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**OWNERSHIP STRUCTURE AND TEAM
COMPOSITION: An application of purposive
action on managers' risk behavior**

by

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Ownership structure and team composition

An application of purposive action on managers' risk behavior

by

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Abstract: This study discusses the assumption of risk-averse managers. By modelling the consequences for managers of failed projects, it is shown that managers exhibit different risk behaviors. The model is tested on a sample of managers in Swedish public-owned firms. The analysis shows that the existence of a partnership between owners and managers gives the managers a better fall-back guaranty in the event of failure compared to the opposite situation. The chance of a partnership between owners and managers increases with concentration of ownership. Hence, a CEO in the first case is more risk neutral than a CEO in the latter case.

Key words: risk averse, recruitment, group cohesion, information accrual
ownership structure

Introduction

In economic theory it is often assumed that managers are risk averse. Managers are thought to prefer stable rather than fluctuating incomes. Yet, risk-averse managers do not always act in the interest of shareholders. Shareholders can diversify their unsystematic risk by investing in several firms that have different risk orientation and thereby diversify their stock portfolio or in other ways control for uncertain outcomes. Consequently, shareholders do not necessarily prefer the CEO (Chief Executive Officer) to be risk averse.¹

A manager's propensity to accept risk influences his choices of strategy for using crucial operative instruments such as investment and production planning. In this paper we discuss how one control mechanism, the reward system given by the ownership structure, influences managers' risk behavior.

In the social science literature, two main explanations are presented for an individual's choice of actions: the "embeddedness" explanation and the "autonomy" explanation.

The embeddedness explanation states that a social structure is imposed on an individual and restricts his autonomy to act. Many social contexts (foci) are limited to people having certain characteristics (Feld 1982)² and the more frequently persons interact with one another, the stronger their sentiments of friendship for each other are apt to be³ (Homans 1965, 133; March 1988; see a discussion of the embeddedness argument in Burt 1987, 1289-1290).⁴

¹ The attitude towards risk differs among countries. In the U.S. the CEO is expected to maximize shareholders' wealth whereas in Europe a more societal view is prevalent. The maximization of the wealth of corporations is counter-balanced by stable employment levels and a more even pay structure.

² Feld argues (1982) that the structure of opportunity must be understood before one can estimate the importance of preferences as a cause of observed relational patterns.

³ Foci are defined as social, psychological, legal or physical objects around which joint activities are organized. Foci can be formal e.g., a school or informal e.g., a regular hangout (Feld 1981, 1061). Most associates are drawn from focused sets and foci sets tend to be relatively homogeneous (in relevant aspect). The more homogeneous the focus set, the more age similarity found within the associates of the individuals.

⁴ Burt (1987) argues against the embeddedness idea based on the cohesion or socialization idea and presents an alternative hypothesis. His idea of structural equivalence focuses on the competition between two individuals, ego and alter. Two individuals who are structurally equivalent occupy the

The autonomy argument states that individuals have a certain degree of autonomy in selecting their associates. For instance, Andersson and Carlos (1979) define the establishment of a relational pattern as a product of an individual's instrumental and emotional choices and take the view that preferences direct an individual's choice of relationships.

It is difficult to tell whether an individual's actions are a consequence of preferences or if they are an outcome of the social structure. Coleman (1992; 1987) puts forth the theory of purposive actions, where the interplay between players interests and possible actions, the reward structure confronting the actor, provides explanations to systemic outcomes. Coleman's approach contains:

"A set of roles that players take on where each role defining the interest or goals of the player.

Rules about the kinds of actions that are allowable for players in each role as well as about the order of play.

Rules specifying the consequences that each player's action has for other players in the game." (Coleman p.11, 1992)

The approach of purposive action is suggested to be a valuable tool in analyzing a CEO's risk behavior.

Apart from the existence of a market for corporate control, the most important control mechanism of managers is the recruitment procedure. A firm's recruitment procedure is influenced by its control structure (See Meyerson 1992 for a discussion). Since, the owner often delegates the

same position in a social structure, i.e., they have for instance the same relationship to all the other individuals in the studied population (Burt 1987, 1291). When two individuals occupy the same "structural equivalent position" they are in a competing situation with each other; the first individual may be substituted by the second. Hence, the action of one individual may lead to the necessity for the second individual to act in the same way in order to be perceived as attractive as the first individual. Burt's reexamination of the Coleman, Katz and Mentzel (1966) work on the diffusion of the medical drug, tetracycline among some physicians in Illinois during the 1950s shows that preferences in a competitive environment are decisive for whom you associate with. Burt's argues that the doctors' interest to stay in business made doctors choose with whom to interact in order to get the right information about medical innovations (Burt 1987). Both the embeddedness idea and the autonomy idea predict diffusion of ideas and information. However, they provide different explanations for it.

recruitment of an executive team to the incumbent CEO, the composition of the executive team is a direct reflection of the CEO's recruitment strategy and an indirect effect of the ownership structure. The recruitment strategy influences, via the recruited talent, the performance of the firm (Meyerson 1992).

The appointment of members to the executive team of a firm is a difficult decision that influences the future direction of the firm, yet very little is known about the recruitment of the executive team. Sweden, with its homogeneous population, has a fairly homogeneous establishment of businessmen. It is often stated that the attraction to similarity is strong in the Swedish business community. Individuals within this group tend to make fine distinctions between individuals less similar and more similar to oneself.

Less similar individuals may behave more opportunistically and less predictably than more similar members. On the other hand, the presence of less similar individuals provides the team with a greater variation in ideas and other important resources. Diversity in team composition provides the CEO with a range of different talents, but also with different probabilities for predictable outcomes.

The CEO does not necessarily select his team members based on their similarity to himself. We suggest that the CEO's choice of recruitment strategy, or in this context, his risk behavior, is based on the reward and punishment structure. If the consequences of a manager's poor performance will be more severely punished in a firm with dispersed ownership than in a firm with concentrated ownership (entrepreneurial ownership) then it is conjectured that the difference in the reward and punishment system given by the ownership structure influences the CEO's risk behavior, i.e., the choice of team composition.

Let us state two assumptions. First, CEOs follow their interests and select a recruitment strategy based on the punishment and reward system (opportunity structure) and not on the availability of likable individuals. Second, given the instrumental behavior of the CEO, it is not always in his interest to yield to his attraction to similarity: CEOs can benefit from

diversity.

A CEO chooses a recruitment strategy conducive to diversifying his team when he has access to a partner in the entrepreneurial owner. This partnership is argued to give him a better fall-back guarantee in case of hostile takeovers or other unforeseeable turbulent events. Alternatively, the CEO recruits for similarity when he has no such partner in the owner; he establishes a partnership with members of the executive team instead. We suggest that the CEO seeks less volatility in the performance outcomes since the punishment in the event of failing is harsher than in the case when there is a partnership with the owner.

In the first section we argue that a CEO chooses a selection strategy for the executive team that is instrumental to his interests. The ownership structure is suggested to be decisive for the CEO's opportunities to realize his interest. Given the possibility to establish a partnership with the entrepreneurial owner, the CEO assigns to the executive team as its main function the accrual of information. In the second section, the executive team's problem of an incompatibility between decision-making talent and the talent to accrue information is discussed. It is argued that the talent for information-accrual benefits from teams being differentiated while the talent for decision-making benefits from teams being integrated. An integrated team is suggested to be more predictable and more loyal to the principal whereas the differentiated team is suggested to be more creative but disloyal. Since we argue that the opportunity structure, given by the ownership structure, is decisive for determining the risk the CEO confronts if he falls short of his goal, his choice of risk is reflected in the composition of his executive team.

In the third section different selection strategies are discussed. Team homogeneity is argued to be a prerequisite for integration, and team heterogeneity is argued to be a prerequisite for differentiation. If decision-making talent is sought by the CEO, team homogeneity is the guiding principal. If the talent to accrue information is what the CEO wants, heterogeneity is the principle for composition of the team.

In the fourth section a mathematical formalization is performed in

order to check our thinking. In the fifth section, the hypotheses are empirically tested. Finally, some conclusions are drawn.

Reward and punishment systems

From the rational choice theory on purposeful actions we assume that CEOs have certain preferences.⁵ These preferences are realized through a certain mechanism: by acquiring influence the CEO's discretion increases. However, actors do not act in isolation but interact within a social context. We argue that the CEO's choice of strategies can be derived from the reward and punishment structure he confronts. For instance, what are the consequences of poorly performing firms? Is the CEO thrown out in the cold water or does the owner protect him and provide some sort of job security?

A mutual contract between owners and managers cannot cover each and every possible future event. An explicit contract still conveys uncertainty about future events. Hence, most contracts are incomplete. The interaction between the owner and the manager before settlement of a contractual agreement can be pictured as a strategic positioning so that each party obtains the most beneficial explicit contractual outcome (Stiglitz and Weiss 1981). Over time it is plausible to assume that there is a constant shifting of strategic position after the contract is signed since contracts can be renegotiated.

In the analysis below we assume a given contractual situation and provide suggestions for how the manager would strategically re-position himself in order to increase the outcome of the project undertaken. We conjecture that the ownership structure determines the implicit and explicit contract for the manager. The stronger the owner's control, the more implicit the contract will be. The more dispersed the ownership is, the more explicit the contract will be. By investigating the CEO's social relations to significant

⁵ Rational choice theory states that *"the actors choose among alternatives available in a certain situation, that course of action which promises the highest expected utility. The utility expected is a function of the utilities and disutilities that an actor expects from the consequences of a given course of action, and the subjective estimated probability with which the actor thinks these consequences will flow from that course of action. The actor's choice among alternatives cannot be explained by a rational choice theory unless assumptions are made which describe how structural conditions..... influence the utilities, the expectations, or even the behavioral alternatives."* (Flap 1988, 96)

others, such as owners and other persons important for the CEO's career, his choice of actions in a contractual situation can be explained.

The opportunity structure of the CEO

The most important control function of an owner is the selection and dismissal of management. Nevertheless, as shown in Meyerson 1992, some owners (more often entrepreneurial ones) delegate to their CEO the appointment of the executive team, as well as the appointment of his own successor.⁶ The findings suggest that there is a difference in the division of labor between the control function and the management of the production plan. The traditional division of labor between the two functions is that the owners carry out the control function and the CEO and his executive team take care of decisions and the implementation of the production plan. (See Meyerson 1992 for a more elaborate discussion.)

The delegation to the incumbent CEO the responsibility to recruit his own successor is made possible by the establishment of a partnership between the entrepreneur and the CEO.⁷ The establishment of such a partnership between a CEO and several investors who each have a small shareholding is less likely, and hence it is improbable that the incumbent CEO in investor-owned firms recruits his own successor. Instead the investors themselves usually appoint the CEO. An investor with a controlling share, however small this share is, may have information about capable CEOs through sources other than the incumbent CEO, for instance through CEOs in other firms or

⁶ Entrepreneurial owners are owners who dominates the ownership of a firm often having a large portion of personal assets in the firm. The entrepreneur believes that he has the ability to monitor management and he believes that he is the one best fit to monitor management. The entrepreneur signals with his relative large shareholding his intent to monitor or actively engage in control of the managers of the firm. The entrepreneur's behavior is in accordance with what Hirschman calls the voice behavior. When an entrepreneur is dissatisfied with results he/she dismisses the CEO. The investor, on the other hand, is an owner with a comparatively small shareholding who diversifies his portfolio in order to reduce his risk exposure (see Demset and Lehn, 1985). The investors with Hirschman's vocabulary exit the firm as soon as they are dissatisfied and take their wealth elsewhere. Hence, investors tend to be less stable owners compared to the entrepreneur who stands by his firms.

⁷ See Meyerson (1992) for a more elaborate discussion of the prerequisite for the establishment of partnership between the CEO and the entrepreneurial owner.

through members of other boards of directors.⁸

Meyerson (1992) reports that the CEO, irrespective of the firm's ownership structure, dominates the recruitment of the executive team. The CEO typically recruits his collaborators at his own discretion. When owners do actively take part in the recruitment of team members, they are often individual owners as opposed to institutional ones. Given the tendency of CEOs to be in control of executive team recruitment, what determines their selection strategy?

It is plausible to argue that the leadership tasks, i.e., the control and the management of the production plan, in the entrepreneurial firm take place within a dual team consisting of the entrepreneur and the CEO. The dual team or the supra team, may be based on a partnership between the owner and the CEO. Investors, on the other hand, obey the traditional division of labor. They appoint the CEO and then leave it up to him to determine and implement the production plan. The two types of ownership structures establish two types of opportunity structures.

It is furthermore plausible to suggest that the two types of leadership structures imply different tasks for the executive team. The firm that has a supra team does not particularly need an executive team that is talented in deciding over the production plan because the supra team takes care of that task. The CEO in this type of firm prefers that the executive team be mainly talented in information-accrual. However, in the investor-owned firm that has no supra team, the CEO prefers an executive team to be talented in taking decisions about the production plan. But why does there have to be a choice made between information talent and decision-making talent? Why not have it all?

Selection strategies for similarity or diversity

Given the interests of the CEO, what would determine his choice of an instrumental selection strategy? Is it the attraction for similarity or another

⁸ As shown by Meyerson a CEO in an investor owned firm is likely to be externally recruited.

principle or is it ad hoc?

It is often argued by scholars that when an individual is free to select whom he works or socializes with, he typically chooses similar others (McPherson and Smith-Lovin 1987; Feld 1981; Kandel 1978; Cohen 1977; Laumann and Pappi 1976; Berscheid and Walster 1969; Rogers and Bhowmik 1969; Homans 1965; Lazarsfeld and Merton 1954).

The research on the attraction to similarity is often discussed in the context of friendship choices. Empirically, tests have often been performed on children and young adults (Verbrugge 1977; Kandel 1978; Cohen 1977). Although there does exist research on the attraction to similarity in adult, work groups (Fischer et al. 1977; McPherson and Smith-Lovin 1987). Both Kandel (1978) and Cohen (1977) showed prior similarity on a variety of behaviors and attitudes to be a determinant in interpersonal attraction and association. Friendship further increases as the two individuals relate to each other, since an influence upon each other is a result of the continued association.

However, individuals within a competitive setting such as an executive team do not necessarily prefer to select members on the basis of similarity.

The leadership paradox

When a group has the task of making decisions, it must be able to reach agreements. It is important that a decision-making body finds ways to decide on issues quickly, and then be able to obey the plan decided upon. Research on small groups suggests that the more similar the members are, the easier they reach consensus decisions (Moreno 1934; Rogers 1962). *When the source(s) and receiver(s) share common meanings, attitudes, and beliefs, and a mutual code, communication between them is likely to be more effective* (Rogers and Bhowmik 1969, 528).

If a CEO needs talent in decision-making, he will choose executive team members with similar characteristics in order to ease communication and increase the likelihood of reaching decisions by consensus. If the CEO needs a team efficient in information- accrual, the optimal group composition is

likely to be diverse. Group cohesion⁹, the mechanism that makes groups efficient in taking decisions, is likely to impede or restrict the accrual of relevant information.

The literature suggests two ways in which cohesion restricts information accrual. One of the processes is formulated by Granovetter (1973). Granovetter claims that what makes a small group cohesive is strong ties. Granovetter suggests that "... *the strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie*" (Granovetter 1973, 1361). Granovetter claims that more intensive dyadic interaction ultimately leads to the formation of a dense, close-knit network in which most members directly interact with each other while weak dyadic ties produce a loose-knit network in which many of its members do not interact directly with each other. As a result, a highly cohesive network tends to become exclusively self-sufficient and increasingly isolated. The network or the group becomes more or less closed to outsiders and the boundary between members and non-members becomes rigid (Granovetter 1973). Granovetter's point is that individuals in loose-knit networks are more likely to be exposed to information sources that provide novel information.

The reasoning behind Granovetter's idea is twofold. First, building strong ties involves more time commitment (Granovetter 1973). The more cohesive the group gets, the greater amount of interaction it demands, and vice versa. Ties external to the network will be less entertained.

Second, cognitive balance theory postulates that if a and b are connected by strong ties and a and c interact intensively, b and c also will interact (the transitivity argument). However, it is possible to find examples of how a person learns to live with, or even learns to prefer, imbalanced triads especially in larger structures. While there is no doubt that "... *structural*

⁹ Shaw (1981) defines cohesiveness as the degree to which members of the group are attracted to each other (Shaw 1981, 213). Social integration is a term used synonymous with cohesion. Katz and Kahn (1978) define social integration not only by the degree of attraction between members, but also by the satisfaction among members of the group and the social interaction among the group members.

balance theory has received impressive corroboration in empirical research ... transitivity is certainly not expected to occur as a matter of course in political networks, in fact imbalance triads are very common in politics" (Anderson, 1979, 455-456). Anderson further states that a friendship relation is in practice often intransitive as well. Meanwhile, research points to the fact that individuals dissimilar to the rest of the team members tend to exit the team (Wagner, Pfeffer and O'Reilly 1984) and groups marked by internal differences are most likely to dissolve (Newcomb 1961; McCain, O'Reilly and Pfeffer 1983).

A second factor likely to limit information accrual in cohesive groups is cognitive dissonance. According to the theory of cognitive dissonance, individuals are more willing to expose themselves to information that is consistent with their beliefs or decisions than they are to information that conflicts with their beliefs or previous decisions. Individuals connected with strong ties tend to develop a commitment to each other and to their group. According to theories of cognitive dissonance, information that disturbs the consensus of the group's basic perception of reality is likely to be rejected. If there is a collision between an individual's values and those of his group the individual will handle the situation and avoid experiencing cognitive dissonance by adjusting his values.

An illustration of cognitive dissonance is given by Gilad, Kaish and Loeb (1987). They found that poorly performing business acquisitions are often not divested until the senior executive responsible for the acquisition leaves the firm. This suggests the biasing effect of strongly held beliefs on the ability to cope with contradictory information, and to arrive at an important decisions such as that to divest. (For further elaboration of cognitive dissonance see Frey 1982; Festinger 1957.)

The CEO who wants a team talented in information accrual would thus want to recruit members who can put out tentacles into different spheres of life and who are free to take in novel information. In order to achieve this goal the CEO must avoid creating a cohesive team, and recruit dissimilar members instead.

Homogeneity and integration

The term similarity is given various meanings by different scholars. Some use similarity to describe individuals thinking in the same way or sharing the same goals (Lazarsfeldt, Berelson and Gaudet 1944; Simon 1976). Others understand similarity in the sense of observable attributes such as similarity in education, age and other typical demographic aspects (Wagner, Pfeffer and O'Reilly 1984). Homophily is a related concept that refers to the tendency of people in friendship pairs to be similar in various respects such as beliefs, values, education and social status (McPherson and Smith-Lovin 1987; Rogers and Bhowmik 1969).

In the present discussion a team is defined as a homogeneous unit if it consists of members with similar observable attributes such as age, social background, marital status and education. Members of a homogeneous unit thus defined do not automatically share the same values and do not necessarily reach unanimous decisions. An integrated group therefore is defined as a group characterized by strong group consensus. Members of an integrated group share the same goals and the group has an important influence on its members' values and actions. Members of a differentiated group, on the other hand, do not share common goals and therefore the group is not cohesive.

Homogeneity increases the degree of integration

Similarity in attributes such as age and socio-economic status is argued to be conducive to group cohesion or integration (Hoffman 1985; Ward, La Gory and Sherman, 1985; Tsui and O'Reilly 1989; Wagner, Pfeffer and O'Reilly 1984). As mentioned above, relationships formed at the workplace are likely to be homogeneous in socio-economic status (Fischer et al. 1977; McPherson and Smith-Lovin 1987). Individuals who are similar with respect to age and other demographic characteristics tend to communicate and understand each other better than dissimilar individuals (Rogers and Bhowmik 1969). Similarity in demographic aspects increases the propensity for strong contacts between two individuals. Strong contacts between individual members increase the

cohesion of a group (Berscheid and Walster 1969; Granovetter 1973). The findings that homogeneity increases the likelihood of integration are consistent with theoretical explanations including Heider's balance or congruity theories (1958) and Homans' (1961) reward theory.

CEO preferences for integration or differentiation

It is suggested that three factors affect the degree of integration in a team's composition. The first is the possibility of recruiting and dismissing at the CEOs' discretion. Meyerson (1992) reports that CEOs in general have the discretion to choose their team members. The second factor is the possibility for individuals to leave the team. This is an option, at least in theory, that all employees have by law. Furthermore, it has been shown empirically that an individual leaves the firm if he differs too much from the rest of his work group (Wagner, Pfeffer and O'Reilly 1984). Given the existence of the first two factors, it is suggested that the third factor affecting the degree of integration is the degree of homogeneity.

A CEO is expected to recruit team members in accordance with his own preferences. The strategy he chooses to fulfill his interests varies with the presence or absence of a partnership between himself and the owner, as influenced by the ownership structure. It is suggested that a CEO who belongs to a supra team is primarily interested in having an executive team talented in information-accrual and therefore his strategy is to recruit a differentiated team. The CEO who has no easy access to the owners (the investors) and who is dependent on the executive team for decision-making and for implementing the production plan, is primarily interested in a team with decision-making talent, and therefore would want an integrated executive team.

The CEO who has a partnership with the owner will look for team members who are heterogeneous. The heterogeneous team is then assumed to become differentiated. The other type of CEO will look for similar team members in order to create a homogeneous team which is anticipated to become an integrated one. Hence,

H1. A CEO having a likely partnership with the owner(s), is likely to put together a heterogeneous executive team. The CEO with no such partnership is likely to appoint a homogeneous team.

Even if the CEO is the dominant recruiter and has the discretion to select at will, others may be involved in the recruitment. In the previous chapter it was shown that ownership concentration affected the number of categories of individuals involved in the recruitment. The analysis below therefore considers the number of individuals involved in the recruitment of the executive team. A likely conjecture is that the more categories of individuals (owners, headhunters, and others) involved in the recruitment, the more dispersed are the selection criteria applied and the more heterogeneous the team membership is. Consequently,

H2. The more different categories of individuals are involved in the recruitment of the executive team, the more heterogeneous is the resulting executive team.

CEOs who seek a team with information-accrual talent are suggested to want a relatively large team consisting of members from different key positions in the firm. CEOs with the ambition to compose a cohesive team may want a small team, because the smaller the membership size, the easier it is to reach a consensus.¹⁰ Hence,

H3. CEOs who want an information-accrual team are likely to put together a large team. CEOs who want a decision-talented team are likely to put together a small team.

¹⁰ Research on the effect of group size on conformity and consensus is somewhat ambiguous. However, the findings suggest that group size is an important factor in determining the amount of yielding to conformity pressure. Increased group size increases the group pressure to conform to the group's opinion (Thomas and Fink 1963). However in the present context, the group is to be acting and taking decisions in accordance with the CEOs' preferences. The CEOs' control of a consensus is possibly easier in a smaller group than in a larger.

Finally as shown above there are reasons to believe that homogeneity affects the degree of integration of an executive team. Hence,

- H4. A homogeneous membership is likely to result in an integrated team.
Heterogeneous membership is likely to result in a differentiated team.

A Model for the CEO's risk behavior

An integrated team ensures a less risky adventure in the sense of behaving more predictably than the differentiated team. In contrast to the latter team the members in the first type share values and are loyal to each other. The larger, more differentiated teams contain individuals who are more independent and less predictable, yet creative and open to new information.

The CEO has an interest to gain influence, and increase his discretion to realize his interests. The CEO will be risk neutral if he has a reliable owner who will not fire him and sell the firm without guaranteeing the CEO's returns. A risk neutral CEO composes a differentiated team. A risk-averse CEO confronting an uncertain fall-back situation is more likely to appear in firms that have a dispersed ownership structure. We expect a risk-averse CEO to compose an integrated team in order to diminish unpredictable and unwanted extreme fluctuations in outcomes. The stable and predictable behavior on the part of the team members sees to this.

Consequently the CEO who establishes a partnership with the owner is more likely to be risk neutral and recruit a differentiated team whereas a CEO with no partnership with owners will usually try to avoid risk and therefore will recruit an integrated team. (A proxy for partnership is the delegation of recruitment of the new CEO to the incumbent CEO).

The model

Let $\xi \equiv$ reward or profit ξ is normally distributed with mean μ variance

$$\sigma^2. \text{ Managers' utility} = u(\xi) = \begin{cases} k\xi & \text{if } \xi \geq a \\ b & \text{if } \xi < a \end{cases} \quad \text{where } a < \mu \text{ is the}$$

bankrupt/take-over level; $b \leq ka$.¹¹

$$E[u(\xi)] = k\sigma \frac{1}{\sqrt{2\pi}} e^{-(a-\mu)^2/(2\sigma^2)} + (b-k\mu) \Phi\left(\frac{a-\mu}{\sigma}\right) + k\mu$$

where Φ is the cumulative Normal (0,1) distribution function. The CEO is *risk neutral/risk averse* if $E[u]$ ¹² is increasing /decreasing in σ^2 . Since

$$\frac{\delta}{\delta \sigma^2} E[u] = \frac{1}{2\sigma^3 \sqrt{2\pi}} e^{-(a-\mu)^2/(2\sigma^2)} (a^2 k - a(b+k\mu) + b\mu + k\sigma^2)$$

we see that the CEO is risk neutral if $\sigma^2 > (\mu-a)(a-\frac{b}{k})$ and risk averse if

$$\sigma^2 < (\mu-a)(a-\frac{b}{k}) .$$

A higher fall-back level b (in the case with job security devices such as loyal owners or other principals)¹³ thus makes the CEO risk neutral in a larger interval of sigma. For example, if there are two projects, characterized by (μ, σ_1^2) and (μ, σ_2^2) where $\sigma_1^2 < \sigma_2^2$ (the μ 's have been chosen equal for

¹¹ b is the consequences of a take-over\low profit under the threshold value or the "utility" of being fired.

¹² $E[\mu]$ is the Morgenstern ex ante utility

¹³ Stiglitz and Weiss (1981) discusses

simplicity), then if $b > k(a - \frac{\sigma_1^2}{\mu - a})$ the CEO chooses the more risky project

whereas if $b < k(a - \frac{\sigma_2^2}{\mu - a})$ if he chooses the less risky project.

Since it is impossible to foresee every future events, managers consider the fall-back level, i.e., the consequences of failed projects. These situations could be regarded as renegotiations under new and undefined conditions, i.e., the expected value of b . b is defined as a function of ownership structure and varies with the existence of a partnership between the owner and the CEO. The more interdependence between the owner and the CEO, the higher the value of b . Hence, the model shows that our thinking is not totally out of line. The result shows that the consequences of a failed project (b) are less negative for a CEO with a more implicit contract which is more often the case with an entrepreneurial owner than with a dispersed ownership structure.

Results from the empirical investigation

A population of public firms in existence both in 1980 and in 1985 were ranked by their most negative abnormal return for any month during 1985.¹⁴ The list contains only those firms with a negative abnormal return greater than one standard deviation from the mean (0) of the sample (for a discussion on the concept of abnormal return see appendix 3 and for the characteristics of the univariate distribution see Appendix 1). From this list, the 32 firms with the lowest abnormal return were selected. Three of the 32 teams refrained from participation; hence, 29 firms are analyzed. For reasons of confidentiality

¹⁴To secure that the sample selected represented a group of firms in a crisis situation, the accumulated monthly AR for the sample from the first of February 1985 to the first of July 1988 was compared to the population of firms from which the sample was drawn. The result shows that the sample was more of a crisis group than the "normal" group (see Meyerson 1992).

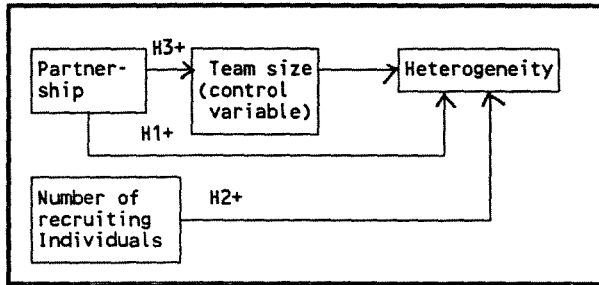
the names of the firms cannot be published.

The structural relationships between the variables in the hypotheses are investigated by two covariance structural models. The testing and the estimation of the models are performed by SIMPLIS. SIMPLIS is a user-friendly program for the analysis of covariance structural models such as LISREL models (Jöreskog and Sörbom 1986). A LISREL model contains two main elements: a structural model and a measurement model and is a combined path analysis and a factor analysis (LISREL VI 1984). In the proceeding, the structural model is the focus of the analysis. The structural model is based on the assumption of relationships existing between the unobserved variables (latent variable(s)) represented by the concepts in the conceptual path model. The parameters that measure these relationships are analogous with standardized regression coefficients. The measurement model creates the latent variables used in the path analysis. Direct measurable indicators are assumed to be caused by a latent variable. The correlations between the indicators therefore are explained by this common factor, expressed by the latent variable.

The input in the statistical LISREL analysis is a correlation matrix. A comparison is made between the correlation matrix and the matrix produced by the theoretical model to see if the specified model fits the data (for more elaborate information on LISREL, see Jöreskog and Sörbom 1987; Loehlin 1987; Colbjørnsen, Hernes and Knudsen 1984).

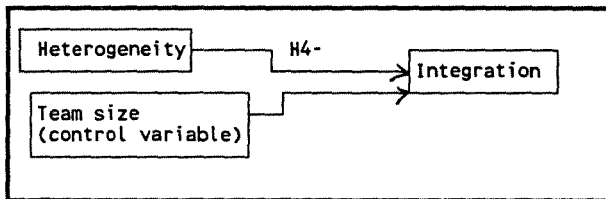
It is plausible to suggest that the larger the executive team is, the less homogeneous and integrated the team is likely to be. Hence, the team size is controlled for in the two LISREL models. In the first LISREL model, sub model 2:1, the first three hypotheses are tested. The sub model is captured in the conceptual path model shown in Figure 1.

Figure 1. The sub model 2:1, a conceptual path model of recruitment effects on team composition for the hypotheses 1 - 3



The second LISREL model, sub model 2:2, tests the third hypothesis with consideration to team size. Sub model 2:2 is captured in the conceptual path model shown in Figure 2.

Figure 2. The sub model 2:2, a conceptual path model for the hypothesis 4



The basic descriptions of covariances concerning the three hypotheses are presented in Appendix 4 and their characteristics of the univariate distributions are presented in Appendix 1, frequency tables in Appendix 3.

Sub model 1: Dominance of the CEO affects degree of heterogeneity

The first hypothesis tested is that a CEO who has a partnership with the owner(s) is likely to recruit heterogeneous individuals for the executive team. The CEO who has no such partnership is likely to appoint similar members. This explanatory variable, partnership, measures the degree of control the CEO has in selecting the whole executive team. As explained earlier, the CEO in the entrepreneurial firm tends to recruit his own successor, in addition to selecting the rest of the team. The CEO in the investor-owned firm has less control, since the investors always play an active role in recruiting the CEO. The degree of control the CEO has over the selection

process that determines his own successor is interpreted as an indicator of the establishment of a partnership between the owner and the CEO.

Hence, the degree of control over recruitment distinguishes between CEOs who are likely to recruit executive team members for their information-accrual ability and CEOs who are likely to recruit team members for their ability to reach a decision.

The explanatory variable is operationalized by the percentage recruited by somebody other than the CEO (NOCEO). The categories contained in other are mergers, owners and others (see coding scheme in Appendix 1). When the indicator NOCEO takes on a high value this means that people other than the CEO take active part in recruitment. When NOCEO takes on a low value, the CEO dominates the recruitment process for the executive team.

The explained variable in hypothesis 1 is the degree of heterogeneity (Heterogeneity). This variable is measured by four indicators: heterogeneity in age (AGE_{sd}), dissimilarity of social background (SEI_{iqv}), dissimilarity of place of adolescence (ADO_{iqv}) and dissimilarity of education (EDU_{iqv}).¹⁵ The 149 executive team members from the 29 surveyed firms were asked about their education, age, place of upbringing and social background. The individual data are aggregated here to the team level (see Appendix 1 for the codings of the indicators). For each team a dissimilarity index is computed for three of the four heterogeneity aspects, education, social background and place of adolescence. The indicator Age_{sd} is measured by the standard deviation.

The second hypothesis tested is that the more categories of individuals involved in the recruitment of the executive team, the more heterogeneous the resulting executive team is. The explanatory variable is defined as the number of individuals involved in recruitment of executive team members and is computed by the indicator IQV_{rec} (See Appendix 1.)

The third hypothesis to be tested is that CEOs who want a team

¹⁵ See definition of dissimilarity index (IQV) in Appendix 1.

talented in information-accrual are likely to put together large teams. CEOs who want a team talented in making decisions are likely to put together small team. The explanatory variable is the degree of CEO control (NOCEO) of recruitment of sucesors (see appendix 1). The explained variable is the size of the team and is measured by the number of individuals in each team. A description of the univariate distribution of team size is presented in Appendix 1.

In order to show the net effect of the explanatory variables for each of the four discussed hypotheses, a LISREL analysis is performed. A LISREL analysis is preferred to the regression analysis because there is the possibility to consider measurement errors in estimating the regression coefficients. Including a measurement model with several indicators gives the option to estimate the structural relationship between "true" latent variables.

The measurement model for the degree of heterogeneity is a one-factor model measured by the four indicators. When the endogenous latent variable has a measurement model the coefficient of determination will be higher compared to when a measurement model is lacking. The explanatory variables (REC, NOCEO, and TEAM) lack estimates of measurement errors. This may result in an underestimation of these structural parameters if the indicators are unreliable (see a discussion on disattenuation in Jöreskog and Sörbom 1981, 132). This is not likely to happen in our case where the dominance of the recruiter is measured by the actual individual and his characteristics and by the team size which is an accurate number.

The sub model 2:1 is depicted in Figure 3.¹⁶ Circles in the figure symbolize the unobserved variables while the observed variables are indicated with squares. The outcome of the parameter estimation is presented as a standardized solution with the standard errors in parentheses for the

¹⁶ LISREL has the ability to take measurement error into account, Two alternative approaches are applied in the present analysis. The first is a simple relationship between an observed variable and the corresponding latent variable. The parameter in this relationship is fixed to one which means identity between these variables. The other type of measurement model is a factor model with several indicators. In this case it is necessary to fix the scale of the latent variable to get the model identified. For instance latent variable degree of heterogeneity the observed indicator ADO is chosen as the scaler.

coefficients reported. Since the sample is small, the standard errors for the structural parameters estimates are quite high. In the figures only the significant paths are reported. The estimates of the parameters are based on the assumption that the latent variables (the circles) have a variance equal to 1. The standard solution makes it possible to compare the partial regression coefficients to each other.

The analysis shows that there is a weak direct effect of a dominant recruiter on the degree of team heterogeneity but a strong indirect effect through the choice of team size. The number of individuals involved in recruitment has no significant effect on degree of heterogeneity of the resulting team.

The data support the model specification although some results are weak. The test of the fit of the model is acceptable with a chi-square equal to 11.2 and with degrees of freedom equal to 11 and a probability of .42 including, over and above the structural relationship between the latent variables, a direct effect of 'dominant recruiter' on 'place of adolescence' indicated by the modification indices.¹⁷ The coefficient of determination for the structural equation is high $R^2 = .23$ respectively $.54$. The more dominant the CEO is in recruitment process, the more likely it is that the CEO will choose to recruit a large team, $(-.48)$. Furthermore, the more dominant the CEO is in the recruitment process, the more likely he is to put together a heterogeneous team $(-.33)$. Alternatively, the greater the number of people other than the CEO involved in recruitment, the more homogeneous is the resulting team. The strongest effect on the degree of heterogeneity is the number of members in the team. The larger the team, the more heterogeneous is its membership $(.54)$.

¹⁷ The test statistic chi-square, (11.28) $df=11$, expresses the difference between the input covariance matrix and the corresponding matrix achieved under the assumption in the specified model. The p-value $(.42)$ equals the probability of getting the observed chi-square or a larger value. As this probability is larger than $.05$ (critical value) the model has an acceptable fit. The rule of thumb is that a model with a chi-square approximately equal to the degrees of freedom has an acceptable fit. The t-test for all estimated regression coefficients are above plus minus 2 on a 5% confidence level.

Sub model 2: The degree of heterogeneity affects the degree of integration

The fourth hypothesis to be investigated is that a homogeneous membership is likely to result in an integrated team. A heterogeneous team membership is likely to result in a differentiated team. The explanatory variable in the test of this hypothesis is heterogeneity. Team size is also considered in the analysis since it is plausible to assume that large groups have more difficulty in reaching consensus, *ceteris paribus*.

The explained variable, degree of integration, is measured by three indicators: integration with respect to mutual values (GV), to discussing personal matters (GP) and to socializing privately (GS). The survey questions posed to each team member were "With whom do you, within the team (1) socialize (family wise)? (2) discuss private and personal matters? and (3) share common values about business and life?"

A relation matrix showing each team member's relationship to all the other team members in all the three dimensions of integration is constructed. From the matrix a cohesion index is constructed for each aspect of integration. The index G divides the number of mutual choices in a binary matrix of directed ties by the maximum possible number of such choices (Knoke and Kuklinski, 1983, p. 50). Only the symmetric ties are counted, i.e., only when both respondents claim to relate to each other in a certain integration aspect is the tie counted. (See a technical description in Appendix 1.) The cohesion index ranges from 0 to 1. A large G value indicates that a greater proportion of the team members is related in a certain way, for instance that they socialize. For illustrative purposes an index with all the cohesion indicators is constructed and labelled INTEGR. (See the correlation matrix in Appendix 4.)

In order to sort out the net effects of the explanatory variables and to determine whether the heterogeneity variable has a direct effect on integration over and above the effect explained by the size of the team, sub model 2:2 is constructed (see figure 4).

The model fits the data. The chi-square is 23.2 with 18 degrees of freedom and the probability value is .182. The coefficients of determination

are large (.41 and .59 respectively) in this model compared to sub model 1.¹⁸ Hence, the data support hypothesis 3. The degree of heterogeneity has a strong negative effect on the degree of integration for a team (-.89). The effect of the size of the team on the degree of integration (.22) is not significant.

Conclusions and discussion

The present exploratory study confirms that CEOs differ in their risk behavior. CEOs' risk behavior, measured as their choice of team composition, show that the reward system, given by the ownership structure, is decisive. The CEO engaged in a partnership with the owner, as is often the case in firms with a concentrated ownership structure, is less risk averse than the CEO in a firm with dispersed ownership. The more risk neutral CEO tends to compose an information-talented team while the risk-averse type of CEO tends to compose a team talented in decision-making. Either type of CEO could, if so desired, choose a selection strategy based on similarity since both types of CEOs have the discretion to select their executive team. However, the empirical results support the idea that CEOs choose different strategies to cope with risk.

When a CEO in an entrepreneurial firm composes his executive team he chooses a strategy different from his colleague in the investor-owned firm. The CEO in the first case often has access to the owner (the entrepreneur) and can discuss important decisions on investment plans with him. The main task this kind of CEO assigns to his executive team is that of giving and receiving information and therefore his team should be talented in information-accrual. In an investor-owned firm the owners are more difficult to approach and mobilize in matters of importance and urgency. Furthermore, they are assumed to leave if they do not like the rate of return. The CEOs in this type of firm chooses the strategy that puts together a team efficient

¹⁸ This is partly due to the fact that measurement errors are considered, since both the explanatory factor and the explained variables have measurement models. The estimates give the "true" structural relationship, a disattenuated relationship (structural relationship where measurement errors are controlled).

primarily in taking decisions, a decision-talented team.

The CEO who wants an information-talented team puts together a large and differentiated team made up of members having different demographic characteristics and who do not develop a strong consensus through the sharing of values and strong personal bonds to each other. Conversely, the CEO who wants a decision-talented team chooses a small and well-integrated team made up of members who have similar social backgrounds, similar educations, shared values and established personal relations among each other.

These results are only valid for firms confronted with a crisis signal. The statistical analyses support three out of the four hypotheses. Hypothesis 1: A CEO with discretion to compose his team is likely to put together a heterogeneous team, while a CEO with less discretion is likely to create a homogeneous team. Hypothesis 3: The CEO who is likely to want an information-talented team is likely to choose a large team. The CEO who seeks to create a decision-talented team is likely to choose a small team. Hypothesis 4: A homogeneous team is likely to become an integrated team, while a heterogeneous team is likely to become a differentiated team. Hypothesis 2: The number of categories of individuals involved in the recruitment of the team members has no significant effect on team composition.

APPENDIX 1. Definition of variables, their transformation and the characteristics of the univariates

The selection criterion of a public firm confronting a crisis signal from the stock market was a strong negative abnormal return. The 106 public firms on the stock market both in 1980 and in 1988 were ranked according to their strongest negative abnormal return any month during 1985. From that list 32 firms were selected. The characteristics of the univariate distribution of the 106 firms and 32 firms are shown in Table A1:1.

Since no assumption is made about the variable being normally distributed, a complement to the mean (Mean) and the standard deviation (Sd) is given by the median (Md), the skewness (Skew) Kurtosis (Kurtos) and the minimum (MIN) and maximum (MAX) values.¹⁹

Table A1:1. Characteristics of the univariate distribution for the variables abnormal return for 106 firms and abnormal return for 29 firm

	Mean	Sd	Md	Skew	Kurtos	MIN	MAX
Abnormal return (population of 106 firms)	-.124	.091	-.112	-2.605	12.607	-.684	.0.12
Abnormal return (Sample of 29 firms)	-.222	.103	-.187	-3.164	12.509	-.684	-.148

The *ownership concentration* is measured by the concentration ratio (CR) which is the largest shareholder's percentage of votes. The univariate description of ownership concentration for the sample is shown in Table A1:2.

Table A1:2. Univariates of the variable ownership concentration

N=29	Mean	Sd	Md	Skew	Kurtos	MIN	MAX
Ownership concentration(CR)	44.25	16.55	45.6	.14	-.54	15.6	82.2

¹⁹ Under the normal distribution assumption skewness is equal to 0 and kurtosis is equal to 0 (see definition and computation of kurtosis in SAS Elementary Statistics Procedure p. 11 from SAS Procedures Guide. Release 6.03 Edition).

The distribution of CR shows similar traits with a normal distribution. The distribution is more flat than the normal distribution which is natural since a public company cannot be owned by one single owner to 100%. The distribution is almost symmetric, although slightly skewed to the right (skewness of .14 compared to the normal distribution of 0). This is also natural, since even a public company has to be owned by someone.

Two indicators of *firm size* are computed. The first is the market value of the firm (MV) and the second is the number of employees (EMPLOY) in the firm (total figure irrespective of location).

Table A1:4. Characteristics for the univariate distribution for the control variables

N = 29	Mean	Sd	Md	Skew	Kurtos	MIN	MAX
Number of Employees	6090	13763.99	2157	4.663	23.419	10	74320
Market ²⁰ value (MSEK)	990.29	1469.50	504	3.039	10.424	15.00	7052

The size of the firm, whether measured by the number of employees or by the market value, varies considerably.

The indicator *team size* is the number of individuals in the executive team (TEAM).

Table A1:5. Characteristics of the univariate distribution of team size

	Mean	Sd	Md	Skew	Kurtos	MIN	MAX
Size of team	5.00	2.26	4	.63	-.77	2	9

Table A1:5 shows a relatively large variation in the size of the executive team, and a mean not very different from the median. The distribution implies that

²⁰ The figures of a firm's market value are divided by 100 000 in the statistical analysis.

the size of the team is more often large than small.

Dissimilarity measure of demographic characteristics

There are several measures one can use to capture the degree of similarity in and executive team with respect to different individuals attributes. One simple way to choose a measure is to use what is already applied in the research. However, the measure used for instance by Wagner, Pfeffer and O'Reilly (1984) is a measure of the relative isolation of an individual vis-à-vis the rest of the team members in order to predict the probability of the individual to leaving the team. The purpose of the present investigation is different. Allison states "*... the choice of an inequality measure is properly regarded as a choice among alternative definitions of inequality rather than a choice among alternative ways of measuring a single theoretical construct*" (Allison 1978, 865). In this study the object is simply to describe the overall similarity or dissimilarity of the team members and then compare executive team's degree of heterogeneity with each other.

Allison suggests using the scale of invariance as the basic criterion for measuring inequality (e.g. income) which means that multiplying everyone's income by a constant leaves the degree of inequality unchanged. The relative difference has not been changed by this operation. One measure with such a quality is the coefficient of variation (V), $V = \sigma/\mu$ (Allison 1978, 867). This measure would suit our purposes if all our variables were ratio scaled, i.e., has a true zero point as its origin (see Allison, 1978, 870). However, most of our variables are nominal or ordinal scaled. Hence, a dissimilarity measure for this type of scaled variable has to be applied. Even the V could be applied in some of the cases below for the case of uniformity the Dissimilarity index is applied for all variables. (Bohrnstedt and Knoke 1982.)

Dissimilarity index (IQV) is the standardized version of Index of

diversity (D) where

$$D = 1 - \sum_{i=1}^k p_i^2$$

and where p_i is the proportion of the i^{th} category divided by the total number and where k is the number of categories. When D approaches one, the diversity of e.g. members increases. When D approaches zero, the diversity of members decreases. Since D is dependent on the number of categories of the variable, e.g. team size, as in this particular case, a standardized version of D is applied called the Index of Qualitative Variation.

$$IQV = D \frac{k}{k-1}$$

As for D when IQV approaches one, the diversity in this context for the team members, increases. When IQV approaches zero, the diversity of members decreases, when controlling for the number of categories of the variable. Hence, an executive team with members sharing the same attributes such as social background, the IQV approaches zero. However, if the members are different in the various demographic respects, the IQV approaches one, i.e., diversity increases. All the demographic variables are transformed by the dissimilarity index IQV.

Place of adolescence, IQV_{ado} . The place of adolescence (upbringing) was first categorized as follows:

- (01) Upbringing in various places, mixed places for adolescence
- (02) Large city (Stockholm, Gothenburg or Malmö)
- (03) Town with 10 000 - 15 000 inhabitants excluding Norrland
- (04) Town with 5 000 - 10 000 inhabitants "-"
- (05) Town with 500 - 5000 inhabitants "-"
- (06) Town with less than 500 inhabitants "-"
- (07) Abroad

- (33) Town with 10 000 - 15 000 inhabitant Norrland
 (34) Town with 5 000 - 10 000 inhabitants "-"
 (35) Town with 500 - 5000 inhabitants "-"
 (36) Town with less than 500 inhabitants "-"

These categories are further partitioned into four new categories:

The categories 03 - 07 are merged into the new category			3
"- 01	"-		1
"- 02	"-		2
"- 33 - 36	"-		4 ²¹

Dissimilarity of Education, IQV_{edu} , is based on the following constructions:

The first step of education categories are reduced to the following categories.

- (01) No academic degree, transformed to code 1
 (61) Law degree, transformed to code 2
 (62) M.Sc in engineering, transformed to code 3
 (63) B.A./B.S. in commerce/economics, transformed to code 4
 (64) Degree in forestry, transformed to code 5
 (65) Degree in other discipline, transformed to code 6
 (7) Uncompleted Ph.D. degree, transformed to code 7
 (82) Ph.D. in engineering, transformed to code 8
 (83) Ph.D. in economics, transformed to code 8
 (84) Ph.D. in forestry, transformed to code 8
 (85) Ph.D. in other subject, transformed to code 8
 (09) More than one academic degree, transformed to code 9

Dissimilarity of social background IQV_{sci}

²¹ The members' responses of where they lived during their upbringing were coded according to the SCB Year book for the Swedish Administrative Communities (kommun) 1950. Hence, a town that was small at the time of their upbringing may have a large population today.

Information about the respondent's social background was traced by asking about the father's occupation at the time for the respondent's upbringing. The SEI classification was used, i.e., the socio-economic classification (the SEI classification, 1984). The SEI classification of persons in the labor force is based primarily on their occupation. Distinctions between self-employed persons and employees, and between employees with and without subordinates must, however, be based on additional information which is not available in the present study.

Blue collar workers: Coded 11 -12 non skilled workers
21 -22 skilled workers

White collar workers: coded 33 - 36 lower ranked white collar workers
44 - 46 middle ranked "-"
54 - 60 higher ranked "-"

Businessmen, e.g., Self employed: coded 60 - 78
Farmers: coded 86 - 89
(see SCB MIS, 1982:4, 1984, 9)

Dissimilarity of birth, AGE_{sd} , for each team is computed by the standard deviation of birth year for the team

Marital status is organized into six categories:

- (1) married/cohabitant
- (2) divorced
- (3) widowed
- (4) not married/cohabitant
- (5) married 2 times
- (6) married 3 or more times

Table A1:8. The univariate distribution of the four heterogeneity indicators and the composite index heter

	Mean	Sd	Md	Skew .	K	Max	Min
AGEsd	6.45	3.00	6.74	-0.13	0.25	13.31	0
SEIiqv	0.61	0.21	0.67	-1.56	3.14	.893	0
EDUiqv	0.58	0.21	0.65	-1.27	2.10	.874	0
ADOiqv	0.63	0.23	0.67	-1.45	2.14	.894	0
HETER	2.51	0.69	2.51	-1.10	1.50	3.40	.53

Recruitment indicators

Recruitment to the firm, REKRYTF, is divided into the following categories:

- (1) Workmate, school or university friend
- (2) Headhunter
- (3) Advertisement
- (4) Mergers/Aquisitions
- (5) Clients
- (6) Other mediating contact
- (7) Relative
- (8) Summer job
- (9) Own effort
- (10) Board of director
- (11) Friend

Recruitment to executive team (REKRYTL)

through:

- (1) Mergers/Aquisitions
- (2) Owner
- (3) CEO
- (4) Other

The variable REKRYTL is transformed into the *dissimilarity of recruiter* (IQV_{rec}), i.e., the difference in types of recruiter categories involved in recruiting the members to the executive team.

Table A1:9. Univariate description of the variable dissimilarity of recruitment categories, IQV_{rec}

	Mean	Std	Median	Skew	Kurto	Max	Min
IQV_{rec}	.44	.22	.5	-.77	-.13	.83	0

The distribution of the variable IQV_{rec} , the dissimilarity in categories of recruiters recruiting each team shows that the more common recruitment procedure seems to be one where few categories are involved, rather than where several categories are involved. The REKRYTL is also used to construct three indicators of the relative domination of the CEO in the recruiting of the executive team. The first measure is the *percentage of team members not recruited by the CEO*, NOCEO. The second measure is the *percentage of team members excluding the CEO recruited by the CEO* (TEAMREC). The third measure is the *propensity that the CEO is recruited by the incumbent CEO* (CEO). The first measure NOCEO is large when others than CEO dominate the recruitment, and smaller when the CEO dominates. The second and third is large when the CEO dominate and small when others dominate the recruitment of team members. In Table A1:10 the characteristics of the univariate distribution for the three measures are depicted.

Table A1:10 The characteristics for the univariate distribution of three measures of the relative dominance of the CEO in the recruitment procedure

	Mean	Sd	Md	Skew	Kurto	Max	Min
NOCEO	30.226	19.946	25	1.438	4.167	100	0
CEO	.379	0.493	0	0.525	-1.857	1	0
TEAMREC	74.04	31.00	80	-1.424	1.356	100	0

Indicators of team cohesion

Degree of integration is measured by three indicators:

1. *mutual values* (GV),
2. *personal confiding* (GP)
3. *socializing privately* (GS)

The questions posed to each team member were: With whom on the team do

you (1) socialize with (family-wise)? (2) discuss private and personal matters? (3) share common values about business and life? (See Questionnaire in Supplement 1, questions No. C1-5.)

A relation matrix is constructed showing each team member's relationship to all the other team members using all three dimensions of integration. From the matrix a cohesion index is constructed for each aspect of integration. The index G divides the number of mutual choices in a binary matrix of direct ties by the maximum possible number of such choices (Knoke and Kuklinski 1983, 50). Only the symmetric ties are counted, that is, only when both the respondents claim they relate to each other in a certain integration aspect is the tie counted.

The cohesion index is measured by

$$G = \frac{\sum_{i=1}^N \sum_{j=i+1}^N (z_{ij}z_{ji})}{(N^2+N)/2} \text{ where } i \neq j$$

and where the term $(z_{ij}z_{ji})$ takes the value of 1 if both elements are 1s, and 0 if either of the elements take on the value of 0. The cohesion index ranges from 0 to 1. A large value indicates that a greater proportion of network relations are reciprocated. A small value indicates that a greater proportion of the network relations are not reciprocated (Knoke and Kuklinski 1983, 50). The cohesion index transforms the binomial indicator into an interval-scaled indicator (at least it is treated as if it were possible to assume interval scale here). The cohesion index for socializing (GS), the cohesion index for sharing values (GV), the cohesion index for personal confiding (GP), and the cohesion index for spending time outside work at sports or other hobbies (GH) are all indicators of integration. For illustrative purposes, an index containing all the cohesion indicators is constructed and labelled INTEGR. INTEGR is computed by summing all the cohesion values for each team, except that for

spending time outside work that is not used in the analysis. A univariate description for degree of integration indicators GS, GV, and GP is shown in Table A1:11.

Table A1:11. A univariate description of integration indicators

	Mean	Sd	Md	Skew	Kurtos	Min	Max
GV	0.47	0.28	0.46	0.12	-0.16	0	1
GP	0.32	0.33	0.26	0.95	-0.29	0	1
GS	0.25	0.27	0.16	1.45	1.87	0	1
INTEGR	1.056	.766	.833	1.012	1.132	0	3

APPENDIX 2. Abnormal return

Abnormal return (AR) is a measure taken from the field of financial theory. It is postulated that individuals make consistent and rational decisions, and that all expectations are realized since no one acts on the wrong premises (Hansson and Högfeldt 1988, 636). Financial theory analyzes the economic effects of both time and risk on resource allocation and gives a rational economic explanation for seemingly random changes in stock prices using stochastic theory. Three major ideas are incorporated in financial theory: information efficiency, diversification and arbitrage principles. The idea of information efficiency is of relevance in our study.

From Hansson and Högfeldt (1988) the following description on the information efficiency assumption is drawn: When new information enters the market, investors evaluate it and change their portfolio to exploit potential profits from the new knowledge. The new equilibrium prices therefore contain the information. Prices are an efficient information bearer and price changes reflect the market's joint evaluation and response to new information. This implies that investors base their decisions only on the information that has already been exploited by the market. This intuition is called the market efficiency hypothesis; market prices reflect all relevant information. The analysis testing the hypothesis shows that the Swedish market is at least semi information-efficient.

It is assumed that the investors not only base their actions on historical information (weak information efficiency), but also on economic information that is accessible to the public. For example, announcements made revealing a firm's specific information are easily and quickly processed by the actors, and the stock market prices reflect this process. However, empirical analysis shows that insider information is not reflected in the stock prices. Trading with insider information may give abnormal returns. In general, previous studies have been interpreted to support the information efficiency hypothesis because insider information cannot give an ongoing abnormal return for long, since other investors will discover the abnormal returns and try to exploit them.

The expected rate of return is given by the CAPM approach, Capital Asset Pricing Model (Sharpe 1964) or the more general model of APT, the Arbitrage Pricing Theory (Copeland and Weston 1983). The CAPM predicts that security rates of return will be linearly related to a single common factor, the asset's systematic risk. The APT is based on similar intuition but it is more general. CAPM can be viewed as a special case of the APT when the market rate of return is assumed to be the single relevant factor.

Investors put together portfolios by evaluating the stock's expected rate of return and its risk. Risk is defined as the volatility in the returns. A share with high variability is classified as a share with high risk and vice versa. Because the variability of risk for different shares is not perfectly correlated, investors may reduce risk by diversifying their portfolio. Risk may be divided into unsystematic (or firm-specific α) risk and systematic risk (variation due to the market return, β). The latter is compensated for by investors diversifying their portfolio (Hansson and Högfeldt 1988).

The market model is easy to compute. Furthermore, according to Burnt (1991) the CAPM and the market model contains the same fundamentals. A data set of firms on the stock market during the period of 1980 - 1985 already exists, as well as does a program for computing abnormal return values based on the market model. Also there is evidence that the output from the two models, the market model and the CAPM yield the same results (DeRidder 1988).

Abnormal return for a particular share is defined as the difference between the actual and the expected return. A share's expected return is given by the CAPM as:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \epsilon_{i,t}$$

where

$R_{i,t}$ = the share i 's return in period t

$R_{m,t}$ = return of the market portfolio, R_m , at the period t

α_i, β_i = the share specific parameters

ϵ_i = error term with the expected value of zero

The expected rate of return given by model is determined by the unsystematic risk, alpha, and the product of $\beta_i R_{m,t}$, determined by the market. The market factor beta indicates how much a share's return is expected to change given a certain change in the market portfolio (approximated by Affärsvärldens "general index"). Given the use of the model the abnormal return is expressed by

$$ar_{i,t} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t})$$

where $\hat{\alpha}_i$ and $\hat{\beta}_i$ is estimates of the share specific parameters. $\hat{\beta}_i$ is defined as the covariance between R_i and R_m divided by the variance of the market portfolio

$$\hat{\beta}_i = \text{Cov}(R_i, R_m) / \text{var}(R_m)$$

Summing all the single observations of AR and dividing by the total gives us an average abnormal return AR_t .

Some shortcomings of the selected measures and computation are a) abnormal return and information efficient markets, b) the problem of estimating betas, and c) the problem of thin trading. (DeRidder 1988; Hansson and Högfeldt 1988; Claesson 1989; Berglund et al. 1989) The problem with adjusting betas is especially worth noting. A crisis signal as defined here, as some radical new information appearing, which of course could change the risk of the firm's share, i.e., the true beta. However, this is not taken into account in our estimation, which is a drawback.

APPENDIX 3. Frequency tables for the analyzed variables

Definition and codings of the variables are presented in Appendix 1.

Table A3:1. Social background

	Frequency	%
Blue-collar workers(11-36)	25	16.2
White-collar workers (44-54)	78	50.5
Free academics (60)	8	5.2
Businessmen (68 -78)	38	24.7
Farmer (86/87)	5	3.2
SUM	154	100.0

Table A3:2. Education

	Frequency	%	Cumulative
No academic exam (1)	30	19.0	
academic exam (2)	19	12.3	
(3)	27	17.5	
(4)	62	40.3	
(5)	2	1.3	
(6)	4	2.6	
(7)	8	5.2	
(8)	2	1.3	
SUM	154	100.0	

Table A3:3. Decade of birth

	Frequency	%
1910-19	2	1.3
1920-29	31	20.1
1930-39	56	36.4
1940-49	60	39.0
1950-	5	3.2
SUM	154	100.0

Table A3:4. Place of upbringing (adolescence)

	Frequency	%
Mixed places for upbringing (1)	55	35.7
Large cities, metropolitan areas (2)	29	18.8
Towns up to 15 000 inhabitants (3)	40	26.0
Northern Sweden (4)	30	19.5
SUM	154	100.0

Table A3:5. Marital status

	Frequency	%
Married (1)	126	81.8
Divorced(2)	7	4.5
Widow (3)	2	1.3
Not married (4)	1	0.6
Married two times(5)	18	11.7
Married more than two times	0	0
SUM	154	100.0

Table A3:6. Recruitment to the firm

	Frequency	%
Headhunter	8	5.2
Advertisement	22	14.3
Other mediator	14	9.0
Mergers/Aquisitions	13	8.4
Work mate	45	29.2
Client	23	14.9
Relative	8	5.2
Friend	3	1.9
Summer job	2	1.3
Own search	13	8.4
Board of director	3	1.9
Sum	154	100

Table A3:7. Recruitment to the executive team

	Frequency	%
Mergers/Aquisitions	6	3.9
Owners	35	22.7
CEO	113	73.4
SUM	154	100.0

Table A3:8. Team member's years in firm

Number of years	Frequency	%
0 - 10	74	48.1
11 - 20	51	33.1
21 -	29	18.7
SUM	154	100.0

Table A3:9. Share of socializing relations of total within the team

%	Frequency	%
0 - 9	54	34.6
10 - 19	12	7.7
20 - 29	23	14.7
30 - 39	18	11.5
40 - 49	9	5.8
50 - 59	13	8.3
> 50	27	17.3

Table A3:10. Share of confiding relationship in total relationship

%	Frequency	%
0 - 9	37	23.7
10 - 19	6	3.8
20 - 29	23	14.7
30 - 39	12	7.7
40 - 49	15	9.6
50 - 59	17	10.9
> 50	46	29.5

Table A3:11. Share of relationships that shared values

%	Frequency	%
0 - 9	10	6.4
10 - 19	1	0.6
20 - 29	10	6.4
30 - 39	17	10.9
40 - 49	11	7.1
50 - 59	20	12.8
60 - 69	19	12.2
70 - 79	17	10.9
80 - 89	11	7.1
90 - 99	1	0.6
10 -	39	25.0

Table A3:12. Percent of team members sharing a hobby or a sport activity

%	Frequency	%
0 - 9	45	28.8
10 - 19	8	5.1
20 - 29	21	13.5
30 - 39	24	15.4
40 - 49	12	7.7
50 - 59	12	7.7
60 - 69	11	7.1
70 - 79	5	3.2
80 - 89	4	2.6
10 -	14	9.0

APPENDIX 4. A correlation matrix

Pearson Correlation Coefficients / Prob > |R| under H₀: Rho=0 / N = 29

	CR	MV	EMPLOY	TEAM	IQVREC	CEO
CR	1.00000 0.0	-0.35598 0.0581	-0.06239 0.7478	0.27430 0.1499	-0.53963 0.0025	0.10584 0.5848
MV	-0.35598 0.0581	1.00000 0.0	0.79200 0.0001	-0.04737 0.8072	0.06077 0.7542	0.38488 0.0392
EMPLOY	-0.06239 0.7478	0.79200 0.0001	1.00000 0.0	0.13989 0.4692	-0.03586 0.8535	0.24046 0.2089
TEAM	0.27430 0.1499	-0.04737 0.8072	0.13989 0.4692	1.00000 0.0	-0.17948 0.3515	-0.19135 0.3200
IQVREC	-0.53963 0.0025	0.06077 0.7542	-0.03586 0.8535	-0.17948 0.3515	1.00000 0.0	-0.30272 0.1104
CEO	0.10584 0.5848	0.38488 0.0392	0.24046 0.2089	-0.19135 0.3200	-0.30272 0.1104	1.00000 0.0
NOCEO	-0.18770 0.3295	-0.06769 0.7272	-0.18023 0.3495	-0.47690 0.0089	0.30869 0.1033	-0.26543 0.1640
TEAMREC	0.15765 0.4141	-0.25295 0.1855	0.06060 0.7548	0.40846 0.0278	-0.11462 0.5538	-0.20536 0.2852
AGESD	0.20332 0.2901	0.11110 0.5661	0.23366 0.2225	0.60126 0.0006	-0.16113 0.4037	0.09050 0.6406
SEIIQV	0.05585 0.7735	0.12307 0.5248	0.07729 0.6903	0.50720 0.0050	-0.00335 0.9862	0.19528 0.3100
EDUIQV	0.05616 0.7723	0.08306 0.6684	0.09320 0.6306	0.46312 0.0114	-0.18894 0.3263	0.16382 0.3958
ADOIQV	-0.06780 0.7267	0.11285 0.5600	0.03564 0.8544	0.55859 0.0016	0.17755 0.3568	-0.02965 0.8786
HETER	0.06743 0.7282	0.13277 0.4923	0.12884 0.5053	0.65526 0.0001	-0.04346 0.8229	0.12670 0.5125
GS	0.10356 0.5929	-0.02237 0.9083	0.02210 0.9094	-0.35996 0.0551	-0.13462 0.4863	-0.01284 0.9473
GV	-0.16607 0.3893	-0.14682 0.4472	-0.03063 0.8747	0.04778 0.8056	-0.08018 0.6793	-0.09399 0.6277
GP	0.00690 0.9717	-0.18341 0.3409	-0.08098 0.6763	-0.30809 0.1040	-0.10866 0.5748	0.03425 0.8600
INTEGR	-0.02109 0.9135	-0.14287 0.4597	-0.03877 0.8417	-0.24759 0.1953	-0.12614 0.5144	-0.02459 0.8992

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 29

	NOCEO	TEAMREC	AGESD	SEIIQV	EDUIQV	ADOIQV
CR	-0.18770 0.3295	0.15765 0.4141	0.20332 0.2901	0.05585 0.7735	0.05616 0.7723	-0.06780 0.7267
MV	-0.06769 0.7272	-0.25295 0.1855	0.11110 0.5661	0.12307 0.5248	0.08306 0.6684	0.11285 0.5600
EMPLOY	-0.18023 0.3495	0.06060 0.7548	0.23366 0.2225	0.07729 0.6903	0.09320 0.6306	0.03564 0.8544
TEAM	-0.47690 0.0089	0.40846 0.0278	0.60126 0.0006	0.50720 0.0050	0.46312 0.0114	0.55859 0.0016
IQVREC	0.30869 0.1033	-0.11462 0.5538	-0.16113 0.4037	-0.00335 0.9862	-0.18894 0.3263	0.17755 0.3568
CEO	-0.26543 0.1640	-0.20536 0.2852	0.09050 0.6406	0.19528 0.3100	0.16382 0.3958	-0.02965 0.8786
NOCEO	1.00000 0.0	-0.66536 0.0001	-0.52119 0.0037	-0.41652 0.0246	-0.31019 0.1015	-0.22827 0.2337
TEAMREC	-0.66536 0.0001	1.00000 0.0	0.35682 0.0574	0.18996 0.3237	0.37421 0.0455	0.01418 0.9418
AGESD	-0.52119 0.0037	0.35682 0.0574	1.00000 0.0	0.77945 0.0001	0.43975 0.0170	0.66576 0.0001
SEIIQV	-0.41652 0.0246	0.18996 0.3237	0.77945 0.0001	1.00000 0.0	0.41771 0.0242	0.73381 0.0001
EDUIQV	-0.31019 0.1015	0.37421 0.0455	0.43975 0.0170	0.41771 0.0242	1.00000 0.0	0.23834 0.2131
ADOIQV	-0.22827 0.2337	0.01418 0.9418	0.66576 0.0001	0.73381 0.0001	0.23834 0.2131	1.00000 0.0
HETER	-0.44602 0.0153	0.27754 0.1449	0.87842 0.0001	0.90377 0.0001	0.64113 0.0002	0.82358 0.0001
GS	-0.06679 0.7307	0.07611 0.6947	-0.52608 0.0034	-0.65504 0.0001	-0.18611 0.3337	-0.62481 0.0003
GV	-0.26760 0.1605	0.43488 0.0184	-0.17321 0.3689	-0.36446 0.0519	-0.06907 0.7218	-0.36594 0.0509
GP	-0.08124 0.6752	0.08882 0.6468	-0.43528 0.0183	-0.48322 0.0079	-0.41678 0.0245	-0.50890 0.0048
INTEGR	-0.15916 0.4096	0.22799 0.2342	-0.44557 0.0154	-0.58436 0.0009	-0.27546 0.1481	-0.58518 0.0009

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 29

	HETER	GS	GV	GP	INTEGR
CR	0.06743 0.7282	0.10356 0.5929	-0.16607 0.3893	0.00690 0.9717	-0.02109 0.9135
MV	0.13277 0.4923	-0.02237 0.9083	-0.14682 0.4472	-0.18341 0.3409	-0.14287 0.4597
EMPLOY	0.12884 0.5053	0.02210 0.9094	-0.03063 0.8747	-0.08098 0.6763	-0.03877 0.8417
TEAM	0.65526 0.0001	-0.35996 0.0551	0.04778 0.8056	-0.30809 0.1040	-0.24759 0.1953
IQVREC	-0.04346 0.8229	-0.13462 0.4863	-0.08018 0.6793	-0.10866 0.5748	-0.12614 0.5144
CEO	0.12670 0.5125	-0.01284 0.9473	-0.09399 0.6277	0.03425 0.8600	-0.02459 0.8992
NOCEO	-0.44602 0.0153	-0.06679 0.7307	-0.26760 0.1605	-0.08124 0.6752	-0.15916 0.4096
TEAMREC	0.27754 0.1449	0.07611 0.6947	0.43488 0.0184	0.08882 0.6468	0.22799 0.2342
AGESD	0.87842 0.0001	-0.52608 0.0034	-0.17321 0.3689	-0.43528 0.0183	-0.44557 0.0154
SEIIQV	0.90377 0.0001	-0.65504 0.0001	-0.36446 0.0519	-0.48322 0.0079	-0.58436 0.0009
EDUIQV	0.64113 0.0002	-0.18611 0.3337	-0.06907 0.7218	-0.41678 0.0245	-0.27546 0.1481
ADOIQV	0.82358 0.0001	-0.62481 0.0003	-0.36594 0.0509	-0.50890 0.0048	-0.58518 0.0009
HETER	1.00000 0.0	-0.61784 0.0004	-0.30671 0.1056	-0.57137 0.0012	-0.58796 0.0008
GS	-0.61784 0.0004	1.00000 0.0	0.52382 0.0035	0.66951 0.0001	0.85018 0.0001
GV	-0.30671 0.1056	0.52382 0.0035	1.00000 0.0	0.57096 0.0012	0.81118 0.0001
GP	-0.57137 0.0012	0.66951 0.0001	0.57096 0.0012	1.00000 0.0	0.89232 0.0001
INTEGR	-0.58796 0.0008	0.85018 0.0001	0.81118 0.0001	0.89232 0.0001	1.00000 0.0

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