalist outlook, improved communication skills with people different from yourself — especially listening, dealing with the ambiguity and uncertainty of complex social environments. The program, in other words, is a training ground for bridge relations. The results in Table 3 show that the experience is associated with building bridge relationships within the firm. The results in Figure 2 show that it is the managers more successful in building such relationships who are recognized with disproportionate compensation for adding more value to the firm.

CONCLUSION

The analysis offers a point of integration between universal and culture-specific explanations of organizational behavior. For the universal, our first empirical result is that the network form of social capital is the same for French and American

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the cited colleagues from the study population of managers, it seems unlikely that the program effect is due to managers and cited colleagues developing a relationship while attending the program together.

[16]Most of the managers worked for a boss who graduated from the program (78%), but managers are no more likely to be a graduate if their boss is a graduate (0.05 chi-square, 1 d.f.). The respondent managers all cited at least one key contact who had graduated from the program, but the proportion of their cited colleagues who were graduates is independent of the manager being a graduate (0.6 t-test). Of cited colleagues around a manager, 64% are program graduates around the managers not attending the program and 67% are program graduates around the managers who did graduate from the program.

managers. Accumulating empirical evidence on American managers shows that social capital effects on performance are a function of the information and control benefits of bridging structural holes. France seemed to us a productive site for comparative research because the image from past research is that French managers are more regulated than Americans; more regulated by bureaucratic authority and more regulated by peer pressure, with both amplified by the greater reliance in France on internal labor markets. People comfortable with knowing their place in a chain of bureaucratic control could be expected to be uncomfortable with the negotiated control exercised by network entrepreneurs. Nevertheless, we found that successful French managers, like successful Americans, tend to have networks rich in structural holes. The universal here is the brokerage principle in network theory, which says that there is a competitive advantage to building bridge relationships. Whether in the United States or France, resources flow disproportionately to people who provide indirect connections between otherwise disconnected groups.

Social capital's etiology, however, seems to be a culture-specific story. Our second and third empirical results show that the French managers build relationships in a way distinct from the Americans, a way completely consistent with the image of French organization portrayed in past research. There are similarities. The French and American managers make similar distinctions between kinds of relationships, and the colleague relations that bridge structural holes are similarly detached from the routine work activities of the French and the Americans. The key differences are the broader range of American contacts, and the positive emotions Americans associate with their bridge relationships. The French managers operate with a less porous social boundary around their firm and associate negative emotions with bridge relationships. The less porous social boundary around their firm is as described by the Aix-en-Provence research on internal labor markets. The negative emotions associated with bridge relationships is consistent with Crozier and d'Iribarne observing French reluctance to coordinate with people outside the chain of command. As quoted at the beginning of the paper, Crozier (1964:52) sees for the manager who builds bridge relationships "accusations of favoritism and . . . serious deterioration of the climate, whatever

the soundness of the end result," and d'Iribarne (1994:85) sees "vigorous resistance to situations of dependency . . . on people (management, other departments) outside the occupational group to which one belongs."

For the French managers we studied, graduating from the executive M.B.A. program jointly sponsored by their company and a handful of others is the only factor positively associated with the social capital of bridge relationships. It seems inelegantly empirical to attribute a manager quality as consequential as social capital to an experience as mundane as executive education, but it is not without precedent. The Aix-en-Provence scholars with their several years of observations draw a related conclusion (Maurice et al., 1982:119):

> The rate of social reproduction of management personnel therefore seems to be higher in France than in Germany. But above all the criteria of selection, the filters, are different in the two countries. In Germany adult education is particularly important. In the firms we studied, nearly half of all managers . . . received their highest-level professional credential after entering the work force. In France the comparable figure is only 10 to 18 percent. Summarizing these results, then, we find, that French management tends to recruit from within the managerial group, while German management is more open.

Similarly, but with detailed network data, we find that those French managers who get out of their organization to participate in adult education are more likely to have the bridge relationships that constitute the social capital associated with high performance.

Replication is an immediate task for future research. Bearing in mind the contingent value of social capital in organizations (Burt, 1997a), is the positive association between performance and structural holes replicated in other French and American firms? More generally, as discussed with respect to Figure 1, is the performance effect of structural holes replicated when managers in individualistic countries other than the United States are compared to managers in bureaucratic countries other than France? These would be comparisons between countries to the left in Figure 1 (e.g., Australia, Britain, or Germany) versus countries at the right (e.g., Brazil, Spain, or the Philippines).

There are also second and third tasks for future research. Network entrepreneurs taking advantage of bridge relationships across structural holes cut across chains of command in an organization, but they also live with higher uncertainty in that they are proposing new lines of coordination (else they would be doing what people already do). These are separate dimensions of business culture. Our Franco-American comparison is primarily concerned with the intensity of regulation within an organization — individualistic versus bureaucratic cultures distinguished along the horizontal axis in Figure 1 — which is only moderately correlated with Hofstede's Uncertainty Avoidance dimension, which measures the "clinging to rules and ritual" associated with bureaucracy.[17] It is possible that the aspect of regulation which denies managers the benefit of social capital is not the intensity with which they are regulated but is instead their clinging to rules and ritual. A second task for future comparative research is see whether the results of our Franco-American comparison can be replicated with comparisons between bureaucratic countries in which managers cling to rules and ritual such as Greece or Portugal (the two countries with the highest Uncertainty Avoidance scores in Figure 1, respectively 2.00 and 1.67 standard deviations above average) versus bureaucratic countries such as Singapore or Hong Kong in which there is (or was at the time of Hofstede's surveys) low preference for rules and ritual (Singapore has the lowest score on Uncertainty Avoidance, 2.38 standard deviations below average in Figure 1).

A third task is to explore Scandinavia. Five countries stand apart in the lower-left of Figure 1; Denmark, Finland, the Netherlands, Norway, and Sweden. Like the countries above them in the individualistic cluster around the United

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[17]France is higher than the United States on both dimensions, but more differentiated on the first. In Figure 1, there is a 1.09 difference between them on the horizontal axis (relative to a .13 standard error of the mean), versus a .15 difference between them on the vertical axis (relative to a .10 standard error of the mean), so they can be said to be 5.6 times more differentiated on the horizontal axis. The horizontal axis is a contrast between individualistic and bureaucratic business cultures; i.e., a contrast in the extent to which employees are regulated within their organization (horizontal axis is correlated .88 with Power Distance scores in Figure 1, -.85 with Individualism scores). Uncertainty Avoidance is less correlated with the horizontal axis (.59) and more correlated with the vertical axis (.43 versus -.18 and .30 for Power Distance and Individualism respectively), as illustrated by the gray arrow for Uncertainty Avoidance in Figure 1 increasing through the upper-right quadrant of the spatial map.

States, the Scandinavian countries are low in Power Distance and high in Individualism. However, employees in the five countries stand apart in expecting organizations to serve a social welfare function, which puts them at the bottom of Hofstede's Masculinity dimension (mean score for the five countries is 2.07 standard deviations below the average in Figure 1, -5.9 t-test, P < .001). It is not obvious that a concern for social welfare should interfere with managers using social capital, but the prevalence of such a concern would certainly affect the stories managers used to explain their use of it.

To be sure, the similarity we observe in the social capital of senior French and American managers has alternative interpretations. One is methodology. Our data on the two study populations were obtained with the same survey instrument. Organization context offers a second interpretation. Our French and American managers work at the top of large, global bureaucracies. It is certainly possible that the rigors of life at the top of such organizations overwhelms regional differences. Social capital differences between French and American managers could be more apparent in comparisons between smaller organizations in the two countries. Network theory offers a third interpretation. The social capital of networks rich in structural holes is integral to adding value in any context — French or American.

We cannot disentangle these alternatives with our data. Nor can we draw inferences about all French managers from our data, any more than the usual research results on managers in an American firm would be sufficient foundation for drawing inferences about all American managers. However, our data and results are sufficient to reject the null hypothesis that the network form of social capital observed among American managers is unique to Americans. Our results show that social capital emerges in different ways for the French and Americans, but its network form is similar in both study populations — contact networks rich in structural holes.

APPENDIX: DISTINGUISHING BRIDGE RELATIONSHIPS

We used two variables, one quantitative, the other qualitative, to distinguish bridge relations from other relationships. The quantitative variable, <u>nonredundancy</u>, measures the extent to which a relationship does not overlap with a manager's other relationships, and comes from the network constraint measure of social capital in Figure 2. A manager is constrained in his relationship with a colleague (c_{ij} high) to the extent that the relationship consumes a large proportion of the manager's network time and energy (direct = p_{ij}) and the manager's other relations are with people who are themselves invested in the colleague (indirect = $\sum_q p_{iq} p_{qj}$, $q \neq i, j$). The indirect term measures the extent to which the relationship with colleague j is redundant with the manager's other relations (where redundancy is less to the extent that the manager spreads his network time and energy across many other colleagues who themselves have little investment in colleague j).

To measure nonredundancy, we subtracted the indirect term from its maximum and multiplied by 100 to discuss points of nonredundancy (indirect varies from .000 to .323 in our data, so our nonredundancy measure is: 33 - 100*indirect). Less indirect connection between a manager and a colleague means that their relationship is more of a bridge. We can correlate the measure with other aspects of a relationship to discover aspects associated with bridges. For example, nonredundancy is on average 25.85 across the 60 relations between the French managers and their immediate supervisors (boss). The average increases to 27.56 for their 596 cited relations with other colleagues. The -1.71 difference between 27.56 and 25.85 generates a -4.92 routine t-test showing that relations with the boss tend to be more redundant than relations with other colleagues (which makes sense since a manager and boss are likely to have one or more key contacts in common).

There remains a qualitative distinction between bridges and other relationships. Given a quantitative measure of indirect connection between two managers, what is the criterion that qualifies their relationship as a bridge? The extreme case is clear: A relationship is a bridge if there are no alternatives to it (the indirect component in constraint equals zero). Anything less than the extreme case is not so clear. The level of "negligible" indirect connection that distinguishes bridge relationships from non-bridges is necessarily a matter of judgment.

We made that judgment by counting the structural holes and mutual friends adjacent to a relationship. We counted structural holes as the number of the

manager's close contacts who are distant or strangers to the colleague. For example, the sociogram in the graph at the bottom of Figure 5 shows a manager and colleague surrounded by four other people cited by the manager as "close" or "especially close" contacts (the parentheses indicate manager response options). Two of the other people in the sociogram (the solid dots) are reported by the manager to be "especially close" to the colleague. The solid dots are mutual friends. The more mutual friends between a manager and colleague, the lower the probability that the colleague relationship is a bridge. The two remaining people in the sociogram (white dots) are reported by the manager to be "distant" from the colleague, indicating a structural hole between each person and the colleague. The more structural holes adjacent to a relationship, the higher the probability that the relationship is a bridge. The more mutual friends, the lower the probability.

——— Figure 5 About Here ———

The vertical axes in Figure 5 our counts of holes and mutuals. Colleague relations are ranked on the horizontal axes of each graph in order of increasing redundancy, least redundant to the left and most redundant to the right. The solid line in the graphs shows the moving average number of holes adjacent to each relationship (averaging across the 10 relations preceding a relationship in the rank order and the 10 following it). The dashed line in each graph shows the moving average number of mutual friends.

The relationships most like bridges are at the left in Figure 5. These are the relations with the least indirect connection between manager and colleague. The solid line is at its maximum, showing that these relations frequently bridge structural holes. The dashed line is at its minimum, showing that manager and colleague in these relationships rarely have mutual friends.

The relations least like bridges are at the right in Figure 5. These are the relations with the most extensive indirect connection between manager and colleague. The solid line is low, showing that these relationships rarely cross structural holes. The dashed line is high, showing that these are the relationships in which manager and colleague have several mutual friends.

We created a bridge variable by drawing a vertical line in the horizontal rank order at a level of "negligible" redundancy so as to distinguish bridges to the left of the line from non-bridges to the right of the line. As indicated at the top of Figure 5, we made the distinction at the 30th percentile of the horizontal axis because that is where the solid and dashed lines meet. The solid line in each graph is higher

than the dashed line for relationships to the left of the 30th percentile, which means that the structural holes adjacent to a relationship outnumber mutual friends. The solid and dashed lines in Figure 5 are indistinguishable beyond the 30th percentile, which means that holes and mutual friends are equally present.

A further qualitative distinction can be made between bridges, quasi-bridges, and redundant relations. We made such a distinction with the 25% least redundant relations coded as bridges, the next 25% of relations coded as quasi-bridges (not quite bridges, but less redundant than most relationships), and the remaining 50% of relations coded as redundant. We also made a three-category distinction with the 10% least redundant relations coded as bridges (solid and dashed lines in Figure 5 are furthest apart to the left of the 10th percentile), the next 20% of relations coded as quasi-bridges (because the solid and dashed lines in Figure 5 are much closer together for the Americans in this interval suggesting that these relations are less obviously bridges than the relations in the first decile), and the remaining 70% of relations coded as redundant (as in the text). Ordered logit models predicting these three-category bridge variables yield results midway between the results reported for the models predicting nonredundancy and the dichotomous bridge variable in Table 3 so we only report the results in Table 3.

Figure 5 illustrates the substantive value of a qualitative distinction between bridges and non-bridges. Recall the average nonredundancy scores for French relations with the boss (25.85) versus relations with other cited colleagues (27.56). The difference is statistically significant in the sense that relations with the boss are more redundant, but both averages lie at the center of the data distribution — at about the 50th percentile on the horizontal axis of the graph at the top of Figure 5 (median nonredundancy is 27.51) — well within the qualitative category of non-bridge relationships. In other words, boss relations are merely non-bridge relations that are less redundant than non-bridge relations with other cited colleagues. The results in Table 3 show that boss relations for the French are less redundant than other relationships, but no more or less likely to be a bridge. Using quantitative and qualitative criteria to distinguish bridges, rather than using one or the other, gives us a more robust method of distinguishing the relational qualities of bridges, and so social capital.

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Figure 1. National Variations in Business Culture

ID. Country	X axis	Y axis	Power Distance	Uncertainty Avoidance	Individualism	Masculinity
1. Argentina	0.24	0.34	-0.1	0.9	-0.2	0.3
2. Australia	-0.89	0.45	-0.8	-0.6	1.6	0.6
3. Austria	-0.68	1.19	-2.0	0.2	0.2	1.5
4. Belgium	0.25	0.68	0.6	1.2	1.0	0.2
5. Brazil	0.51	0.02	0.8	0.5	-0.5	-0.0
6. Canada	-0.73	0.18	-0.6	-0.7	1.2	0.1
7. Chile	0.79	-0.50	0.6	0.9	-1.1	-1.1
8. Colombia	0.98	0.19	0.7	0.7	-1.5	0.7
9. Denmark	-1.59	-0.75	-1.7	-1.7	1.0	-1.7
10. Finland	-0.63	-0.42	-0.9	-0.2	0.5	-1.2
11. France	0.17	0.30	0.8	0.9	0.8	-0.3
12. Great Britain	-1.13	0.52	-0.8	-1.2	1.6	0.8
13. Germany (F.R.)	-0.42	0.49	-0.8	0.0	0.7	0.8
14. Greece	0.87	0.65	0.4	2.0	-0.6	0.4
15. Hong Kong	0.26	-0.91	0.8	-1.5	-1.0	0.4
16. India	0.12	-0.53	1.2	-1.0	-0.1	0.3
17. Iran	0.12	-0.20	0.3	-0.2	-0.4	-0.3
18. Ireland	-0.97	0.54	-1.2	-1.2	0.8	0.9
19. Israel	-0.81	-0.01	-1.9	0.7	0.2	-0.1
20. Italy	-0.20	0.69	-0.1	0.4	1.0	1.0
21. Japan	0.53	1.24	0.1	1.2	-0.2	2.3
22. Mexico	0.99	0.37	1.4	0.7	-0.8	1.0
23. Netherlands	-0.99	-0.68	-0.7	-0.5	1.2	-1.8
24. Norway	-1.01	-0.88	-1.0	-0.6	0.8	-2.1
25. New Zealand	-1.05	0.30	-1.5	-0.7	1.2	0.4
26. Pakistan	0.60	-0.22	0.2	0.9	-1.5	0.0
27. Peru	0.85	-0.22	0.6	0.9	-1.4	-0.4
28. Philippines	1.36	-0.04	2.1	-0.9	-0.7	0.7
29. Portugal	1.03	-0.39	0.6	1.7	-0.9	-0.9
30. South Africa	-0.36	0.25	-0.1	-0.7	0.6	0.7
31. Singapore	0.32	-1.52	1.1	-2.4	-1.2	-0.1
32. Spain	0.25	0.09	0.3	0.9	0.0	-0.4
33. Sweden	-1.31	-1.05	-1.0	-1.5	0.8	-2.3
34. Switzerland	-0.53	0.55	-0.9	-0.3	0.7	1.0
35. Taiwan	0.58	-0.28	0.3	0.2	-1.3	-0.2
36. Thailand	0.55	-0.50	0.6	-0.0	-1.2	-0.8
37. Turkey	0.56	0.02	0.7	0.9	-0.5	-0.2
38. USA	-0.92	0.44	-0.6	-0.8	1.6	0.6
39. Venezuela	1.30	0.32	1.4	0.5	-1.5	1.2
40. Yugoslavia	0.97	-0.68	1.2	1.0	-0.9	-1.4
Franco-American difference =			1.4	1.7	-0.8	-1.0

Masculinity (R² = .65)

Individualism (R² = .81)

Uncertainty Avoidance (R² = .53)

Power Distance (R² = .81)

Japan · Belgium · Greece · Mexico · Venezuela · Argentina · France · Brazil · Spain · Colombia · Turkey · Philippines · Peru · Portugal · Chile · Yugoslavia · Iran · Taiwan · Thailand · India · Hong Kong · Singapore · Austria · Italy · Switzerland · Germany · South Africa · Canada · Great Britain · Ireland · USA · New Zealand · Israel · Finland · Netherlands · Norway · Denmark · Sweden

Scores on Hofstede's four dimensions of business culture are listed as z-scores at the extreme right. Two countries are close in the multidimensional scaling above to the extent that they have the same profile of scores on the four culture dimensions (countries can be located by the X and Y coordinates listed to the right). Maximum and minimum scores on each dimension are highlighted.

Figure 2.
Social Capital Effects

Relative Performance (z-score)

Network Constraint (C)

Relative Salary, French Managers
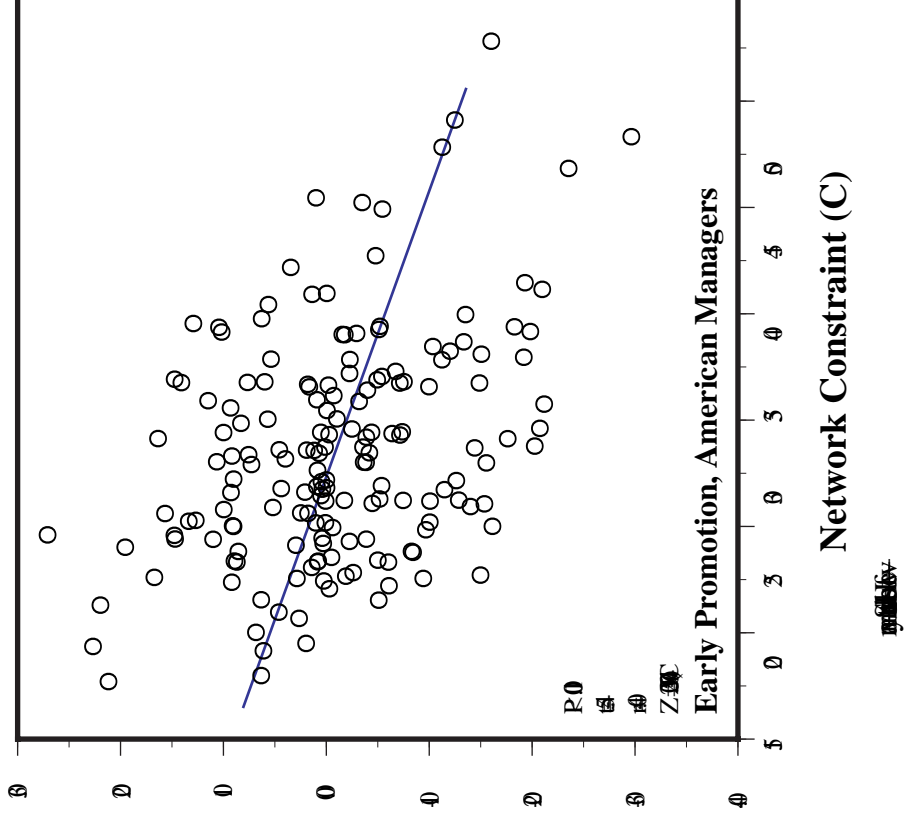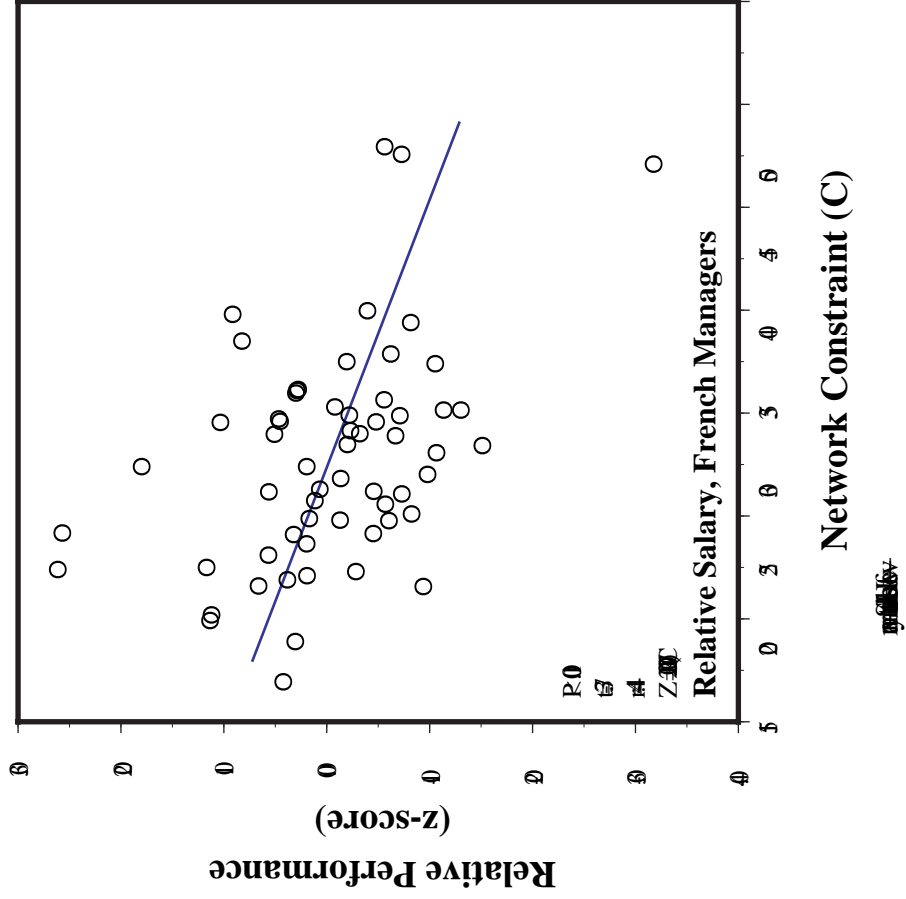
Early Promotion, American Managers

Figure 3.
Manager Distinctions Between Kinds of Relations

(relations close together reach the same contacts)
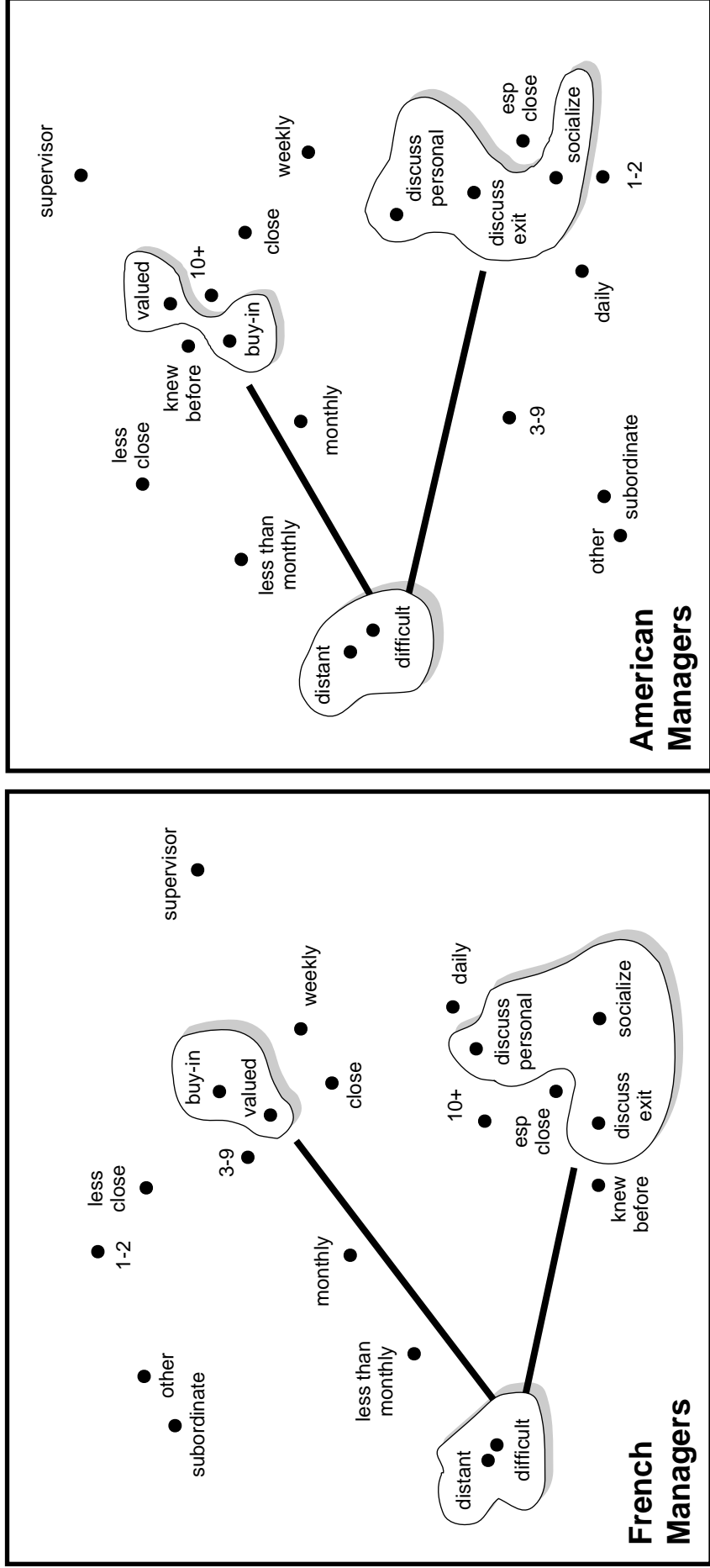
Figure 4.
Colleague Relationships
Predating Entry into the Firm
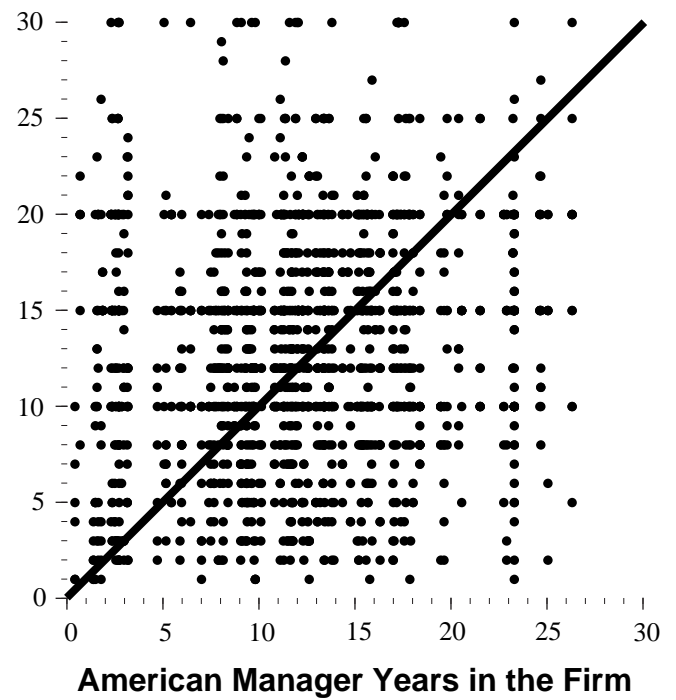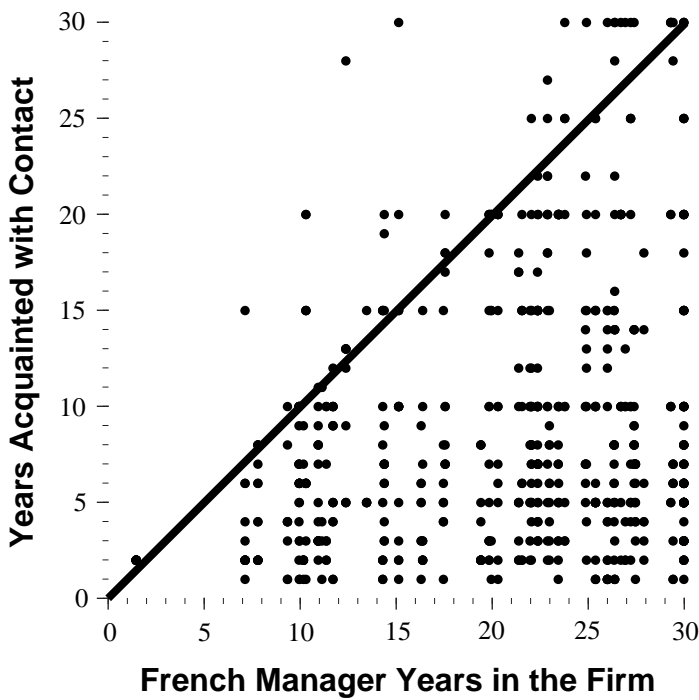
Years in the Firm	French Managers			American Managers		
	Number Colleagues	% Known Before Firm	Mean Years Known	Number Colleagues	% Known Before Firm	Mean Years Known
0 to 10	105	26%	5.2	691	81%	12.6
11 to 20	160	15%	8.2	875	42%	13.5
Over 20	391	5%	10.3	129	6%	14.9
Total	656	11%	9.0	1695	55%	13.0

Figure 5.
Distinguishing Bridge Relationships
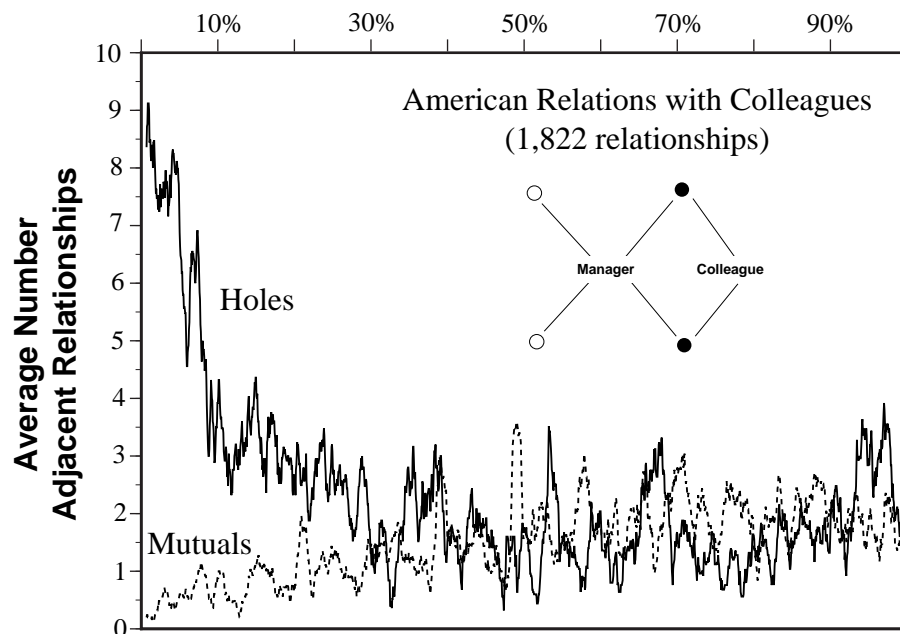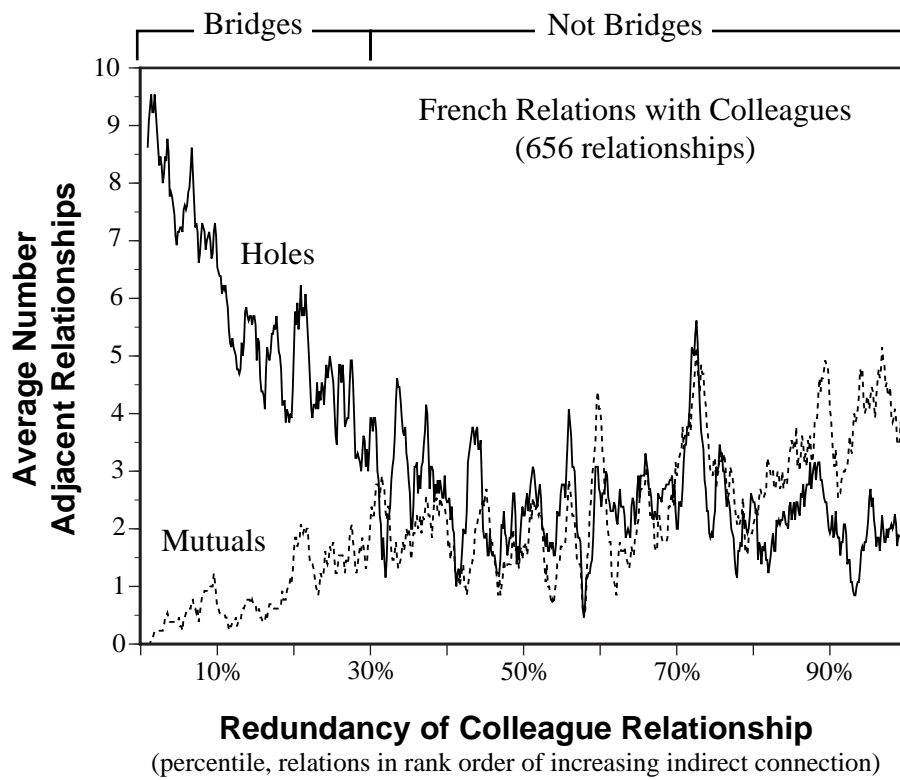
Table 1. Compensation Factors

	I. Raw Salary	II. Raw Salary	III. Raw Salary	IV. Relative Salary
Highest Rank	1.819**	1.748**	1.798**	-.073
	(11.8)	(10.1)	(8.8)	(-0.2)
Next Highest Rank	.989**	.910**	1.047**	.005
	(6.8)	(6.1)	(6.8)	(0.0)
Age (in years)	.060**	.057**	.059**	-.014
	(5.8)	(3.4)	(3.2)	(-0.4)
Production Function	—	.210	.009	.158
		(1.1)	(0.1)	(0.5)
Corporate Function	—	-.103	-.143	-.246
		(-0.5)	(-1.0)	(-0.9)
Core Location	—	.030	-.119	-.237
		(0.3)	(-0.7)	(-0.7)
Seniority (in years)	—	-.007	-.011	-.009
		(-0.6)	(-0.9)	(-0.3)
Minority	—	-.347	-.311	-.348
		(-1.8)	(-1.0)	(-0.6)
Advanced Degree	—	.027	.108	.190
		(0.2)	(0.7)	(0.6)
Executive M.B.A.	—	-.001	.058	.261
		(-0.7)	(0.4)	(1.0)
Network Constraint	—	—	-.044**	-.085**
			(-3.6)	(-3.6)
Knew One or More Current Key Contacts Before Joining Firm	—	—	.111	.220
			(0.8)	(0.8)
Constant	-3.508	-3.166	-1.882	3.089
Managers	$n = 85$	$n = 85$	$n = 60$	$n = 60$
Predicted Variance	$R^2 = .72$	$R^2 = .76$	$R^2 = .83$	$R^2 = .31$

NOTE — These are ordinary least-squares regressions, Models I and II for the whole study population, Models III and IV for the sample managers. Raw salary in French francs was converted to a z-score within the population to preserve confidentiality. Metric coefficients are presented with routine t-tests in parentheses (* for two-tail null hypothesis rejected at a .05 level of confidence, ** for a .01 level of confidence).

Table 2. Name Generators

DISCUSS PERSONAL: Start with a general question. From time to time, most people discuss important matters with other people, people they trust. The range of important matters varies from person to person across work, leisure, family, politics, whatever. The range of relations varies across work, family, friends, and advisors. If you look back over the last six months, who are the three or four people with whom you discussed matters important to you?   [1 - 3.8 - 7 French; 2 - 4.9 - 11 American]

SOCIALIZE: Consider the people with whom you like to spend your free time. Over the last six months, who are the three people you have been with most often for informal social activities such as going out to lunch, dinner, drinks, films, visiting one another's homes, and so on? [0 - 2.8 - 3 French; 0 - 2.9 - 4 American]

SUPERVISOR: Who would be considered to be your immediate supervisor? [1 - 1.0 - 1 French; 0 - 1.0 - 2 American]

SUBORDINATE: Who is the most promising of the managers you supervise? [0 - 0.6 - 2 French; 0 - 0.7 - 4 American]

VALUED: Of all your personal contacts within the FIRM, who are your most valued in the sense that they have been the most important to your accomplishments? [1 - 4.6 - 11 French; 0 - 4.2 - 6 American]

DIFFICULT: At the other extreme, who among the people working for the FIRM has made it the most difficult for you to carry out your job responsibilities? [0 - 0.9 - 1 French; 0 - 0.9 - 2 American]

BUY-IN: Crafting and implementing business policy of any consequence requires buy-in from diverse people. Suppose you were moving to a new job and wanted to leave behind the best network advice you could for the person moving into your current job. Who are the three or four people you would name to your replacement as essential sources of buy-in for initiatives coming out of your office? [2 - 3.8 - 7 French; 1 - 3.6 - 6 American]

DISCUSS EXIT: If you decided to find a job with another firm, who are the two or three people with whom you would most likely discuss and evaluate your job options? These could be people inside the FIRM, or outsiders such as family, friends, or people who work at other firms. [0 - 2.7 - 5 French; 0 - 2.8 - 5 American]

OTHER: [0 - 1.5 - 6 French; 0 - 1.2 - 5 American]

Note — The FIRM is the firm's name in the survey network questionnaire. The numbers in brackets at the end of each question are the minimum-mean-maximum number of names generated per senior manager.

Table 3. Correlates of Bridge Relationships

	French Relationships		American Relationships	
	Nonredundancy	Bridge	Nonredundancy	Bridge
Personal	-.689 **	-.289	-.130	-.164
	(-3.1)	(-1.2)	(-0.7)	(-1.2)
Work	-.885 **	-.928 **	-.345 *	-.297 *
	(-4.7)	(-4.7)	(-2.0)	(-2.5)
Boss	-.994 **	-.458	-.266	-.144
	(-3.0)	(-1.1)	(-1.0)	(-0.7)
Closeness	-1.065 **	-.961 **	3.862 **	1.025 **
	(-2.9)	(-2.8)	(13.3)	(5.0)
Frequency	-.276 **	-.368 **	-.214 *	-.082
	(-2.9)	(-3.7)	(-2.7)	(-1.5)
Duration	-.278	-.169	.080	-.020
	(-1.9)	(-1.1)	(0.6)	(-0.2)
Knew Before	-.407	-.306	-.159	-.018
	(-1.2)	(-0.9)	(-0.7)	(-0.1)
Executive M.B.A.	1.435 **	1.184 **	—	—
	(5.5)	(3.6)		
Performance	.488 **	.407 **	.516 **	.315 **
	(5.0)	(4.0)	(5.6)	(4.7)
Senior Job	.094	-.393	-.013	-.525 **
	(0.4)	(-1.4)	(-0.2)	(-3.4)
Corporate Function	.264	.361	.153	.354 *
	(1.3)	(1.6)	(0.8)	(2.4)
Core Location	-.123	-.299	.179	-.008
	(-0.5)	(-1.2)	(1.0)	(-0.1)
Years with Firm	-.020	.009	.012	.032 *
	(-1.4)	(0.6)	(0.7)	(2.0)
Advanced Degree	.020	.055	.097	.325 *
	(0.1)	(0.3)	(0.5)	(2.6)
Constant	29.215	.876	19.394	-1.642
	$R^2 = .24$	$\chi^2_{(14)} = 116.28$	$R^2 = .13$	$\chi^2_{(13)} = 85.0$

NOTE — These are correlates of 656 French relationships, 1,822 American colleague relationships. Nonredundancy is predicted by ordinary least-squares regression. Logit results predict the qualitative distinction between bridges and other relationships. Metric coefficients are presented with routine t-tests in parentheses (* indicates a two-tail null hypothesis rejected at a .05 level of confidence, ** beyond a .01 level of confidence).