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THE DEVIL YOU KNOW? THE EFFECT OF STRONG TIES AND RESOURCE FLEXIBILITY ON PERFORMANCE IN ENTREPRENEURIAL TEAMS

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ABSTRACT

Use of strong ties in entrepreneurial team formation is debated but not resolved. How does strength of tie between the founding entrepreneur and new entrepreneurial team member affect the team member's performance? Our theoretical model illustrates the mediating role of resource flexibility: work role modification and potential to exit the working relationship. Data from German founding entrepreneurs on 170 entrepreneurial team members confirmed that strong ties increases role modification but reduces exit potential. Role modification improves team member's performance, while exit potential has a negative effect. No relationship was found between strength of ties and resource flexibility for serial entrepreneurs.

Key words: Entrepreneurial team, Resource flexibility, Strong ties, Team member performance, Serial entrepreneurs.

EXECUTIVE SUMMARY

Studies have shown that the entrepreneurial team has a large impact on the performance of new ventures, particularly in the early stages of business development. Team characteristics and social interactions within the team are crucial to the venture's success, and the team's initial resources have been found to affect the firm's survival. However, little guidance is available to help founding entrepreneurs choose entrepreneurial team members.

This research contributes to the closure of this research gap by asking how does the initial strength of tie between the founding entrepreneur and the new entrepreneurial team member affect the team member's subsequent performance. We propose that this impact is mediated by human resource flexibility, which is understood as a two-dimensional concept. Resource flexibility through *role modification* suggests that the work roles within the entrepreneurial team can be allocated flexibly and efficiently as the business grows and evolves without creating undue conflict or losing commitment. We predict that strong ties facilitate role modification within the entrepreneurial team. But the use of strong ties could reduce resource flexibility through the *potential to exit*, which refers to the ability to terminate the working relationship with a team member if required.

To test our model we drew a random sample of German founding entrepreneurs in micro-sized technology-oriented incubator firms, who reported on 170 entrepreneurial team members. Data were analyzed by means of the Partial Least Squares (PLS) approach to structural equation using the software package SmartPLS 2.0 M3. First, we tested hypotheses utilizing all ratings provided by the founding entrepreneurs about their respective team members (n = 170). Second, an exploratory group comparison was conducted in order to explore differences between serial (n = 43) and novice entrepreneurs (n = 127) with respect to the relationships in the conceptual model. Results show that the general model explains a satisfying amount of the endogenous variables' variances, indicating an acceptable explanatory power of the model. We found significant paths for all hypothesized relationships, including positive relationships between strength of ties and role modification and from role modification to team member performance. We found negative relationships between strength of tie and potential to exit and also between potential to exit and team member's performance. Finally, there was a significant negative relationship between role modification and exit potential. But when tested for serial entrepreneurs we did not find any significant relationships between strength of ties and resource flexibility in terms of role modification or potential to exit.

We find that the initial strength of tie between the founding entrepreneur and the new team member increases role modification, and also reduces the ability to exit the relationship. Both of these effects would increase the entrepreneurial team member's performance in the team. Thus use of strong ties probably has the most positive effect on team member performance, but may not result in the highest level of resource flexibility, indicating potential lack of fit between the firm's human resources and its strategic requirements.

In contrast the serial entrepreneur, who has no connection between strength of tie and resource flexibility, may be guided by resource fit, rather than personal relationships.

The major managerial implication of this research is to counsel founders and venture capitalists to encourage role modification and to avoid implying that the potential to exit the relationship might be exercised. These issues could be discussed during partnership and

investment negotiations. Founders could agree to try role modification prior to any consideration of exiting the relationship. These results support the choice of strong ties, particularly for novice entrepreneurs, during start-up when greater commitment is needed. Further research is needed to investigate the impact on resources fit and firm performance.

This study contributes to the theory of entrepreneurial team formation by explicating the role of strong ties on functional and numeric resource flexibility and showing their impact on team member performance. The results of this research indicate that choosing a previously well known individual, a strong tie, to join the entrepreneurial team increases the founder's ability to modify the team member's working arrangements, but makes it harder to exit the relationship if the team member's ability does not keep up with the requirements of the developing business. Given that role modification was found to increase the team member's performance and the potential to exit the relationship to reduce it, the overall effect of an initial strong tie on the entrepreneurial team member's subsequent performance was positive. However, an important finding was that these effects apply only to ventures established by first-time, novice entrepreneurs, since the strength of tie did not impact on either form of resource flexibility in teams set up by serial entrepreneurs. We counsel founders and venture capitalists to discuss role modification as an alternative to exit during partnership and funding negotiations.

INTRODUCTION

Studies have shown that the entrepreneurial team has a large impact on the performance of new ventures (Dubini, 1989; Ensley et al., 1999; Kamm et al. 1990; West, 2007), particularly in the early stages of business development. Team characteristics (Dubini, 1989) and social interaction within the team (Lechler, 2001) are crucial to the venture's success, and the team's initial resources have been found to affect the firm's survival (Aspelund et al., 2004). However, little guidance is available to help founding entrepreneurs choose team members (Chen and Wang, 2008; Kamm et al., 1990; Watson et al., 1995).

This research contributes to the closure of this research gap by examining the impact of the initial strength of tie (Granovetter, 1973) between the founding entrepreneur and the new entrepreneurial team member on the team member's subsequent performance. We propose that this impact is mediated by human resource flexibility, which is understood as a two-dimensional concept (Daniels et al., 2004; Jensen, 2000; van Ham et al., 1987; Young-Ybarra and Wiersema, 1999). Resource flexibility through *role modification* suggests that the work roles within the entrepreneurial team can be allocated flexibly and efficiently as the business grows and evolves without creating undue conflict and losing commitment. We predict that strong ties facilitate role modification within the entrepreneurial team. But the use of strong ties could reduce resource flexibility through the *potential to exit*, which refers to the ability to terminate the working relationship with a team member if required.

The analysis is arranged as follows. In the first section of the paper we develop a theoretical model, which shows how the strength of tie affects entrepreneurial team member performance through the resource flexibility dimensions of role modification and the potential to exit. We also consider how serial entrepreneurs might differ from novice entrepreneurs (e.g., Hyytinen and Ilmakunnas, 2007; Westhead et al., 2005) in their team formation ability, as we postulate that this distinction may influence our model results. The methodology used is then described, followed by the results of the empirical analysis of survey data from German entrepreneurs reporting on 170 entrepreneurial team members in their predominantly technology-oriented incubator firms. Finally, a discussion of the findings and their limitations is provided together with the conclusions and management implications of the study.

THEORY DEVELOPMENT AND HYPOTHESES

In this section we develop a theoretical model of the effect of the strength of tie on resource flexibility and entrepreneurial team member performance. Figure 1 depicts the four constructs included in our model and the predicted relationships between them. The following sections define and describe each construct and develop the relationships between them into testable hypotheses.

Insert Figure 1 about here

Entrepreneurial Team Member Performance and Resource Flexibility

The principal dependent variable in our research model is an entrepreneurial team member's performance. Although group productivity is not a sum of the productivity of each individual team member, individual team members' performance is important in a team due to the

interdependence of team members (Pritchard and Watson, 1992). This interconnectedness between team members' work means that if one entrepreneurial team member is not performing well it will not only affect that team member's function, but will to some extent affect others in the team.

For the purpose of this study, "[a]n entrepreneurial team is defined as 2 or more individuals who jointly establish a business in which they have an equity interest" (Kamm et al., 1990, p. 7). Therefore an entrepreneurial team member refers to any additional individual added to the team of working owner managers by the founding entrepreneur. This does not include "silent partners", who invest but do not work in the firm, or top level managers, who make a significant contribution to the running of the firm but have no financial interest in the enterprise. Entrepreneurial team member performance is understood in terms of the process by which the team member carries out his or her duties, such as proactiveness, creativity and problem solving (Zaheer et al., 1998). In our research model we suggest that entrepreneurial team member performance is influenced by two forms of resource flexibility: role modification and the potential to exit.

Resource flexibility theory originates from the human resource management (Milliman et al., 1991), job scheduling (Jensen, 2000; Vairaktarakis, 2003; Daniels et al., 2004), international strategy, R&D and market responsiveness literatures (Cestone and Fumagalli, 2005; Sanchez, 1995; Wright and Snell, 1998; Young-Ybarra and Wiersema, 1999). Resource flexibility is defined as "the capacity of HRM to facilitate the organization's ability to adapt effectively and in a timely manner to changing or diverse demands from either its environment or from within the firm itself" (Milliman et al., 1991, p. 325). Situations that may require human resource flexibility include a dynamic or diverse environment as well as divergent or rapidly changing organizational goals and strategies (Lengnick-Hall and Lengnick-Hall, 1988). Sanchez (1995) proposes that resource flexibility is greater when there is a larger range of alternative uses for the resource and the time and cost to switch from one resource to the next is lower.

In the context of the entrepreneurial team we define resource flexibility in terms of the ability to adapt the functions and size of the entrepreneurial team to changing external business environment and internal work requirements. Two distinct dimensions can be distinguished in this concept. Functional flexibility comprises the ability to perform a wider range of tasks, while numerical flexibility refers to the ability to vary the size of the team (see e.g., Daniels et al., 2004; Jensen, 2000; Young-Ybarra and Wiersema, 1999; van Ham et al., 1987).

Functional flexibility, which is facilitated by cross training in large organizations, is likely to be evidenced in an entrepreneurial team by *role modification*. We define role modification as the ability to modify the work role agreements with the entrepreneurial team member, without creating undue conflict or reducing commitment to the new venture's goals. For example, suppose an entrepreneurial team member is recruited for his or her ability in technology development, but after the technology has been developed the firm needs to shift their emphasis to marketing and selling. If the team member agrees to shift from technology to sales, the business will have a better allocation of resources, i.e. a better resource fit (Milliman et al., 1991; Wright and Snell, 1998). Thus, individuals who are willing to dynamically reconfigure their work roles to respond to changing needs as the organization progresses through the organizational lifecycle and reacts to changing external environmental demands, will perform better as entrepreneurial team members. Hence we propose:

Hypothesis 1: There will be a positive relationship between role modification and the entrepreneurial team member's performance.

Numeric flexibility, on the other hand, is evidenced by the use of contingent workforce in larger organizations. In the context of entrepreneurial teams, it is more likely to be evidenced by *the potential to exit* the working relationship if required. Even though the founding team's longevity is believed to contribute to a new venture's success (Boeker and Wiltbank, 2005; Kamm and Nurick, 1993), especially in growing businesses, some team members may end up occupying key roles that are outside their ability. It is also well known that venture capitalists sometimes seek to replace members of the entrepreneurial team to ensure a strong and professional top management team (Gorman and Sahlman, 1989). In such cases, it can be beneficial for the team and the venture if the working relationship with this person can be exited flexibly – even if he or she were to retain partial ownership of the business as a "silent partner". However, just knowing that the working relationship can be ended might hamper the team member's individual performance by creating a lack of trust and reducing commitment to the organization, thus having a negative impact on the team's social interactions, which Lechler (2001) found to be a determinant of entrepreneurial team venture success. Part of the benefit of being an owner in the business is the right to stick with it through thick and thin. Unlike being an employee, who can be retrenched, the business owner counts on keeping his or her interest and position in the business. Therefore we posit,

Hypothesis 2: There will be a negative relationship between the potential to exit the relationship and the entrepreneurial team member's performance.

Role modification (functional flexibility) and the potential to exit the working relationship (numeric flexibility) are related but orthogonal constructs. A number of researchers (Lengnick-Hall and Lengnick-Hall, 1988; Milliman et al., 1991; Wright and Snell, 1998) propose that functional flexibility increases the fit between the demands of the environment and the organization or among organizational subcomponents because with functional flexibility, human resources can be quickly and efficiently reconfigured to suit changing needs, i.e. increase the fit. Therefore, if a resource has functional flexibility, numeric flexibility is less likely to be necessary. For example, if an entrepreneurial team member's role is highly flexible it will be unnecessary to exit the relationship because the individual can, and probably does do anything the new enterprise requires. In contrast, if the individual's concept of his or her role is highly rigid it may be necessary to exit the working relationship, if that person's function is no longer required. Therefore we propose,

Hypothesis 3: The ability to modify the team member's role will have a negative relationship to the potential to exit the relationship.

Strength of Tie and Resource Flexibility

Next, our model predicts that the strength of tie between the founding entrepreneur and the new team member impacts on both forms of resource flexibility and, through them, the team member's subsequent performance. Granovetter (1973, p. 1361) defines the strength of a tie as "a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding) and the reciprocal services which characterize the tie". Strong ties are formed through repeated contact and characterized as family or friends, while weak ties are acquaintanceships that may be more formal, such as a working relationship with a professional

service provider. In this study, we approach the role of the strength of tie by focusing on the strengths and weaknesses of strong ties in entrepreneurial team formation. In the early stages of the entrepreneurial process, entrepreneurs are more likely to turn to strong ties due to the availability of interpersonal trust and motivational resources such as mental, emotional and social support (Greve and Salaff, 2003; Johannisson, 1988; Welter and Kautonen, 2005). These qualities – and perhaps convenience – are also likely to make strong ties attractive when the initial entrepreneurial team is formed.

A strong tie between the founding entrepreneur and the new team member can contribute positively to resource flexibility by facilitating easier role modification. Frances and Sandberg (2000) found that venture teams based upon friendship are more likely to rely on implicit agreements, which can be more easily modified than explicit, written contracts. Furthermore, they propose that higher levels of friendship will result in greater commitment to the new venture, which could be reflected in willingness to accept role modification. Thuy and Quang (2005) observe that in an international joint venture, strict adherence to the wording of a legal contract is hardly possible. Their results show a significant positive relationship between relational capital, which includes friendship, and flexibility, defined as the degree to which the parties adjust their own behavior to accommodate each other's objectives (Pearce, 2001). Similarly we propose that the trust-based and supportive working atmosphere facilitated by a strong tie is likely to contribute to a greater willingness of the entrepreneurial team member to adjust to different work roles. Therefore,

> *Hypothesis 4: There will be a positive relationship between the strength of tie and role modification.*

However, seeking strong ties may not always be the most effective solution in entrepreneurial team formation. Recruiting only personally well known people may hamper business development in the long run because the firm might miss out on opportunities external to this network (Welter and Kautonen, 2005). In the context of entrepreneurial teams, such opportunities could be new skills or new ways of thinking about the business and its products or services. In fact, teams with strong ties have been found to be less innovative than those with weak ties or no prior relationships (Ruef, 2002). As the business grows and the need for new skills and insights leads to the point where current team members would be more effectively replaced with new people, another downside of strong ties becomes apparent. Frances and Sandberg (2000) found that high levels of friendship in the entrepreneurial team are negatively related to turnover, unless there is a departure of a founding member. Ucbasaran et al. (2003) also found a negative relationship between family firms and entrepreneurial team member exit. Similarly, in a study of interfirm relationships, Keister (1999) found a negative relationship between strength of ties and the ability of the receiving firm to do without the resource, i.e. exit the exchange relationship. Thus strong ties may generate social obligations, which could lead to lack of resource flexibility because the relationships are harder to exit. Hence:

> *Hypothesis 5: There will be a negative relationship between the strength of tie and the potential to exit the relationship.*

Entrepreneurial Team Formation of Serial versus Novice Entrepreneurs

Finally, we postulate that prior entrepreneurial experience may impact on the use of strong ties in entrepreneurial team formation. Hence, we distinguish between novice and serial

entrepreneurs in this context (see e.g. Hyytinen and Ilmakunnas, 2007; Westhead et al., 2005; Wright et al., 1997). Here, the term novice entrepreneur refers to individuals who establish a business without previous entrepreneurial experience, while serial entrepreneurs are those who have founded one or more businesses before their current one.

Mosey and Wright (2007) found that entrepreneurs with prior business ownership experience have broader social networks and are more effective in developing network ties than less experienced entrepreneurs. Business ownership experience was seen as essential to learning how to build relationships with experienced managers and potential equity investors. Just as serial entrepreneurs can more quickly and easily develop business connections, we expect that in their business they will be more sophisticated in their dealings with strong as well as weak ties and they will also approach entrepreneurial team formation more professionally than novice entrepreneurs. In fact, Westhead et al. (2005, p. 89) found serial entrepreneurs to be significantly more likely than novice entrepreneurs to "use new ways of managing and developing personnel."

Based on these arguments, we would expect serial entrepreneurs not to treat entrepreneurial team members with whom they initially had strong ties any differently from those team members with whom they had weak ties. Hence, the impact of the strength of tie on both forms of resource flexibility should be less than in case of novice entrepreneurs. However, the conceptual evidence is not clear enough to warrant formal hypothesis, which is why we will offer the comparison of serial and novice entrepreneurs as an explorative phase of this analysis.

METHODOLOGY

Measures, Data Collection and Sample Characteristics

To test our model we conducted a survey of German founding entrepreneurs in micro-sized technology-oriented incubator firms. The survey instrument employed in this study asked the business founders to rate members of their entrepreneurial team separately in the order of them joining the team. The measurement instrument item scales were adapted from previous studies or developed based on well-known theoretical conceptualizations (Appendix 1). *Entrepreneurial team member's performance* was measured in terms of proactiveness, problem solving and creativity (Zaheer et al., 1998). The resource flexibility dimension of *role modification* was measured using three items from a scale by Young-Ybarra and Wiersema (1999), such as "This person expects adjustments in the ongoing working relationship to cope with changing circumstances". In the same study they also assessed resource flexibility in terms of the relative ease of exit from an alliance, and we modified this scale to reflect the context of the entrepreneurial team. Thus, the resource flexibility dimension called *potential to exit* was measured with three items, such as "It would be easy to exit this relationship" (See Appendix 1). Based on Granovetter's (1973; 1985) conceptualization, the "strength of tie" was operationalized as a three-dimensional construct consisting of the depth of the relationship (how well the person is known), the frequency of contact and the embeddedness of the tie in a network of mutual friends and acquaintances.

We drew a random sample of 921 German incubator-based firms from a representative public database of German business incubators and technology centers that includes up-to-date information on companies located in a specific incubator (ADT, 2007). Since these firms are usually technology-oriented, they require a large number of different competencies for start-up and are therefore often established by teams. Consequently, they constituted an appropriate

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population for the purposes of this study. Firms were contacted by phone so that their contact information could be verified – after the initial phone calls the original founders of the firms were invited to participate in a personalized online survey. Since the complete population was directly accessible via email, we had no reason to believe that our data is affected by this particular method of data collection (Hudson et al., 2004). Data collection resulted in 214 responses which was commensurate to a 23.3 percent response rate. Out of these 214 responses, 114 firms (53.3 percent) were established by entrepreneurial teams and the founders of these firms rated 170 single team members that form the basis of our analysis.

Data quality was assessed by controlling for various potential biases. First, we checked the data for a potential non-response bias. Since non-respondents are usually assumed to be more similar to late respondents than to early respondents (Armstrong and Overton, 1977), the sample was divided into thirds according to the time between initial contact and completion of the questionnaire. We compared the first and the last third of the sample but *t*-tests revealed no significant differences between early and late respondents for the central descriptive variables. Hence, we did not find any indication of non-response bias in the data. Second, we examined the data for a potential common method bias. Applying Harman's *post hoc* one-factor test (Harman, 1967; Podsakoff and Organ, 1986) to the model variables did not reveal a general factor, but rather returned a four-factor-solution explaining 68.3 percent of the variance with the first factor accounting for just 39.5 percent of the variance in the data. This indicated that common method bias is not a limitation of our data, even though the dependent and independent variables were collected at the same time with the same instrument. Third, since the original founder of the firm rated all team members, the central assumption of independence of observations in most multivariate statistical procedures might have been violated. However, calculating the intra-class correlation coefficients (ICC) for the different team sizes (Janz, 1999) resulted in generally quite low ICC values for the three dependent constructs of our model, suggesting that observations are independent of each other. Appendix 1 reports the average ICC value for every single item. Solely the items for the independent strength of tie construct are associated with medium level ICC values, suggesting that entrepreneurs in our sample might tend to either rely on strong ties or weak ties exclusively when forming entrepreneurial teams. Because of these findings we compared a model comprising 114 definitely independent ratings for merely the first team member added to the entrepreneurial team to a model based on all 170 ratings. Since we found no significant differences between these two models, we gained confidence that there is no lack of independence between individual observations and continued the analysis with the larger sample.

Table 1 summarizes the central descriptive variables for the complete sample and compares firms established by single founders to firms established by entrepreneurial teams as well. Overall, the sample is typical for German incubator-based firms. Firms tend to pursue a technology-oriented business model and are rather small. According to the European Commission's (2003) definition that considers balance sheet total, revenue and employees, all firms in the sample can be classified as small and medium-sized enterprises (SME) with the majority being micro sized enterprises. Comparing single founders to team start-ups, *t*-tests indicate that entrepreneurial teams are the preferred mode of start-up especially in information technology. Moreover, team start-ups tend to be slightly larger than firms established by single founders; they generate significantly larger revenues and employ more workers. On average, these teams consist of three persons (Ø 2.9; SD .9). Moreover, the sample contains a considerable number of experienced entrepreneurs – approximately one fourth of the respondents state that their current firm is not their first entrepreneurial endeavor and can thus be classified as serial

entrepreneurs.

Insert Table 1 about here

Data Analysis and Results

Analytical strategy. Data were analyzed by means of the Partial Least Squares (PLS) approach to structural equation modeling (Chin, 1998; Wold, 1985) which in recent years has gained popularity among management scholars in general (Avolio et al., 1999; Keil et al., 2000) and entrepreneurship researchers in particular (Davidsson et al., 2006). The analysis was conducted with the software package SmartPLS 2.0 M3 (Ringle et al., 2005).

The data analysis process involved two main steps. First, we tested the theoretically grounded hypotheses utilizing all ratings provided by the founding entrepreneurs about their respective team members (n = 170). Second, an exploratory group comparison (Chin, 2000) was conducted in order to explore differences between serial (n = 43) and novice entrepreneurs (n = 127) with respect to the relationships in the conceptual model. Similar to other methods of structural equation modeling, PLS renders the measurement of latent variables possible (Jacoby, 1978; Churchill, 1979).

We chose PLS for this particular analysis due to its low requirements with respect to sample size and distribution of data. While covariance-based methods of structural equation modeling (e.g. LISREL and AMOS) require relatively large sample sizes (Jöreskog and Sörbom, 1982), PLS requires as the minimum number of cases only ten times the number of independent variables that affect the dependent latent variable with the most predictors in case that only reflective measurement models are employed (Chin and Newsted, 1999), as is the case in our study. Entrepreneurial team member's performance and resource flexibility (exit) were the latent variables with the most predictors (two each) in our model, and therefore the model can be reliably tested even with a sample as small as 20 cases. While this advantage of PLS was not relevant for the analysis of the aggregate sample, it was crucial for the explorative part of the analysis, where smaller subsamples were analyzed.

Confirmative results. The model consists of four constructs –team member's performance, role modification, potential to exit and strength of tie – that were measured reflectively with five-point Likert-scales. The items together with their means, standard deviations and loadings are displayed in Appendix 1, while Table 2 reports the correlations for all latent variables. For all constructs, all item measures show loadings of more than .7 so that no item measure had to be deleted.

Insert Table 2 about here

Construct reliability was assessed by calculating Cronbach's α, Composite Reliability and Average Variance Extracted (AVE). All constructs, both in the aggregate data and the two subsamples, show satisfying values for these indicators that are in line with the usual threshold values of .7 for Cronbach's α, Composite Reliability and .5 for AVE (Chin, 1998; Nunnally and Bernstein, 1994). These values for the aggregate data are reported in Table 3.

Insert Table 3 about here

Furthermore, discriminant validity was assessed both at the item level and at the construct level. With respect to item discriminant validity, an inspection of indicator cross-loadings reveals that all indicators are loading at their highest with their respective construct and that no indicator loads higher on other constructs than on its intended construct (Appendix 2). It is therefore safe to assume item discriminant validity. At the construct level, the comparison of the square root of each reflective construct's AVE and the latent variable correlations (Chin, 1998) suggests that there is indeed satisfactory discriminant validity (Cool et al., 1989). Tables 2 and 3 present the very favorable results of this test.

The path weighting scheme was utilized to estimate the paths between the latent variables because it is the only weighting scheme that explicitly considers the conceptual model directions of the causal relationships between exogenous and endogenous variables (Chin, 1998; Lohmöller, 1989). Following common conventions, the abort criterion for the iterative estimation process was selected as a change of the estimated values of just 10^{-5} percent between two iterations. In order to determine the significance of each estimated path, a standard bootstrapping procedure (Yung and Bentler, 1996) was applied with 500 resamples consisting of the same number of cases as in the original sample. Potential sign changes during the course of resampling were treated by means of the option "individual sign changes" provided in SmartPLS 2.0 M3. Figure 2 depicts the resulting path model. Results show that the general model explains a satisfying amount of the endogenous variables' variances, indicating an acceptable explanatory power of the model with R^2 values ranging from 0.145 to 0.636. Moreover, the Stone-Geisser-Criterion (Stone, 1974) indicates that the prerequisites of predictive relevance for the model are fulfilled, as all Q^2 values of all latent dependent variables are consistently higher than zero. Calculating the model's goodness of fit (GoF), that is the geometric mean of the average communality and the average R^2 (Tenenhaus et al., 2005), results in a satisfying value of 0.501. In PLS, the goodness of fit measure takes values between 0 and 1 and a value of .5 is usually considered appropriate (Ringle et al., 2008).

Insert Figure 2 about here

We find significant paths for all hypothesized relationships. The effect sizes f^2 vary from a weak negative effect of the strength of tie on potential to exit to a strong positive effect of role modification on the entrepreneurial team member's performance. All other hypothesized relationships are associated with medium level effects. Hence, the results support our theoretical reasoning quite well.

Starting with the right-hand side of the model, Hypothesis 1 predicted that there would be a positive relationship between role modification and the entrepreneurial team member's performance. This hypothesis was supported by a significant positive relationship between these variables in the model (ß = 0.534, p < .001). Hypothesis 2, suggesting that there would be a negative relationship between the potential to exit the relationship and entrepreneurial team member's performance, was supported by a significant negative relationship between potential to exit and team member performance (ß = – 0.338, p < .001). In Hypothesis 3 we proposed a negative relationship between the two dimensions of resource flexibility, the ability to modify the team member's role and the potential to exit the relationship. Also this hypothesis was supported

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by a significant negative relationship between role modification and potential to exit in the model results (ß = -.441, p < .001).

Proceeding to the left-hand side of our research model, Hypothesis 4 predicted that the stronger the tie between the entrepreneur and the team member, the easier it will be to modify the team member's role in the business. The model shows a significant positive relationship between the strength of tie and role modification (ß = 0.381, p < .001), which supports this hypothesis. Finally, in Hypothesis 5 we postulated that the stronger the tie between the entrepreneur and the team member, the harder it will be to exit the relationship. The significant negative relationship between the strength of tie and potential to exit in the path model supports this hypothesis (ß = -.109, p < .05).

Exploratory results. Next, we explored the differences between serial and novice entrepreneurs in terms of our research model. For this purpose, we divided our sample into two subsamples, i.e. serial (n = 43) and novice entrepreneurs (n = 127), and performed an exploratory group comparison following Chin's (2000) recommendations (for other studies using similar approaches see Avolio et al., 1999 or Keil et al., 2000). Separate models were estimated for each subsample resulting in two new models for novice and serial entrepreneurs (Table 4). Both models are of sufficient explanatory power, predictive relevance and overall fit as indicated by their respective R^2, Q^2 and GoF values and the reliability and validity measures for the new models are of comparable quality to the results of the main model.

Insert Table 4 about here

Inspecting the novice entrepreneur model reveals no difference to the model calculated with the complete data. All paths are significant and display the hypothesized causal direction as indicated by their respective algebraic signs. The statistical effects actually become even stronger than in the general model. However, an examination of the serial entrepreneur model reveals a substantial effect of entrepreneurial experience on resource flexibility: while the model's right side is still comparable to the novice entrepreneur and the general models, the effects of the strength of tie on the two resource flexibility constructs vanish completely. Insignificant paths, low to non-existent effect sizes (f^2) and R^2 values close to zero indicate that resource flexibility in firms established by serial entrepreneurs is neither positively nor negatively affected by the strength of tie between the founding entrepreneur and the new team member. In addition, for serial entrepreneurs the relationship between role modification and exit was not significant.

DISCUSSION

This research established that the initial strength of tie between the founding entrepreneur and the new team member changes human resource flexibility by increasing role modification but reducing potential to exit the working relationship. As predicted in Hypotheses 1 and 2, higher role modification had a significant positive impact on team member performance, whilst potential to exit the working relationship was negatively associated with the entrepreneurial team member's performance. In other words, if the entrepreneurial team member is able and willing to modify his or her role in the business, that individual also performs better. The ability to modify working arrangements can greatly benefit a new enterprise, particularly in the face of changing work requirements. Owner-managers that can fill a range of roles can reduce the firm's wages bill, ease cash-flow constraints and reduce the "burn rate" of investors' funds. For example, as the

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new business transitions from new product development into market entry, team members sourced for their engineering expertise may need to transition into selling or customer service roles. On the other hand, the team member's performance is impaired if the person knows that she or he can be easily removed from the team. Moreover, as Hypothesis 3 suggested, the potential to exit the working relationship is less relevant if the team member is willing to modify his or her work role. In summary, the results of the empirical analysis supported our three hypotheses derived on the basis of the human resource flexibility theory.

However, the core of our research question concerned the role of the strength of tie in this context. As expected, our results indicated that strong ties have both advantages and disadvantages in creating resource flexibility in entrepreneurial teams. The evidence supported Hypothesis 4 that predicted strong ties to increase the team's resource flexibility by increasing the team member's acceptance of modifications to their work arrangements. Possibly business partners introduced to the team for their skills in a technical area are less willing to work outside their professional boundaries than family members or friends, who may join the firm for more personal reasons.

The more flexible role modification associated with strong ties comes at the cost of greatly reduced resource flexibility in terms of the potential to exit the working relationship. As postulated in Hypothesis 5, working relationships between entrepreneurial team members sourced through strong ties are much more difficult to severe, should the need arise. For example, it would be much harder to ask a relative or a friend to leave the firm they helped start than someone brought in for their technical expertise. The weaker the tie, the greater the resource flexibility will be in terms of the potential to exit the relationship. Thus, if the initial members of the entrepreneurial team do not have the skills, experience, or willingness to grow with the enterprise, they can more easily be replaced if the relationship is based upon weak ties. Venture capital firms may insist on the replacement of entrepreneurial team members when their perceived abilities do not keep pace with the fast growing firm. While this may be an easy decision for the venture capitalist to make, it could be much harder for a founder with a strong tie with this person.

Interestingly, entrepreneurial teams led by serial entrepreneurs are not influenced by the strength of tie in establishing role modification or potential to exit the working relationship. This seems to indicate that serial entrepreneurs do not let personal relationships stand in the way of making entrepreneurial team member role decisions or membership decisions. The result supports our tentative proposition that serial entrepreneurs do not let personal relationships interfere with business as much as novice entrepreneurs. Has experience taught serial entrepreneurs to think more like venture capitalists? In any case, the aforementioned effects of strong ties apply only to firms set up by novice entrepreneurs, but the influences of modification and exit apply to both novice and serial entrepreneurs. This means that while serial entrepreneurs may not use their strong ties to gain resource flexibility, they still reap the advantages of role modification and the disadvantages of exit.

The major managerial implication of this research is to counsel founders and venture capitalists to encourage role modification and avoid implying that the potential to exit the relationship might be exercised. These issues could be discussed during partnership negotiations. Founders could also agree to try role modification prior to any consideration of exit. These results support the choice of strong ties, particularly for novice entrepreneurs, during start-up when greater commitment is needed.

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A limitation of this study could have been the small sample size; but with PLS we selected an appropriate method that is technically correct for the sample size (Chin and Newsted, 1999). Moreover, the sample is restricted to technology-oriented, incubator based firms. Our sample already covers a wide range of different industries; however, samples that are larger and even more diverse are recommended for future studies in order to enhance the generalizability of our findings. Another limitation could be that we do not investigate whether and how resource flexibility affects not only the team member's, but also the new venture's performance. This is certainly an interesting and relevant question that warrants further inquiry. In this context it would also be relevant to look into the differences between novice and serial entrepreneurs in more detail. For example, are serial entrepreneurs missing opportunities for greater role modification or benefiting from both role modification and potential to exit regardless of strength of tie? This is another question for future research.

CONCLUSION

This study contributes to the theory of entrepreneurial team formation by explicating the role of strong ties on functional and numeric resource flexibility and showing their impact on team member performance. The results of this research indicate that choosing a previously well known individual, a strong tie, to join the entrepreneurial team increases the founder's ability to modify the team member's working arrangements, but makes it harder to exit the relationship if the team member's ability does not keep up with the requirements of the developing business. Given that role modification was found to increase the team member's performance and the potential to exit the relationship to reduce it, the overall effect of an initial strong tie on the entrepreneurial team member's subsequent performance was positive. However, an important finding was that these effects apply only to ventures established by first-time, novice entrepreneurs, since the strength of tie did not impact on either form of resource flexibility in teams set up by serial entrepreneurs. We counsel founders and venture capitalists to discuss role modification as an alternative to exit during partnership and funding negotiations.

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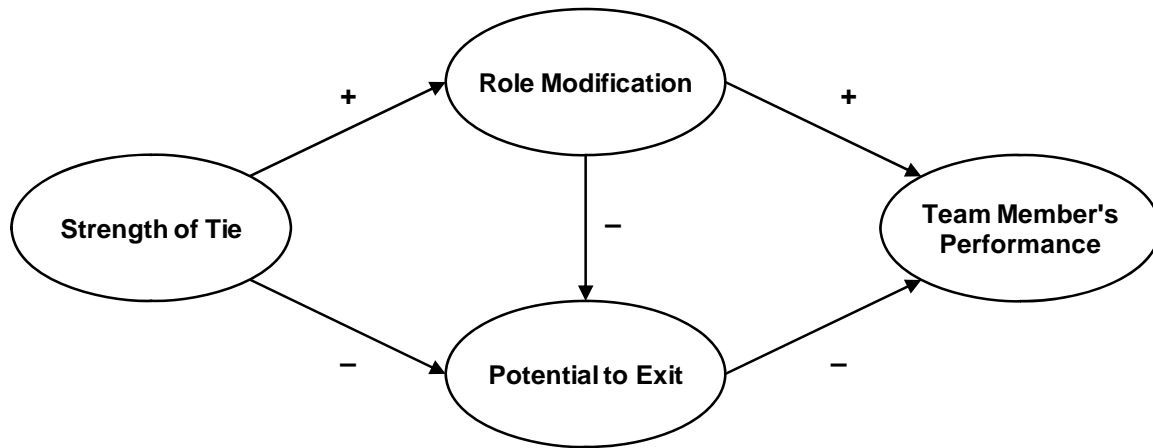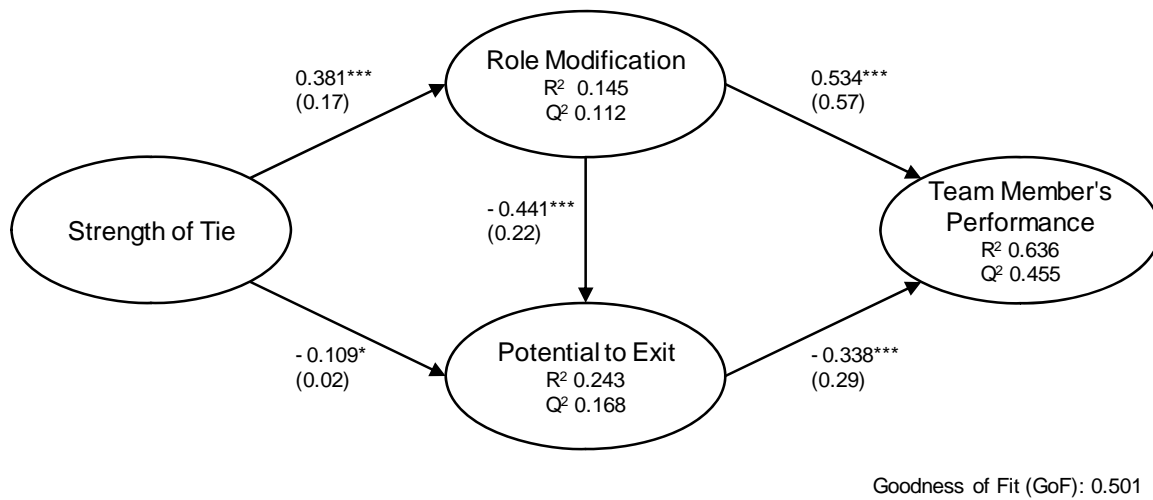
Figure 1 – Theoretical model

Figure 2 – Results of the PLS estimation (n = 170) – path coefficients and effect sizes (in parentheses)

Goodness of Fit (GoF): 0.501

***p ≤ 0.001   **p ≤ 0.01   *p ≤ 0.05   (one-sided test)

Table 1: Sample descriptive statistics for all, single founders and team start-ups (N=214)

	All (N=214)	Single (n=100)	Team (n=114)	Single/ Team Δ
Firm characteristics				
Industry				
Energy	2.8 %	3.0 %	2.6 %	.4
Materials	1.9 %	2.0 %	1.8 %	.2
Industrials	21.0 %	22.0 %	20.2 %	1.8
Consumer	2.3 %	3.0 %	1.8 %	1.2
Health care	4.2 %	4.0 %	4.4 %	.4
Financials	2.3 %	3.0 %	1.8 %	1.2
Information technology	34.6 %	26.0 %	42.1 %	16.1*
Telecommunication	4.2 %	3.0 %	5.3 %	2.3
Utilities	1.9 %	2.0 %	1.8 %	.2.
Other	24.8 %	32.0 %	18.4 %	13.6*
Balance sheet total				
< € 2 M	92.1 %	97.0 %	87.7 %	9.3*
≥ € 2 M and < € 10 M	5.6 %	3.0 %	7.9 %	4.9
≥ € 10 M and < € 43 M	2.3 %	-/-	4.4 %	4.4*
≥ € 43 M	-/-	-/-	-/-	-/-
Revenue				
< € 2 M	90.2 %	96.0 %	85.1 %	10.9**
≥ € 2 M and < € 10 M	6.5 %	3.0 %	9.6 %	6.6*
≥ € 10 M and < € 50 M	2.8 %	1.0 %	4.4 %	3.4
≥ € 50 M	.5 %	-/-	.9 %	.9
Employees	14.2 (SD 53.9)	6.4 (11.6)	21.1 (SD 72.5)	14.7 ***
Team size	2.0 (SD 1.2)	1.0 (SD .0)	2.9 (SD .9)	1.9 ***
Age	6.8 (SD 5.0)	6.4 (SD 4.9)	7.2 (SD 5.1)	.8
Founder characteristics				
Gender				
Male	88.3%	85.0 %	91.2 %	6.2
Female	11.7%	15.0 %	8.8 %	6.2
Entrepreneurial experience				
Novice entrepreneur	75.7%	76.0 %	75.4 %	.6
Serial entrepreneur	24.3 %	24.0 %	24.6 %	.6

***p ≤ 0.001   **p ≤ 0.01   *p ≤ 0.05 (two-sided test)

Table 2: Pearson Product Moment Correlation for the latent variables (n=170)

	1.	2.	3.
1. Strength of Tie (SOT)			
2. Role Modification (MOD)	.381***		
3. Potential to Exit (EXIT)	-.277***	-.483***	
4. Team Member's Performance (PERF)	.336***	.721***	-.646***

***p ≤ 0.001   **p ≤ 0.01   *p ≤ 0.05   (two-sided test)

Table 3: Construct reliability measures – Cronbach's α, composite reliability (CR), average variance extracted (AVE) and square-root of average variance extracted (AVE$^{1/2}$) (n=170)

	α	CR	AVE	AVE$^{1/2}$
1. Strength of Tie (SOT)	.808	.884	.719	.848
2. Role Modification (MOD)	.854	.911	.773	.879
3. Potential to Exit (EXIT)	.775	.868	.688	.829
4. Team Member's Performance (PERF)	.838	.903	.756	.869

Table 4: Group comparison of serial vs. novice entrepreneurs

	Serial Entrepreneurs (n = 43)				Novice Entrepreneurs (n = 127)				Path coefficient
	Path	f^2	R^2	Q^2	Path	f^2	R^2	Q^2	Δ
SOT → MOD	.050	.00	.002	.01	.459***	.27	.210	.17	.409**
SOT → EXIT	-.249*	.07	.085	.07	-.130*	.02	.315	.22	.119
MOD → EXIT	-.141	.01	.085	.07	-.489***	.26	.315	.22	.348*
MOD → PERF	.499***	.4	.47	.33	.565***	.72	.702	.51	.066
EXIT → PERF	-.396**	.24	.47	.33	-.381***	.33	.702	.51	.015
Goodness of Fit (GoF)	.357				.550				

***$p \le 0.001$ **$p \le 0.01$ *$p \le 0.05$ (one-sided test for the respective sub-samples, two-sided test for the group comparison)

Appendix 1: Means, standard deviations (SD), loadings and average intra-class correlation coefficients (ICC) of the construct variables (n=170)

Constructs and items (all measured on 5-point Likert-scales)	Mean	SD	Loading	ICC
Strength of tie (SOT) (based on conceptualizations in Granovetter 1973, 1985)				
SOT1 – We had common acquaintances (before s/he joined the enterprise team)	2.74	1.555	.778***	.507
SOT2 – We were in contact (before s/he joined the enterprise team)	3.69	1.460	.861***	.721
SOT3 – I knew this person (before s/he joined the enterprise team)	3.85	1.229	.901***	.374
Potential to exit (EXIT) (Young-Ybarra and Wiersema, 1999)				
EXIT1 – This person's contribution would make it difficult to ask him/her to leave	2.41	1.281	.890***	.188
EXIT2 – It would be easy to exit this relationship	1.99	1.273	.743***	-.002
EXIT3 – Asking this person to leave would make the other entrepreneurial team members unhappy	2.73	1.396	.848***	-.047
Role modification (MOD) (Young-Ybarra and Wiersema, 1999)				
MOD1 – In unexpected situations this person would probably agree to modify our agreement rather than hold us to the original terms	4.05	1.089	.873***	.121
MOD2 – Flexibility in response to changes is a characteristic of our working relationship	3.94	1.172	.922***	.307
MOD3 – This person expects adjustments in the ongoing working relationship to cope with changing circumstances	3.84	1.253	.841***	.056
Team member's performance (PERF) (Zaheer et al., 1998)				
PERF1 – The team members reacts quickly and out of his own initiative when problems emerge	3.92	1.189	.877***	-.127
PERF2 – This team member acts creatively in solving problems	4.00	1.120	.873***	.203
PERF3 – The team member's contribution is crucial to the performance of the company	3.88	1.217	.858***	.06

***$p \leq 0.001$ **$p \leq 0.01$ *$p \leq 0.05$ † $p \leq 0.1$ (one-sided test)

Appendix 2: Item discriminant validity (n=170)

Item	Strength of Tie (SOT)	Role Modification (MOD)	Potential to Exit (EXIT)	Team Member's Performance (PER)
SOT1	.778	.227	-.154	.152
SOT2	.861	.341	-.248	.324
SOT3	.901	.373	-.277	.336
MOD1	.351	.873	-.391	.559
MOD2	.348	.922	-.504	.757
MOD3	.306	.841	-.359	.559
EXIT1	-.257	-.479	.890	-.612
EXIT2	-.231	-.289	.743	-.391
EXIT3	-.205	-.404	.848	-.571
PERF1	.324	.633	-.524	.877
PERF2	.338	.697	-.509	.873
PERF3	.213	.548	-.654	.858