

## PERSONAL TRAITS OF CEOS, INTER-FIRM NETWORKING AND ENTREPRENEURSHIP IN THEIR FIRMS: INVESTIGATING STRATEGIC SME NETWORK PARTICIPANTS

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This research tests a model including direct and indirect effects of CEO's personal traits (i.e., tolerance for ambiguity and self-efficacy) on entrepreneurial behavior for firms in a specific context, namely strategic SME networks. Findings indicate no direct relationship between personal traits and entrepreneurial behavior on the firm level but reports positive relationship between CEO's traits and levels of inter-firm networking with other strategic SME network participants. Inter-firm networking, in turn, is positively related to entrepreneurial behavior on the firm level. Our results thus indicate that personal traits of the CEO can be important to study in order to understand small firm behavior and performance. The absence of direct links may hide interesting indirect and mediating influences. Based on this, we argue that it is important for future research in the entrepreneurship domain to consider inclusion of context-specific action-based factors that may link CEO traits to entrepreneurship.

*Keywords:* CEO traits; entrepreneurship; small firm networks.

### 1. Introduction

In the small firm, the CEO (or entrepreneur) is generally considered to be important for his or her firm's development. However, research about firm-level entrepreneurship and outcomes seldom reports clear links to the individual. Based on this paradox, this study draws upon the body of research that assumes achievements (entrepreneurial and others) to stem from the psychological characteristics or personal traits of firm managers (Dermer, 1973; McClelland, 1961; Wood and Bandura, 1989). We follow a recent suggestion from Shane, Locke and Collins (2003) to pay attention to the entrepreneur and his or her psychological characteristics when modeling firm-level entrepreneurship in terms of proactivity, risk taking and innovativeness in definite strategic movements (Miller, 1983; Zahra and Covin, 1995). Moreover, we also follow their advice to control for opportunity — by looking at a specific context — since we believe that CEO traits can affect firm-level entrepreneurship through factors that are closely tied to the specific context in which the CEO's firm operates. Thus,

we go one step further compared to prior work by designing our study to account for context, which is something that often seems to have been neglected in prior work about traits and entrepreneurship.

The context we address is small and medium-sized firms cooperating in strategic networks, labeled strategic SME networks. Human and Provan (1997) define those networks as “intentionally formed groups of small and medium-sized profit-oriented companies in which the firms (1) are geographically proximate, (2) operate within the same industry, potentially sharing inputs and outputs, and (3) undertake direct interactions with each other for specific business outcomes.” Those outcomes often concern joint product development and marketing programs. This is a type of network that, to a large extent, is directed toward facilitating entrepreneurial endeavors for the participating firms, and can be supported by government policy interventions (Steward and Conway, 2000; Huggins, 2000; Shaw, 1997). This kind of inter-firm formation is generally created to provide a forum for joint development projects (for example: new product development) between participating firms, facilitated by an administrative organization (Human and Provan, 1997). The projects that are carried out in such networks are often of a rather challenging character, which makes them eligible for government funded business development support. The responsibility for getting results from activities in such a network lies on the participants. The role of the administrative organization is to provide support and stimulate cooperation between the firms that are committed to the network.

Within the context of strategic SME networks, this study examines whether entrepreneurial behavior on the firm level can be traced to the CEOs personal traits. Interest is directed toward direct and possible mediating effects from a participating firm’s degree of networking with other strategic SME network participants, since networking is proposed as a powerful factor of entrepreneurship as it is closely tied to entrepreneurial opportunities in the context that the firms operate in.

Our research has two main contributions. First, it investigates whether it can be a relationship between non-action-based characteristics of individuals (i.e., personal traits) and entrepreneurial behavior in firms. Thus, this paper contributes to the “personal traits relevance debates in entrepreneurship research” (Aldrich and Martinez, 2001; Gartner, 1988; Low and MacMillan, 1988; Shane and Venkataraman, 2000; Shane, Locke and Collins, 2003 and Shane, 2003). Although several studies have tried such an approach in the past, the present study’s design is rather unique since it investigates the phenomenon in a specific context. Thus, it allows for new ways to understand the “personal traits issue” in the field of entrepreneurship. Second, we contribute by introducing an action-based measurement of inter-firm networking and its possible connection to personal characteristics of firm managers as well as to entrepreneurial behavior on the firm level. When doing so, we propose that contextual action variables matter and that they may add to our understanding about why prior research regarding personal traits has problems getting results that seem logical. As the referred variable capture actions on contextual entrepreneurial opportunity it lays a basis for interesting discussions. Although this is mainly an exploratory study, it can contribute to the field because of its fine-grained character and the fact that the study design emphasizes the context. Earlier studies have failed to take the context in which the firms

operate into account when trying to associate personal traits of entrepreneurs to firm-level outcomes. This may be a mistake.

This study introduces the theoretical underpinnings used for this research from which we generate hypotheses. The method is then discussed, followed by the results. The last section discusses the results and their implications for practice and future research.

## **2. Theory and Hypotheses**

### ***2.1. Research about entrepreneurship and personal traits***

Personal traits of individuals have been present in entrepreneurship research for a long time (Gartner, 1985; Shane and Venkataraman, 2000). Personal traits are dispositional characteristics, meaning that they are relatively enduring preferences on a person's part for thinking or acting in a specific manner (Epstein and O'Brian, 1985). Since CEOs often have significant influences over firm behavior and practices, it is likely that personal characteristics are important to explain why and how firms behave differently (House, Shane and Herold, 1996; Shane, 2003). Despite the reasonable logic in expecting impacts from personal traits theoretically (Chrisman, Bauerschmidt and Hofer, 1998; Johnson, 1990), empirical results have been less evident and some scholars have called for a shift toward other approaches (Shane and Venkataraman, 2000). However, in this debate it must be noted that personal traits of individuals almost exclusively have been used when trying to explain new firm formation, rather than investigating possible impacts on entrepreneurial behavior among already existing firms. Rather than focusing upon the question that guide such studies, namely "why are some individuals entrepreneurial, while others are not?" (Gartner, 1989) this research tries to identify if certain characteristics of the CEO can explain differences in entrepreneurial behavior among existing firms. Although there is a limitation in using material from the research focusing upon new firm formation, it is our belief that some findings and suggestions from this stream of literature are relevant.

Gartner (1989) points out that a concern for debate in this type of research is the question about whether it is the characteristics of the person or the situation that determines a person's behavior. The lesson drawn is that it can be a combination between the personal characteristics of the individual as well as the situation or context in which this individual operates that guides his or her behavior. Another concern is how the trait issue has been conceptualized in previous research directed toward examining differences between entrepreneurs and non-entrepreneurs (Brockhaus and Horwitz, 1986; Gartner, 1985; 1989). Here, it has been argued that there have been very simplified conceptualizations and that the developed theory must be clear when specifying the traits used. In addition, the research should propose clear models about how the traits really are related to entrepreneurship (Gartner, 1989; Robinson et al. 1991). Since the literature about personal traits of CEOs and their impact on firms is less developed, there are fewer lessons at hand. However, Baum, Locke and Smith (2001) discuss personal traits of CEOs and their likely impact on an existing firm's performance and conclude that the weak relationships presented so far might descend from three possible sources. One obvious possibility is that personal traits of CEOs do not matter; another is

that traits might not work in isolation; and a third might be that wrong traits have been used in earlier studies.

In an effort to take advantage of these implications constructively, this study is designed to approach the trait issue of CEOs by testing the relevance of a pair of personal traits that seem powerful to utilize in the setting of firms participating in strategic SME networks. Specifically, the study is designed by examining possible mediating effects from the degree each CEO's firm is networking with other SME network participants in addition to the proposed direct effects of CEO traits on firm-level entrepreneurship. This is done because networking is proposed to capture a firm's actions toward contextual opportunities in the strategic SME network it operates in. Thus, this research proposes that certain traits of a CEO can be directly and indirectly associated with entrepreneurial behavior in his or her firm if the context allows. For the approach chosen, we develop and test a model for this specific setting.

Therefore, in our work we propose that past entrepreneurship research has, at least to some extent, been directed toward appropriate traits. As a consequence we employ two "well-known" personal traits of CEOs, namely tolerance for ambiguity and self-efficacy that seem powerful in this context, to find out if, and how, the CEO's personal traits are related to differences in entrepreneurial behavior for firms that are committed to strategic SME networks. The chosen personal traits are applied because they are suggested to have relationships with entrepreneurship and have been used earlier in the entrepreneurship paradigm. Like all other traits, they can be considered to be positioned early back in the cause-effect chain, when searching for determinants of firm behavior. As noted earlier, traits have mainly received weak empirical support when used as isolated independent variables in "regular," non-specific settings or situations, for instance in firms that operate in one industry, when they have been studied on the firm-level (Baum, Locke and Smith, 2001). However, since convincing arguments point out different dispositional characteristics to be important in different contexts (House, Shane and Herold, 1996), we propose these two personal traits to be important to understand firm behavior in terms of networking and entrepreneurial behavior among firms that participate in strategic SME networks (to be discussed next in the hypothesis development section).

## ***2.2. The CEO's traits, firm-level networking and entrepreneurial behavior***

Tolerance for ambiguity is defined as the extent to which an individual feels threatened by ambiguity or ambiguous situations and in what extent ambiguity or ambiguous situations affect the individual's level of confidence when taking actions (Dermer, 1973). We contend that, in the context of SME networks, CEOs with a higher degree of tolerance for ambiguity will show a higher degree of entrepreneurial behavior in their firms. Since a strategic SME network offers a forum for joint product development projects it is likely that CEOs not feeling threatened by ambiguous situations are better equipped to manage their firm when participating in — and benefiting from — cooperative development projects are a vital part of the firm's operations. After all, the development projects that occur in this kind of setting are of a rather explorative character, meaning that outcomes seldom can be calculated

in advance. Implicit support for a linkage to entrepreneurial behavior on the firm level is evident in many studies. Lefebvre and Lefebvre (1992) connected innovation to risk tolerant persons. Similarly, Begley and Boyd (1987) related tolerance for ambiguity with entrepreneurial firms. Thus, the following hypothesis:

*H1: Given participation in a strategic SME network, firms having a CEO with a higher level of tolerance for ambiguity will show higher degrees of entrepreneurial behavior than firms having a CEO with a lower level of tolerance for ambiguity.*

Self-efficacy concerns “people’s beliefs in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives” (Wood and Bandura, 1989). Self-efficacy is task specific, and is directed toward the individual’s perceived abilities in the (business) area in which he or she operates (Westerberg, Singh and Häckner, 1997). We posit that CEOs with higher self-efficacy are likely to produce higher levels of entrepreneurial behavior in their firms than those with lower self-efficacy when they work in firms that participate in strategic SME networks. A membership in a strategic SME network provides participating firms with projects directed toward developing new products and with opportunities for approaching the market, or to create new ones (Human and Provan, 1997). Thus, this is a network that is created to be a forum for entrepreneurial activities, whether directed toward audacious product development projects or venturesome market efforts of joint character. Wood and Bandura (1989) argue that individuals who perceive higher self-efficacy are more likely to be confident in themselves as well as in their abilities to reach difficult goals. A person with high self-efficacy tends to increase their effort the more challenging the situation gets (Bandura, 1986). CEOs equipped with high self-efficacy can therefore be linked to those strategic SME participating firms that produce innovation, take risks and act bold in their market place; in other words, firms that display entrepreneurial behavior. Thus, the following hypothesis:

*H2: Given participation in a strategic SME network, firms having a CEO with a higher level of self-efficacy will show higher degrees of entrepreneurial behavior than firms having a CEO with a lower level of self-efficacy.*

To supplement the proposed direct effects of CEOs personal traits (Hypotheses 1 and 2), we propose that the firm’s degree of networking with other participating firms is related to entrepreneurial behavior among firms in strategic SME networks. Among many things, a strategic SME network is a forum for getting feedback on own projects and behavior, offer a way to act proactively in cooperation, as well as acquire ideas for innovation and support for risk taking in entrepreneurial activities. Approached in this manner, we define networking as the degree a firm (that is, the individuals and the groups within it) interacts with other firms for business development purposes within a strategic SME network (Chell and Baines, 2000; Covin and Slevin, 1991). In doing so, we can assume that networking can create opportunities (for example discover new means-ends relationships) as well as facilitate the pursuit of these together with other firms in the strategic SME network (by reducing costs or improving scope). Without this mode of networking, we expect firms participating in strategic SME network to suffer a contextual “mismatch” and not use the full potential of the membership

to which the firm is committed as they don't act upon the entrepreneurial opportunities that exist in the context. Thus, we expect that networking is necessary to fully exploit innovation, take risks and to act proactively relative to opportunities in the marketplace (i.e. to produce entrepreneurial behavior) for firms that operate in strategic SME networks. Taken together, the arguments presented above suggest the following hypothesis:

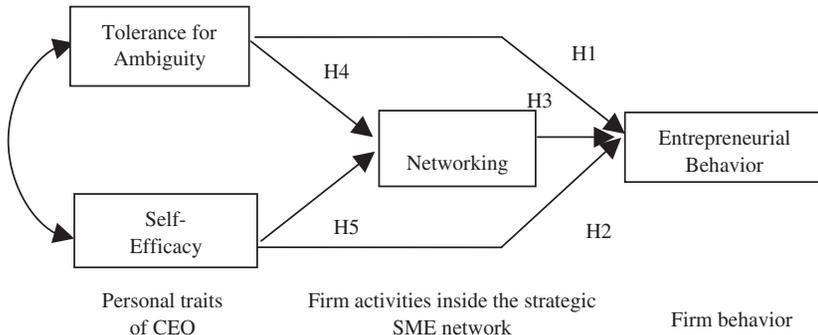
*H3: Given participation in a strategic SME network, firms that show higher degrees of networking with other members in the strategic SME network will show higher degrees of entrepreneurial behavior compared to firms with lower degrees of networking with other members in the strategic SME network.*

Apart from the direct relationships from the CEO's tolerance for ambiguity and self-efficacy on entrepreneurial behavior in firms, these personal traits are also likely to be important in understanding the differences in a firm's degree of networking with other firms in the strategic SME network. Earlier research has suggested that the CEO's personality is related to opportunity recognition as well as to the organization of resources directed toward exploitation of opportunities in the firm (Alvarez and Busenitz, 2001). Thus, the occurrence of networking with other firms in a strategic SME network is likely to depend on the CEO running each firm, since his/her personal characteristics influence the way the firm is managed (Lafuente and Salas, 1989).

If we first look at tolerance for ambiguity, people with high levels of this trait believe that they are able to handle ambiguous situations, and have confidence in their decisions under uncertainty (Gul, 1986). Based on our definition of networking in this context (that is, the degree a firm interacts with other firms in a strategic SME network for business development purposes) it is easy to relate this to uncertainty/ambiguity per se. Thus, we argue that CEOs with high degrees of perceived tolerance for ambiguity are related to firms with high degrees of networking with other firms in the strategic SME network. CEOs that avoid uncertainties and have low confidence in their decisions would probably refrain from fully exploiting the membership in this dimension. Thus, we propose the following hypothesis:

*H4: Given participation in a strategic SME network, firms having a CEO with a higher level of tolerance for ambiguity will show higher degrees of networking with other firms in the strategic SME network compared to firms having a CEO with a lower degree of perceived tolerance for ambiguity.*

For the other trait at study, we argue that it is likely that higher levels of CEO self-efficacy can be associated with higher degrees of networking inside strategic SME networks. CEOs that perceive higher levels of self-efficacy are less threatened by unpredictable situations because they believe they can cope with, and control these situations (Wood and Bandura, 1989). In a context such as that offered by a strategic SME network, networking produces a source of unforeseen outcomes. To refrain from using it is safer and less challenging. Thus, we hypothesize that CEOs with higher perceived self-efficacy are more likely to get their firms involved in networking with other firms in the strategic SME network, leading to the



The arrow between the personal traits indicates that these variables are proposed to correlate.

Fig. 1. Path model and hypotheses of personal traits strategic SME networking, and entrepreneurial behavior.

following hypotheses:

*H5: Given participation in a strategic SME network, firms having a CEO with a higher level of self-efficacy will show a higher degree of networking with other firms in the strategic SME network compared to firms having a CEO with a lower degree of perceived self-efficacy.*

The five hypotheses discussed in this section form the basis of the model shown in Figure 1 above. The underlying logic used in this model is that the personal characteristics of CEOs will reflect the contextual behavior, as well as the general endeavors, that their firms anticipate when they are committed to a strategic SME network.

### 3. Research Methodology

#### 3.1. Data collection

To explore the hypotheses stated, we collected data from 54 firms that were committed to two strategic SME networks. The studied firms constituted the entire cadre of active members that had been operating in the two networks in the last two-year period, which was the time period we chose to focus on. As a result, the studied firms can be understood as derived from a whole population of firms, not a sample. This does of course restrict generalization from the results, but the study was designed to explore possible consequences of personal traits in a context. It was our belief that this approach should reduce the influence of external variance on the variables studied. The firms operating in the strategic SME networks can be described as rather homogenous. Likewise, the two networks were similar in purpose and structure. Overall, the firms and the networks were selected because it was expected they would be representative cases. Although seemingly representative for Swedish networks, the firms in these networks also showed clear similarities to the U.S. networks studied by Human and Provan (1997).

Both strategic SME networks were formed in the late 1990s and consisted of small- and medium-sized firms that were related to the Swedish wood manufacturing industry. Most firms were small and the average number of employees was 23. One strategic SME network had 30 participators and the other 24. The membership firms strived toward strengthening competitiveness, and enhancing product innovation with inter-firm cooperation in a wide array of activities. Joint development projects and marketing approaches were some of the activities that took place. Apart from the membership firms, an administrative organization supported the members in each of the two strategic SME networks by facilitating cooperation between the participators.

Standardized data regarding the last two-year period was captured when conducting face-to-face interviews with CEOs, complemented by other managers whenever necessary (mainly to get a better picture of the firms' networking activities). The questions that concerned the CEO's personal traits were only asked of the CEO directly. When visiting each firm, one researcher was present, and the respondent was asked to fill in a questionnaire while "thinking out loud." In the cases where many respondents were present to answer the questions at hand, the collected data was the answer that the respondents agreed upon after discussion.

### **3.2. Measurements**

A five point Likert-scale developed by Zahra and Covin (1995) was used to measure the extent to which entrepreneurial behavior had occurred in the focal firms during the last two-year period. The Likert-scale contained items of risk taking, proactiveness, and innovativeness. This scale ranged from "strongly disagree" to "strongly agree" and was developed to concern actual events in firms during the last two-year period ( $\alpha$ : 0.72).

Degree of networking in the strategic SME network was measured by questions that regarded time spent on personal meetings or telephone conversations with other strategic SME network members in terms of information, assistance and guidelines that concerned business development related to the focal firm. A list of all other membership firms in the strategic SME network was provided, which allowed the respondents in each participating firm to recall how much time their firm had networked with each of these firms per year in the last two-year period. Time was measured by using a scale developed to capture how many working days (i.e., eight hour packages) that a focal firm had been in contact with each of the other membership firms in just mentioned matters. When we constructed the networking measurement, we were in contact with the administrative organizations in the strategic SME networks. Since the persons employed in those follow the participating firms in their daily work, they could give us some background information when building the measure about networking. We were informed that some firms had almost non-existing contacts, while others were far-reaching. Based on that information, the scale was developed to capture five steps; 1) no networking at all 2) half-a-day 3) 2.5 days 4) 10 days, and 5) 20 days. When a firm stated that it had invested more time with a membership firm in these matters, we simply asked how much, and counted eight-hour packages from that score. Degree of networking was then measured by adding number of days (eight hour packages) with other participants

and calculating the natural log number from that score. The latter was necessary because of the large standard deviations in hours spent on networking. The networking measurement could be validated to some extent since we had the whole population of participating firms. Contacts were to a very high degree cross-supported. However, in the situations where there were discrepancies, we did not take any action based on the fact that the same relation may be related to business development for one party but not to the other. Thus, some discrepancies are likely to occur.

Tolerance for ambiguity (4 items) and self-efficacy (6 items) were measured by using scales developed by Westerberg, Singh and Häckner (1997). These measurements are designed for the Swedish wood industry, have been validated and historically used on CEOs. All items were measured on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” Although the alpha-values are rather modest (self-efficacy =  $\alpha$ : 0.58; tolerance for ambiguity = 0.50), they are within the minimum level for exploratory studies. Nunally (1978) points out that exploratory studies, such as this one, can consider values down to 0.50 as acceptable. It should also be noted that the Cronbach alpha coefficient depends on the number of items in the construct.

In the analysis we controlled for firm size, measured by using the natural log-number of full-time employees. It is likely that the larger a firm is, the better it is equipped to produce entrepreneurial behavior mainly due to better access to resources. Similarly, it is likely that a larger firm will have more resources (mainly manpower) to invest more time on networking. We also controlled for environmental dynamism by using items from Miller and Friesen (1982). Based on previous research it was expected that a perception of a more dynamic environment should be related to higher levels of networking and corporate entrepreneurship (Wiklund, 1998). We also controlled for environmental competition by using questions from Miller and Friesen’s (1982) index. Prior research indicates a possible relationship to networking, and to entrepreneurial behavior (Zahra, 1993).

### **3.3. Data and model procedures**

We tested our hypotheses with structural equation modeling techniques. The research model was estimated by using the software package AMOS 4.0. To examine path model fit we used normed fit index (NFI), comparative index fit (CFI) and an incremental fit index (IFI). These indexes (i.e., especially the later two) are appropriate when estimating model fit in all samples, irrespective of sample size. Due to a rather small sample, and a whole population at hand we considered a p-value below 0.1 to be significant, when testing the hypotheses stated.

### **3.4. Empirical findings**

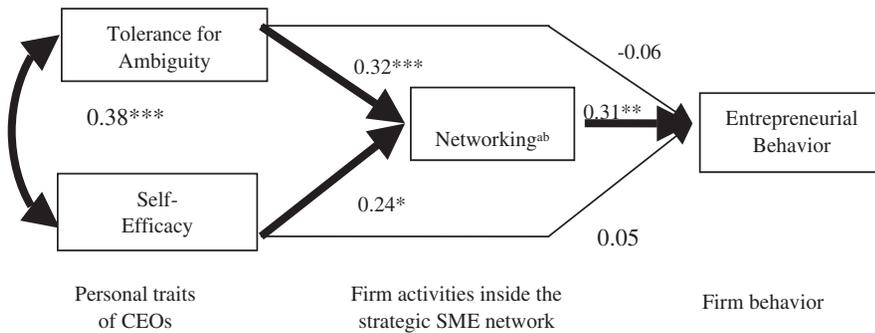
Table 1 presents means, standard deviations, and Pearson correlations for all of the studied variables.

To assess the hypotheses stated, the variables were then entered in to a path analysis, presented in Figure 2. The NFI was 0.97, CFI 0.98, and the IFI reached 0.98, which indicated an appropriate hypothesized model. The first control variable, environmental dynamism,

Table 1. Descriptive statistics.

Variable	Mean	S.D.	1	2	3	4	5	6	7
1. Firm Size	23.83	69.90							
2. Environmental Hostility	3.83	0.99	.45***						
3. Environmental Dynamism	3.12	0.77	.26*	.41***					
4. Networking in Strategic SME Network	1.23	0.40	.38***	.23*	.23*				
5. Entrepreneurial Behavior	3.00	0.9	.08	-.12	.11	.31**			
6. Self-efficacy	3.86	0.58	.26*	.10	.21	.41**	.18		
7. Tolerance for Ambiguity	3.34	0.80	.31**	-.01	.08	.44***	.13	.38***	

\*p < 0.1  
 \*\*p < 0.05  
 \*\*\*p < 0.01



Note: Significant paths and correlations are presented in broader lines. <sup>a</sup>To simplify the presentation, control variables entered are not shown. <sup>b</sup>Natural logarithm. \*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01.

Fig. 2. Standardized path-coefficients of the hypothesized model.

proved insignificant to both networking ( $\beta = 0.09, p = 0.43$ ) and entrepreneurial behavior ( $\beta = 0.12, p = 0.33$ ). The same was found for the control firm size. Neither networking ( $\beta = 0.17, p = 0.14$ ), nor entrepreneurial behavior ( $\beta = 0.05, p = 0.71$ ) had any significant relation to firm size. The last control variable, environmental hostility had no relation to networking ( $\beta = 0.11, p = 0.36$ ), but did show a significant relation to entrepreneurial behavior ( $\beta = 0. - 27, p = 0.03$ ).

Turning to the hypotheses, Hypothesis 1, positing that given participation in a strategic SME network, CEOs with higher levels of tolerance for ambiguity will show higher degrees of entrepreneurial behavior in the firms than CEOs with lower level of tolerance for ambiguity was not supported. Likewise, Hypothesis 2 was not supported. This hypothesis postulated that given participation in a strategic SME network, CEOs with higher level

of self-efficacy will show higher degrees of entrepreneurial behavior in their firms than CEOs with lower level of self-efficacy. Thus, there are no direct links between the examined CEO traits and entrepreneurial behavior. However, Hypothesis 3 was clearly supported ( $\beta = 0.31$ ,  $p = 0.03$ ). So, given participation in a strategic SME network, firms that show higher degrees of networking with other members in the strategic SME network do show higher degrees of entrepreneurial behavior compared to firms with lower degrees of networking with other members in the strategic SME network. Hypothesis 4 was also supported ( $\beta = 0.32$ ,  $p = 0.01$ ), indicating that given participation in a strategic SME network, firms that have a CEO with higher level of tolerance for ambiguity do show a higher degree of networking with other firms in the strategic SME network compared to a CEO with lower degree of perceived tolerance for ambiguity. Finally, Hypothesis 5, conferring that given participation in a strategic SME network, firms that have a CEO with higher level of self-efficacy will show higher degree of networking with other firms in the strategic SME network compared to a CEO with lower degree of perceived self-efficacy is also supported ( $\beta = 0.24$ ,  $p = 0.06$ ).

Since neither CEO self-efficacy nor tolerance for ambiguity relates to entrepreneurial behavior but both relate to networking, which in turn is associated to entrepreneurial behavior, we performed an additional test for partial mediation. Three conditions were of interest to determine mediation (Baron and Kenny, 1986). First, relationships between the independent variables (self-efficacy and tolerance for ambiguity) and the mediator (networking) must be present. Second, it is also necessary to have a relationship between the mediator and the dependent variable (entrepreneurial behavior). Third, the path coefficients between the independent and the dependent variables should be increased, when the mediator is taken away in the model. Since, the first and second criterion for mediation is fulfilled, we compared path coefficients of the hypothesized model with a model without a path between the proposed mediator (networking) and the dependent variable (entrepreneurial behavior). When doing so, the path-coefficient between tolerance for ambiguity and entrepreneurial behavior increased from  $\beta = -0.06$  to  $\beta = 0.04$ . The path-coefficient between self-efficacy and entrepreneurial behavior increased from  $\beta = 0.05$  to  $\beta = 0.13$ . These rather small lifts in path-coefficients indicate a small, almost not notable partial mediation. Recall that we are using an entire population and therefore the noted increases represent real changes. Therefore, the results indicate that networking does not partial out the effects of the personal traits studied. The missing relationships between traits and entrepreneurial behavior were not because of partial mediation. Instead, networking is necessary to maintain effects of personal traits to firm-level entrepreneurship.

#### **4. Conclusions and Implications**

Many earlier studies are doubtful regarding the value to study CEO traits based on their results where the link between CEO traits and outcomes was not found. In our study of a specific context, namely participators in strategic SME networks, inter-firm networking was found to be a necessary (not partial) mediator between CEO traits and firm level entrepreneurship. This was borne out by our results. There was a strong link both between

CEO traits and inter-firm networking and between inter-firm networking and firm level entrepreneurship. As the results suggested that no partial mediation was present, it is possible to draw several conclusions. Without the inclusion of this mediating factor, the link between CEO traits and firm level entrepreneurship would be non-existent. Therefore, the suggestion by Baum *et al.* (2001) that CEO traits do not work in isolation is therefore a valid one. The link between traits (that provides conditions for actions) and outcomes (that are the results of action) is naturally linked by action-based factors. An important task for research is then — for each specific context — to identify possible action-based mediators between CEO traits and firm level outcomes. These can be factors both on the individual level and on the firm level. Another important task is to delineate the mechanisms that are in play when studying the link between traits and outcomes.

Gartner (1989), Shane, Locke and Collins (2003) and others suggest we need to improve the theory about traits. Our contribution to this is a modest, yet important one, where we show that inter-firm networking is one important action-based factor that links CEO traits to firm level entrepreneurship in the context of strategic SME networks. In conclusion, since our findings suggest that the effects of the CEO's tolerance for ambiguity and self-efficacy on firm level entrepreneurial behavior may be both indirect and context specific, they become harder to detect. We hope this fact does not restrain future researchers to include CEO traits in their research design when it seems appropriate. Establishing how CEO traits affect entrepreneurial behavior indirectly and in different ways, depending on the context, may be important for our overall understanding of entrepreneurship.

This study is of course not without limitations. It is suggested that future research can benefit in light of those. In this study, a limitation is the relatively small number of studied firms and that we only take one context into account. This restricts our ability to draw general conclusions about how context can influence entrepreneurial outcomes from personal traits. Still, by examining the entire cadre of firms in the two networks we focused upon, we are able to be very confident when we talk about this particular setting. By looking on one particular setting, we also avoided interference from external variance. Another area for future research can be to go beyond our model building. The fact that we only take linear and direct effects into consideration, other effects (for example moderating effects) may be hidden by the model design. We do test whether inter-firm networking has a mediating effect, but apart from that, non-linear and non-direct effects are not examined. Finally, inter-firm networking is the only action-based aspect we study. There are several other aspects of firm-level action that may be relevant in this and other SME settings. Limitations aside, we do believe that this study provides interesting results that merit discussion in the field of entrepreneurship.

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