Cover Page

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Title: Corporate venture management in SMEs : evidence from the German IT consulting industry
Issue Date: 2015-12-02

Chapter 6

Applying the Autonomy Construct

This chapter aims to answer *RQ3: How are the autonomy dimensions related to the success of the corporate ventures?* For this purpose, the two-dimensional autonomy construct (validated in Chapter 5) will be applied (see Figure 5.2). A survey study with 87 venture managers of SMEs is conducted in the German IT consulting industry. Multiple linear regression analysis is performed to analyze the relationship of the two autonomy dimensions strategic autonomy and job autonomy with corporate venture success. Additionally, two interaction effects (moderation) are included in the regression analysis in order to evaluate how the relationship between autonomy (strategic autonomy and job autonomy) and corporate venture success is influenced when venture managers are enforced to emphasize exploitative priorities in their decision making.

Parts of this chapter are based on the following publication[6]:

Gard, J., Baltes, G., Andersen, T. J., & Katzy, B. (Forthcoming 2016). **Corporate venture management in small-medium sized enterprise: The roles and effects of autonomy and corporate policy**. In the Journal of Business Venturing.

The chapter proceeds as follows. Section 6.1 highlights the challenge for corporate management to manage corporate ventures in a way that (a) the new business is invented and (b) made profitable at the same time. Following the organizational ambidexterity theory, we assume that an essential

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[6] The author would like to thank his co-authors and the publishers of the Journal of Business Venturing for their permission to reuse relevant parts of the articles in this thesis.

managerial challenge is to balance the corporate venture's engagement in explorative activities and exploitative activities. In Section 6.2, we acknowledge the exploration objective of corporate ventures to invent the new business and highlight the relevance of exploitative priorities to achieve profitability at some point. In Section 6.3, we operationalize an empirical model for effective corporate venture management. Our model assumes that effective corporate venture management requires corporate management: (1) to grant the venture manager with broad decision authority (strategic autonomy and job autonomy) in order to enable effective explorative activities (as described in Chapter 3); and (2) to ensure at the same time some exploitation priority in the venture manager's decision making to also emphasize exploitative activities. The research design to test our model is presented in Section 6.4, which enables us to answer the *RQ3* and after that the *PS*. The results of the model testing are reported in Section 6.5 and discussed in Section 6.6. The chapter conclusions are given in Section 6.7.

6.1   THE CHALLENGE TO MANAGE CORPORATE VENTURES

Establishing corporate ventures is a promising approach for corporations to generate strategic renewal (cf. Christensen, 2004). The small entrepreneurial teams are an effective means to create new businesses aside the mainstream activities in which corporations capitalize on their existing businesses (cf. Kuratko et al., 2009). Researchers assume that corporate venturing on average has positive implications on firm performance (cf. Dushnitsky & Lenox, 2006; Covin & Miles, 2007; Covin, Garrett, Kuratko, & Shepherd, 2010; McGrath et al., 2012). However, it is not obvious how corporate ventures are managed successfully (cf. Ginsberg & Hay, 1994; Hill & Birkinshaw, 2012; Garrett & Neubaum, 2013). Burgelman and Valikangas (2005) argue that failure is not just attributable to the novel task environment but is linked to the challenge to manage corporate ventures effectively.

An essential challenge for corporate management is to ensure that corporate ventures achieve at the same time (a) the exploration objective to invent the new business and (b) the exploitation objective to reach profitability with the new business (cf. Garvin, 2004). Achieving the former objective is associated with explorative modes of search and experimentation whereas the latter objective is reached through exploitative modes of refinement and improvement (March, 1991a). However, too much emphasis on either mode of activities may have negative implications for the corporate venture as either the exploration objective or the exploitation objective may remain unfulfilled (cf. He & Wong, 2004). Following the organizational ambidexterity theory, we assume that an essential challenge for corporate management is to balance the engagement of corporate ventures in explorative modes and exploitative modes so that the new business is invented and reaches profitability (cf. Junni, Sarala, Taras, & Tarba, 2013).

Two prior studies support our assumption. Thornhill and Amit (2000) highlight the necessity of corporate ventures to develop new capabilities (explore) and simultaneously utilize those already existing in the corporation (exploit). A second study shows that the ability to develop new capabilities and simultaneously to lever existing corporate capabilities increases the longevity of corporate venture divisions that large enterprises typically implement to manage corporate ventures (cf. Hill & Birkinshaw, 2012). Without any doubt, the development of new capabilities (to invent the business) involves explorative modes of search and experimentation whereas the utilization of existing corporate capabilities (to increase profitability) involves exploitative modes of refinement and improvement for adaptation to the venture's new task environment (see, e.g., March, 1991a). Nevertheless, it remains unclear how corporate management may balance the engagement of corporate ventures in both modes.

We propose a management model through which corporate management may master the challenge to achieve the balance between the exploration objective and the exploitation objective. The model

builds on two considerations. *First*, Burgers et al. (2009: 208) highlight that corporate ventures require a "sense of freedom and ownership over their activities" to invent the new business (explore). Providing corporate ventures with the "freedom of activities", viz. autonomy, assumes that corporate management has delegated decision authority to the venture manager. Considering our findings in the Chapters 3-5 (see Figure 5.2), two types of autonomy are at play: (a) the freedom of the venture manager to make work-mode decisions without approval (job autonomy); (b) the freedom to make strategic decisions without approval (strategic autonomy). This broad autonomy enable the venture manager to engage effectively in exploration modes of search and experimentation for inventing the new business (cf. McGrath, 2001). *Second*, there is little hope that corporate ventures achieve profitability without exploitative priorities in decision making (cf. Hill & Birkinshaw, 2012). Corporate management may ensure such priorities by enforcing business policies that emphasize the exploitation objective to achieve profitability (see, e.g., Lubatkin, Simsek, Ling, & Veiga, 2006). Building on the two considerations, we develop an empirical model for effective corporate venture management in Section 6.3. The model (illustrated in Figure 6.1) assumes that corporate ventures are most successful when corporate management grants venture managers with broad decision authority in combination with business policies that ensure exploitation priority in the decision making of venture managers.

In order to test our model, we apply our autonomy construct (Figure 5.2) for measuring the decision authority (strategic autonomy and job autonomy) that corporate management grants to the venture managers. The two-dimensional autonomy construct is further developed by including the measure exploitation priority which captures the business policy that corporate management enforces (see Figure 6.1). The definitions for strategic autonomy and job autonomy are already given in Chapter 4 (see definitions 4.4 and 4.5). Exploitation priority is introduced as a new measure and defined as follows.

Definition 6.1: **Exploitation Priority** *"measures the extent to which corporate management forces venture managers to prioritize the exploitative objective to gain profit over the explorative objective to invent" (cf. Lubatkin et al., 2006).*

The overall aim of the study in this chapter is to test empirically the effectiveness of our management model by evaluating its power to predict corporate venture success. Therefore, we test two considerations. *First*, we consider that two types of autonomy are essential for effective corporate venture management. One is associated with strategic freedom (strategic autonomy) and the other is associated with operational freedom (job autonomy), which give the venture manager leeway to effectively invent the new business. We apply our autonomy construct to evaluate how the strategic freedom and the operational freedom of venture managers are related with corporate venture success, thereby answering RQ3. Results will show whether power dispersion is essential for effective corporate venture management (see Crockett et al., 2013). *Second*, we introduce business policy as an integrating management device to enforce exploitative priority in the venture manager's decision making (cf. Lubatkin et al., 2006). We investigate whether the management device is effective for corporate venture management. The first and the second consideration are tested in combination for answering the PS.

6.2   THE RELEVANCE OF EXPLOITATION PRIORITY

Initially, a corporate venture is established by corporations following the exploration objective to invent a new business, often in a novel business domain (cf. Garrett & Covin, 2013). Early studies by corporate venture scholars highlight the necessity to separate corporate ventures from the corporate mainstream business (see Kanter, 1985; Sathe, 1989). The mainstream activities rather focuses on the exploitation objective to improve established businesses for increasing profitability, which may constrain the explorative activities of corporate ventures (cf. Jansen et al., 2009). By

keeping the corporate venture separate from the mainstream business, the ventures can operate outside the formal corporate constraints (cf. Garrett & Covin, 2013) with the flexibility necessary to explore new knowledge in the novel task environment (cf. McGrath, 2001). This call for separation is consistent with the notion to establish dual structures for achieving organizational ambidexterity. The notion builds on the consideration that explorative activities and exploitative activities are mutually incompatible (see March, 1991a), which necessitates to separate the two modes of activities in distinct organizational entities (cf. Duncan, 1976).

However, it is also acknowledged that corporate ventures do not singularly engage in explorative activities for the purpose to invent the new business. Corporate ventures also need to engage in exploitative activities to reach profitability (see Hill & Birkinshaw, 2012). Without exploitation priority, corporate ventures may invent the new business (explore) but may fail to lever resources to gain scale and scope economies when the venture is commercialized as a new strategic businesses (exploit). We may therefore conclude that corporate ventures require at least some exploitation priory in their decision making.

The current study assumes that corporate ventures are most successful when corporate management (a) delegates decision power to enable effective exploration of the new business and (b) enforces some exploitation priority in the venture manager's decision making to ensure that profitability is also reached at some point. To test if the managerial influence of corporate management has an impact, the three independent variables, namely strategic autonomy, job autonomy and exploitation priority, are used to investigate the two assumptions (a and b) to explain corporate venture success. This way corporate management enhances exploration for new knowledge by granting both strategic autonomy and job autonomy to the venture manager while giving strategic priority to the exploitation objective to increase profitability.

6.3   THEORY AND HYPOTHESES DEVELOPMENT

This section continues the research on our autonomy construct (see Figure 5.2) to study the theoretical background and to develop the hypotheses. Therefore the outcomes of the Sections 6.1 and 6.2 are used. In the Subsections 6.3.1 to 6.3.3 we discuss prior theoretical rationales and empirical findings as underpinnings for the development of our hypotheses. The hypotheses reflect the two suggested managerial assumptions (see Sections 6.1 and 6.2) for corporate venture success. For readability we show the outcome as a guideline for understanding the hypotheses. So, Figure 6.1 illustrates the hypothesized relations H1 to H4, which are to be developed in the subsections below.

Figure 6.1: The Hypothesized Model Relationships
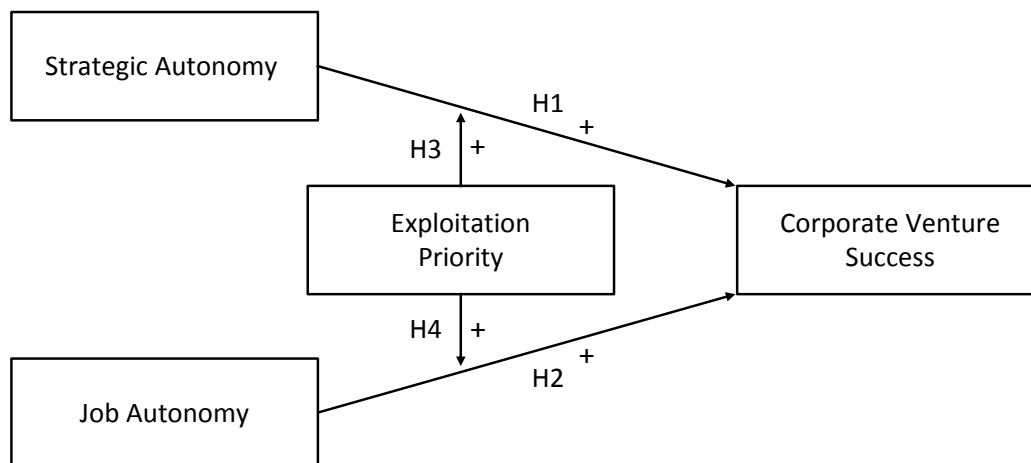
6.3.1   STRATEGIC AUTONOMY AND CORPORATE VENTURE SUCCESS

Strategic autonomy refers to the authority delegated to venture managers on decisions that can influence strategic outcomes without obtaining prior approval from corporate management. These types of decisions go beyond concerns about job design for operational freedom. They rather deal with aspects such as (1) initiating specific R&D activities, (2) generating internal competencies, (3) engaging in new product-development efforts, (4) seeking new markets, (5) customer segments

as well as (6) qualification for new strategic moves. The operationalization of the original strategic autonomy measures (1 to 6) is described in Chapter 5. The results are briefly summarized in Subsection 6.4.1.

According to the measures, strategic autonomy provides venture managers with the freedom to act independently and take advantage of opportunities in the new business environment, essentially in the form of autonomous actions (cf. Burgelman, 1983; Andersen, 2000). One stream of research by strategic management scholars illustrates the importance of autonomous action (i.e., resource-committing decisions) across different parts of the organization as an important source of business initiatives that have longer-term implications for corporate strategy development and strategic adaptation (see, e.g., Mintzberg, 1978; Bower, 1986; Floyd & Wooldridge, 1992; Mintzberg, 1994). Five complementing core findings extracted from the stream of research are provided below, which lead to the first hypothesis.

First, autonomous responsive actions represent the explorative component of strategy making that Mintzberg (1994) associates with emergent strategy initiated by actors operating throughout the organization. *Second*, autonomous responsive actions constitute the individual initiatives that form new internal ventures as the evolutionary element of strategy making that create variation in potential business activities for strategic renewal (see, e.g., Burgelman, 1983; Burgelman, 1996). *Third*, it is argued that the autonomous actions constitute a "form of efficient low-risk strategy probing based on active search" which generates new business opportunities through experimentation (cf. Andersen & Nielsen, 2007: 22). *Fourth*, this explorative component of strategy-making is found to have a positive association to firm performance in dynamic environments (cf. Andersen, 2000; Andersen, 2004). *Fifth*, Kuratko and Audretsch (2009) find that the success of corporate ventures is enhanced when the venture managers have authority to develop

the strategic direction of the new business. The five complementing findings lead to the following hypothesis.

> *H1:* *Higher strategic autonomy granted to the venture manager is associated with higher*
>
> *corporate venture success.*

6.3.2 Job Autonomy and Corporate Venture Success

Autonomy is also recognized as an important feature when designing jobs characterized by, e.g., skill variety, task identity, significance and feedback (cf. Hackman & Oldham, 1975a). In this context it is often labeled "job autonomy", indicating the discretion venture managers have when they set up (1) the job (work method) including scheduling, (2) the sequencing and timing (work scheduling) and (3) the performance evaluation (work criteria) (cf. Breaugh, 1985). The operationalization of the three original job autonomy measures (1 to 3) is described in Chapter 5. The results are briefly summarized in Subsection 6.4.1. The effects of job autonomy are reported in three research streams. The three key results of the three research streams that lead us to the second hypothesis are reported below.

First, some key results suggest that job autonomy has a positive influence on (a) work effectiveness (cf. Hackman & Oldham, 1976; Langfred & Moye, 2004; Zhang & Bartol, 2010) and (b) fosters creative work involvement (cf. Volmer et al., 2012) as well as (c) role breadth self-efficacy (cf. Parker, 1998; Axtell & Parker, 2003; Unsworth & Clegg, 2010). There is little hope that good results are achieved when (ad a) the work of venture teams is organized ineffectively, (ad b) venture teams do not engage in creative processes at work and (ad c) teams are not carrying out broader work tasks beyond the prescribed technical requirements.

Second, it is recognized that job autonomy has an inherent motivational effect that improves job performance (cf. Hackman & Oldham, 1976; Hackman, 2002). In a similar vein, studies find that

individuals with high job autonomy feel more responsible for their ideas and are therefore more likely to complete their jobs successfully (cf. Parker & Sprigg, 1999; Volmer et al., 2012). There is little hope that venture managers will create the new business successfully without having the motivation and/or feeling responsible to do so.

Third, Parker (2014) finds a link between job autonomy and explorative behavior that drives actions to modify work methods in adaptation to changes in the task environment. This exploration enforcing effect of job autonomy is also noted in research on creativity (cf. Amabile, 1983). Here it is observed that managers with high job autonomy generate more ideas (cf. Hennessey & Amabile, 2010), engage in broader proactive activities (cf. Unsworth & Clegg, 2010) and are more motivated to develop new work tasks (cf. Wang & Cheng, 2010). In this sense, job autonomy enables venture managers to break out of established routines and norms (cf. Shalley & Gilson, 2004). Such explorative behavior is necessary to overcome organizational constraints of formalized organizations which is essential to pursue corporate venture activities (cf. Kanter, 1989; Rauch, Wiklund, Lumpkin, & Frese, 2009). The evidence and reasoning in the three research streams leads us to the following hypothesis.

> *H2:   Higher job autonomy granted to the venture manager is associated with higher*
>
> *corporate venture success.*

6.3.3   THE MODERATING ROLE OF EXPLOITATION PRIORITY

A business policy that gives strategic priority to exploitation describes the emphasis that corporate management puts on the exploitation objective to increase profitability to the detriment of the exploration objective to invent. Exploitation priority forces the venture manager to focus on (1) committing to improve quality and lower cost, (2) improving the process efficiency and (3) penetrating more deeply into existing customer base *instead of* (4) creating products or services that are innovative to the firm, (5) looking for novel ideas by thinking "outside the box" and (6)

bringing ventures aggressively into new market segments (cf. Lubatkin et al., 2006). The operationalization of the exploitation priority measures (1 to 6) is given in Subsection 6.4.1 (see also Appendix E). It is not expected that a priority on exploitation by itself will have a direct effect on corporate venture success because, if anything, it will tend to make activities conform to existing norms, thereby limiting search and experimentation. However, it is expected that imposing a business policy with exploitation priority will have a positive impact on the effectiveness of both strategic autonomy and job autonomy. The reasoning for the positive moderation effect of exploitation priority on the influence of strategic autonomy and job autonomy on corporate venture success is given below.

Amplifying the effectiveness of strategic autonomy

The ability to take autonomous actions by making strategic decisions without approval makes it possible to gain new knowledge about the new business through search and experimentation. However, there is also a risk that the search and experimentation will incur excessive costs without generating knowledge about mature solutions that can be commercialized (cf. March, 1991a). In other words, search and experimentation where resources are deployed too broadly towards diverse opportunities increases the risk that the profitability demand is left unchecked (cf. Gupta et al., 2006).

Levinthal and March (1993) characterize this potential risk as a self-reinforcing threat caused by the behavioral traits of individuals. They argue that search and experimentation is associated with increasing failure rates which can encourage individuals to intensify their search, thus leading towards an endless circle of search and failure referred to as the "failure trap" (cf. Levinthal & March, 1993: 106). By extension, strategic autonomy in the extreme may lead to a "garbage can" of new initiatives (cf. Cohen, March, & Olsen, 1972) that diverts the strategic focus and dilutes corporate resources. Hence, it is argued that emergent strategy evolving from autonomous strategic

decision making should be intertwined with a business policy that promotes, or induces, the exploitation priority to increase profitability (cf. Mintzberg & Waters, 1985; Burgelman & Grove, 2007).

Correspondingly, we suppose that it is essential for corporate venture success to provide strategic autonomy that enables exploration activities (search and experimentation). At the same time however, we expect that a business policy imposing exploitation priority will have a positive impact on the effectiveness of strategic autonomy because it will focus on the exploration activities in areas linked to existing market offerings. In contrast, the enforcement of a business policy that enforces exploration priority would diverge explorative activities. Thus, the following hypothesis is developed.

> *H3:*   *The positive relationship between strategic autonomy and corporate venture success*
>
>   *is higher when corporate management imposes exploitation priority.*

Amplifying the effectiveness of job autonomy

We expected that imposing a business policy with exploitation priority will amplify the impact of job autonomy on corporate venture success. The studies leading to hypothesis 2 provide evidence that job autonomy promotes explorative behavior (cf. Parker, 2014). By granting job autonomy, corporate management enables venture managers to show the necessary explorative behavior for achieving the explorative objective to invent the new business.

However, this way, the exploitative objective to increase profitability may remain unchecked due ineffective goal attainment (cf. Biron & Bamberger, 2010; Lanaj, Hollenbeck, Ilgen, Barnes, & Harmon, 2012). So even though job autonomy provides the venture managers with the freedom to explore, there is no doubt that the work tasks of corporate ventures must be accomplished efficiently to also reach profitability (cf. Junni et al., 2013). Corporate management can ensure some exploitation priority in the venture manager's work-mode decisions by encouraging him do

to so by enforcing the appropriate business policy (cf. Lubatkin et al., 2006). We suspect that corporate venture success is obtained not only when corporate management grants job autonomy, but when they concurrently promote a business policy that emphasizes exploitation priority in the venture manager's work-mode decisions. Thus, we formulate the following hypothesis.

> H4: *The positive relation between job autonomy and corporate venture success*
>
> *is higher when corporate management imposes exploitation priority.*

We have now described the hypothesized assumptions illustrated in Figure 6.1. The arguments leading to the hypotheses are not tested in this study. The hypotheses themselves are tested on the possibility that they must be rejected or they cannot be rejected (cf. Popper, 1954). In order to do so, we operationalize the measures for the two independent variables (strategic autonomy, job autonomy), the moderator variable (exploitation priority) and the dependent variable (corporate venture success) in the Section 6.4.

6.4   RESEARCH DESIGN

The hypothesized relationships are tested using multiple regression analysis. The data set and the procedure applied to collect the data for testing the hypotheses are already presented in Chapter 5 (Section 5.1). Now, the measures used to operationalize our management model (Figure 6.1) are presented (6.4.1) and the research method is validated (6.4.2). Finally, model diagnostics are performed in Subsection 6.4.3 (1) to evaluate statistically whether linear regression techniques are appropriate for the data set and (2) to test whether data analysis is constrained through heteroscedasticity, multicollinearity or outliers.

6.4.1   MEASURES

This subsection presents the dependent variable, the independent variables, the moderator variable and the control variables that are used in the regression analysis. The measures of the dependent variable and the independent variables are already operationalized in Chapter 4 and therefore briefly summarized in this subsection. Also, the subsection provides the measures of the moderator variable and the control variables. The measurement scales of all variables are also reported in the Appendix E.

Dependent Variable

The dependent variable we use is corporate venture success. The measure assesses the subjective perception of distinct success-related criteria. Subjective performance measures are used instead of objective financial performance measures for the following reason. While objective financial performance measures, such as (a) growth-related criteria and (b) profitability-related criteria are generally applied in corporate strategy studies, they are not reliable to evaluate corporate venture success. Ad (a), growth-related criteria (e.g., sales growth) may be appropriate for established businesses. However, corporate ventures are non-established businesses and start with zero sales, which are factors that greatly skew and render incomparable the year-to-year growth rate computation. Ad (b), profitability-related criteria (e.g., return on assets), are equally troublesome due to the variety of accounting methods and decision policies that corporations can adopt when allocating costs to corporate ventures. Moreover, young corporate ventures have not yet reached break-even (cf. Garrett & Covin, 2013).

Therefore, subjective measures of perceived success are commonly applied in corporate venture research and are acknowledged as an appropriate alternative to objective performance measures (cf. Thornhill & Amit, 2000; Johnson, 2012; Garrett & Covin, 2013; Garrett & Neubaum, 2013). Measures of perceived success are based on the perceptions gathered from corporate managers

and their individual judgments on corporate venture success (cf. Covin et al., 1990; Kuratko et al., 2009). Subjective measures are found to be valid performance indicators (cf. Brush & Vanderwerf, 1992; Chandler & Hanks, 1993) that reflect both the current economic outcomes and the fulfillment of expectations (cf. Gimeno, Folta, Cooper, & Woo, 1997).

As already outlined in Subsection 4.4.6, a seven-item scale of perceived success is used as a measure of *corporate venture success* (α=0.93). The measure reflects the extent to which (a) corporate management is satisfied with the financial performance of the corporate venture (cf. Brush & Vanderwerf, 1992) and (b) corporate management is overall satisfied with the performance of the corporate venture (cf. Venkatraman & Ramanujam, 1986). Four items are used to assess the satisfaction with financial performance (see the first four items in Table 4.6) and three items are used to assess the overall satisfaction with performance (see the last three items in Table 4.6). Chandler and Hanks (1993) tested our measure of "satisfaction with performance index" for new businesses and found good internal consistency and high inter-rater reliability (cf. Chandler & Hanks, 1993). It is therefore reasonable to assume that the measure is appropriate to assess the success of corporate ventures.

Independent Variables

In this study we use two main variables (strategic autonomy and job autonomy) and one moderator variable (exploitation priority). The *strategic autonomy* measure builds on the construct developed by Andersen (2000, 2004). The six-item scale is provided in Table 4.4 (Chapter 4). It captures the extent to which the venture manager can make decisions of potential strategic importance without approval from corporate management. The *job autonomy* measure builds on a seven-item scale developed by Breaugh (1985). The measure is provided in Table 4.5 (Chapter 4). The measure reflects the freedom of venture managers with respect to work methods, including procedures

adopted by the team, the scheduling of the team's work activities and the criteria used to evaluate work performance of the team.

As presented in Chapter 5, we applied Principal Component Analysis to the questionnaire items of strategic autonomy and job autonomy which confirmed the presence of two distinct autonomy measures (Table 5.8). Results are briefly summarized. The six items for strategic autonomy and the seven items for job autonomy were included in the Varimax rotation and both constructs had Eigenvalues greater than one and included items with component loadings greater than .60 and cross-loadings below .30. The items one and three of the strategic autonomy scale (see Table 4.4) and the item one of the job autonomy scale (see Table 4.5) showed component loadings below .60. The three items were therefore excluded from further analysis. Thus, the original six-item scale for strategic autonomy (α=.81) was reduced to a four-item scale the original seven-item scale for job autonomy was reduced to a six-item scale (α=.82).

The component scores from the Principal Component Analysis (see Chapter 5) were used to weigh the items for the constructs applied in the regression analysis. Alternative regressions were run based on constructs assigning equal weight to the items (sum scores) but did not lead to materially different results. In addition, an extended Principal Component Analysis was also performed, including the reduced four-item scale for strategic autonomy, the reduced six-item scale for job autonomy and the seven-item scale for corporate venture success. The results are provided in the Appendix H. The three components had Eigenvalues greater than one with component loadings greater than .60 and cross-loadings below .30, thus confirming three distinct components. The seven items used to measure corporate venture success were retained in the ensuing analysis. The exploitation priority measure was not included in the Principal Component Analysis. As it is described as follows, the measure is based on a ranking scale and not on a Likert scale. It is

therefore not feasible to include the exploitation priority measure in the Principal Component Analysis.

The moderator variable *exploitation priority* builds on a construct developed by Lubatkin et al. (2006) and measures the extent to which corporate management forces venture managers to prioritize exploitative objectives. The additive twelve-item measure identified by Lubatkin et al. (2006) was reduced to six-items, three indicating explorative objectives and another three indicating exploitative objectives, that were then converted into a ranking measure. The venture managers were asked to rank the six items where 1 indicated the lowest priority and 6 indicated the highest priority. The ranks of the three exploitation items were added to a sum score measuring the extent to which corporate management prioritizes exploitative objectives. The measurement scale is presented in Table 6.1.

Table 6.1: Exploitation Priority Measurement Scale adapted from Lubatkin et al. (2006)

Exploitation Priority adapted from Lubatkin et al. (2006)	
Participants were asked to order the following aspects to which corporate management (supervisor) prioritizes them. (1=not important to my supervisor, 6= important to my supervisor).	
1	My team is forced to identify new market segments
2	My team is forced to explore innovative solution or services for commercialization
3	My team is forced to look for novel ideas by thinking "outside the box"
4	My team is forced to penetrate more deeply into the existing customer base
5	My team is forced to increase the levels of routinization of operations
6	My team is forced to improve quality and lower cost

Control Variables

Six control variables are used in our study in order to control for possible confounding effects of the hypothesized assumptions. The reasoning for including the control variables in the regression analysis is given below where each variable is discussed. The six control variables are (1)

environmental dynamism, (2) maturity stage, (3) team experience, firm size which is captured through the two variables, (4) total number of employees as well as (5) total sales and (6) team size. Concerning references are given below. The control variables are also reported in the Appendix E.

Ad (1), *Environmental dynamism* is expected to influence the need for autonomy, which is considered important when business conditions are changing (cf. Bruining, 1992). Technological discontinuity, intensity of competition and change of market demand are used to indicate the level of environmental dynamism (cf. Miller, 1987). Respondents were accordingly asked to evaluate technology shifts, pace of innovation, competitive intensity and changes in market demand over the past five to ten years. Environmental dynamism was included as a control variable to account for the potential effects of environmental change.

Ad (2), *maturity stage* is found to be positively related with corporate venture success, with large differences between high- and low-performing corporate ventures at the early stage and small differences at the middle and established stages (cf. Thornhill & Amit, 2000). Hence, we included maturity stage as an escalating variable. The participants were asked to indicate the maturity stage of the corporate venture according to three classifications: (1) the corporate venture is at the *early stage* when initial financial investment is made by the parent company or external partners but revenue is not yet generated, (2) the corporate venture is at the *middle stage* when the new business generates sales revenue but has not yet achieved profitability, (3) the corporate venture is at the *established stage* when the revenue of the new business exceeds the costs, thus the business generates profits. The control variable is included in the regression analysis by the use of a dummy variable whereas the value 1 indicates the early stage, the value 2 indicates the middle stage and the value 3 indicates a venture at the established stage (cf. Thornhill & Amit, 2000).

Ad (3), *team experience* reflects the experience of the corporate venture team. Team experience is included as it may influence corporate venture success (cf. Delmar & Shane, 2006). This influence may be present as some studies assume that experience has a positive effect on venture performance (cf. Taylor, 1999; Klepper, 2001) whereas others did not find such a relation (Shane & Stuart, 2002; Van Praag, 2003; Bosma, Van Praag, Thurik, & De Wit, 2004). Team experience is measured as the sum of years the members of the corporate venture have been engaged in venture activities.

Ad (4), *total employees* reflects the size of the firm in terms of full time equivalent employees (FTEs). The total number of employees is the amount of human resources that are potentially available to support the corporate venture, which may have a direct impact on corporate venture success (cf. Garrett & Neubaum, 2013). Large corporations have more human resources both in terms of quantity and variety to support venture creation compared to smaller firms. To account for this effect, we include the total number of employees as a control variable. As it is later described in Subsection 6.4.3, the measure is subject to significant skewness. Therefore, the measure is log transformed (natural logarithm) in order to correct skewness before it is included in the regression.

Ad (5), *total sales* also reflect the size of the firm. The measure is included in the regression by the use of a dummy variable that takes the value of 1 when sales are below 2 million Euro, 2 when sales are between 2 and 10 million Euro, 3 when sales are between 10 and 50 million Euro and 4 when sales exceed 50 million Euro. The measure is included in the regression analysis as the amount of financial resources (reflected in total sales) indicates the extent to which corporations can support corporate ventures. As such financial support may have direct influence on corporate venture success (cf. Garrett & Neubaum, 2013), we include total sales in the regression analysis.

Ad (6), *team size* can also influence corporate venture success because large teams have more resources available and may accomplish business development activities faster and better. Large teams can involve more and more diverse functional specialists, which has a positive effect on innovation (cf. Leonard & Sensiper, 1998). Hence, team size measured as the number of employees (FTEs) in the corporate venture team is included as a control variable. However, it is shown in Subsection 6.4.3 that the skewness of total number of employees is problematic. In order to correct skewness, the measure is log transformed (natural logarithm) before it is included in the regression models.

6.4.2   METHOD VALIDITY

In this subsection, five potential limitations are discussed with which corporate venture research is generally confronted. The potential limitations are (1) hindsight bias, (2) success bias, (3) social desirability bias, (4) non-response bias and (5) common source bias.

Ad (1) *hindsight bias* is present when participants provide incorrect information due to loss of memory and re-interpretation. The study eliminated hindsight bias by only considering responses from venture managers that were currently operating and thus provided real-time information (see Section 5.1).

Ad (2) s*uccess bias* may be present when only those responses of successful cases are captured, which may blindside the reasons for which corporate ventures failed. The success bias is minimized in our study as 71.3% of corporate ventures in the sample are at the early stage or middle stage. These corporate ventures have not yet achieved profitability. More specifically, 22 (25.3%) corporate ventures are at the early stage, 40 (46.0%) corporate ventures are at the middle stage and 25 (28.7%) are at the established stage. The period until the venture reaches the established stage (break-even point) is referred to as the "valley of death" (Murphy & Edwards,

2003). Accordingly, two-thirds of the corporate ventures in the dataset are at the critical stage before break-even is reached (early stage and middle stage). This means that the data contains information about corporate ventures that will both fail and succeed in the future. Thus, we may conclude that the success bias is not problematic in our study.

Ad (3) *social desirability bias* would be present when respondents answer questions in a manner that is favored by others. Potential social desirability bias is minimized in our study as it was guaranteed to the respondents that the collected data is kept confidential, thus not communicated to others in any way (cf. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Ad (4) *non-response bias* occurs when the answers of respondents are different from the potential answers of those that did not provide an answer. Analysis of variance was conducted to test for potential non-response bias. Therefore, the total sales and the total number of employees was compared between the responding and the non-responding firms (considering the database of all 2649 SMEs in the IT consulting industry in Germany). Results are presented in the Appendix I. The responding firms had on average turnover of 13.3 million Euro (s.d.=11.64) and 93.6 employees (s.d.=65.35) whereas non-responding firms had an average turnover of 15.1 million Euro (s.d.=27.33) and 86.0 employees (s.d.=70.03). The analysis of variance shows that these minor differences between the responding firms and non-responding firms are not significant. These results provide evidence that data is not constrained through non-response bias.

Ad (5) *common source bias* can be problematic when subjective performance measures are used because the assessment of success may be skew. Analysis of variance was performed in order to test for common source bias. Therefore, the subjective assessment of corporate ventures success was compared among the venture managers and the corporate managers. Results are presented in the Appendix J1. The venture managers assessed corporate venture success on average with 30.39 (s.d.=6.85) whereas corporate managers assessed corporate venture success on average with 29.56

(s.d.=6.82). Thus, the analysis of variance shows that venture managers assess the corporate venture success slightly better than the corporate managers. However, the differences are not significant, which provides evidence that data is not constrained through common source bias. Our findings are consistent with those of a prior study which shows that corporate managers and venture managers have a similar perception when assessing corporate venture success. Garrett and Covin (2013) find a high inter-rater reliability ($r = .82$, $p < .001$) for the measure of perceived success, which is also used in our study.

6.4.3   MODEL DIAGNOSTICS

In this subsection, it is tested whether the data is suitable for linear regression techniques and to test for potential constraints. Four analytical tests are therefore performed, namely, (A) skewness analysis, (B) residual analysis, (C) heteroscedasticity analysis and (D) multicollinearity analysis. These four statistical test are defined below. In (E) we summarize the results of the model diagnostics.

A: Skewness Analysis

Definition 6.2: **Skewness Analysis** *"measures the degree to which a distribution is asymmetric. It describes how the distribution of a data set departs from the normal distribution (cf. Postawa, 2012).*

Descriptive statistics including histograms were carried out for each variable used in the study in order to check distributions of the variables. Visual inspections of the distributions indicated that the variables were in range for linear regression with some exceptions. Therefore, statistical tests were conducted for analyzing the significance of the skewness.

Table 6.2 lists all variables used in the study (column 1) and their skewness scores. Significant skewness is indicated when (a) the skewness score is lower than -1.0 or higher than 1.0; or (b)

the skewness is higher than three times the standard error (Field, 2013). Although these criteria are not met for the three main variables, it was tested whether skewness could be corrected in order to improve the quality of the data analysis. Therefore, the variables were log transformed. Before performing the log transformation, the date was reflected for those variables with negative skewness scores. However, the log transformation increased skewness. The corrections were therefore discarded.

Table 6.2: Results of the Skewness Analysis

Variable	Skewness	Standard Error of Skewness
Main Variable		
Strategic Autonomy	.062	.258
Job Autonomy	-.535	.258
Exploitation Priority	-.469	.258
Corporate Venture Success	-.616	.258
Control Variable		
Environmental Dynamism	-.317	.258
Maturity Stage	-.053	.257
Team Experience	.267	.258
Total Employees	**4.928**	.258
Total Sales	.064	.257
Team Size	**4.253**	.257

In contrast, significant skewness is indicated for the two control variables, total employees and team size, as both threshold criteria (a and b) are exceeded. Log transformation corrected the skewness of both variables to a slight skewness of .661 (from 4.928) for total employees and of 1.027 (from 4.253) for team size. Thus, the log transformation corrected the skewness significantly for both variables. The log transformed variables were used for further data analysis as these corrections improve the quality of the data analysis.

B: Residual Analysis

Definition 6.3: **Residual Plots** "*show the residuals on the vertical axis and the independent variable on the horizontal axis*"(cf. Edwards, 2013).

Furthermore, residual plots (using standardized residuals with standardized predictor values) were generated for the two main variables (strategic autonomy and job autonomy), the moderator variable (exploitation priority) and the control variables (environmental dynamism, maturity stage, team experience, total employees, total sales and team size), using corporate venture success as the predictor value. The nine resulting residual plots are given in the Appendix K. The residual plots were analyzed visually (a) to identify potential outliers, (b) to test whether data is appropriate to apply linear regression techniques and (c) to identify potential heteroscedasticity concerns. The three remarks on the residual plots were in order, which is reported in the following.

Ad (a), the nine residual plots indicate that the cases (87 cases) were in range. Those cases that were locate slightly outside the point clouds were examined to check whether the questionnaire was answered through repeated patterns (e.g., 12341234) that would indicate any error or bias. Such patterns were not examined. As all cases were in range and patterns that would indicated any error or bias were not observed, all 87 cases were retained for further analysis.

Ad (b), residual plots showed random scattering of cases around the residual-zero line. Such scattering provides evidence that the standard deviation of the response variable y is constant over x and that linear regression models do not under- or overestimate results. It was therefore assumed that linear regression techniques are appropriate for analyzing the data.

Ad (c), residual plots were further used to examine the scattering for identifying potential heteroscedasticity constraints. The plots showed consistent and flat scattering of cases along

the residual-zero line. These results indicate homoscedasticity (cf. Field, 2013). In order to cross-check the results of the visual inspections that the data is homoscedastic, heteroscedasticity analysis was performed. The procedure and the results are described in the following.

C: Heteroscedasticity Analysis

Definition 6.4: **Heteroscedasticity** "*is present if the variability of a variable is unequal across the range of values of a second variable that predicts it. Accordingly, the scattering (variability) of a dependent variable against an independent variable widens or narrows along their regression line if data is heteroscedastic*" (cf. Field, 2013).

The Koenker tests were performed for identifying potential heteroscedasticity. The Koenker test was chosen as it is more accurate than the Breusch-Pagan test when the small sample size is small (cf. Field, 2013). The sample size of the data used in the thesis is n=87. The term Koenker test is defined below.

Definition 6.5: **Koenker Test** "*is a method to test for heteroscedasticity in linear models based the regression quantiles*" (cf. Koenker & Bassett Jr, 1982; Field, 2013).

Evaluated syntax was used for the analysis (see Pryce, 2002). The syntax is provided in Appendix L. It can also be found online[7]. The Koenker tests showed that Chi-Square values were non-significant for any of the variables listed in Table 6.2. Chi-Square values are reported in Table 6.4 (Section 6.5). These results provided evidence that data analysis is not constrained

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[7] http://www.spsstools.net/Syntax/RegressionRepeatedMeasure/Breusch-PaganAndKoenkerTest.txt

through heteroscedasticity. Thus, the initial results of the visual inspections of the residual plots were supported.

D: Multicollinearity Analysis

Definition 6.6: **Multicollinearity** *"is a statistical phenomenon in which two or more independent variables in a regression model are highly correlated. In this situation the coefficient estimates may change erratically in response to small changes in the model or the data. Multicollinearity does not reduce the predictive power of the model as a whole; it only affects calculations regarding individual independent variables"* (cf. Swanson & Tayman, 2012).

Multicollinearity analysis was conducted with all variables because multicollinearity effects may lead to misinterpretation and cause problems when conducting linear regression analysis. The analysis is based on the computation of the Variance Inflation Factor which is defined in the following.

Definition 6.7: **Variance Inflation Factor** *"quantifies the severity of multicollinearity in an ordinary least squares regression model"* (cf. Webster, 2013).

Variance Inflation Factors (VIF) were calculated according to the procedure described by Aiken, West and Reno (1991). Results showed that the highest VIF was 2.17, which is far below the critical value of 10 or higher that would indicate multicollinearity effects (see, e.g., Tabachnick & Fidell, 2007). Therefore, we may conclude that data analysis is not constrained through multicollinearity effects. The results of the model diagnostics are summarized in the following.

E: Results of the Model Diagnostics

The results of the model diagnostics show that data is appropriate to apply linear regression techniques. Skewness analysis confirms that all variables are in range for linear regression.

However, the skewness of the two control variables total employees (number of FTEs employed the firm) and team size (number of FTEs employed at corporate venture) needed to be corrected through log transformation. Inspections of the residual plots show that outliers are non-problematic, linear regression is appropriate and heteroscedasticity constraints are not present. Heteroscedasticity analysis was conducted to cross-check the visual inspections. The results confirm that data is homoscedastic. Finally, multicollinearity analysis shows that data analysis is not constrained through multicollinearity concerns. Thus, the model diagnostics confirm that the data is appropriate for linear regression analyses and data is not constrained through heteroscedasticity, multicollinearity or outliers. Having evaluated the appropriateness of linear regression techniques, the study proceeds with the (linear) multiple regression analysis.

6.5 RESULTS OF THE DATA ANALYSIS

Table 6.3 reports the mean values, standard deviations and correlation coefficients for all variables in the study. Not surprisingly, we observe high correlations between total employees, total sales and team size. Results show further that team size generally increases as the venture matures. As one might expect, there is a high correlation of strategic autonomy with maturity stage. Also not surprising, team experience increases as the venture matures. We observe strong positive correlations between job autonomy, strategic autonomy and corporate venture success whereas the correlation between exploitation priority and corporate venture success is negative but statistically insignificant.

Table 6.3: Descriptive Statistics and Correlation Analysis

	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Environmental Dynamism	17.87	3.23									
(2) Maturity Stage	2.03[1]	.73	.060								
(3) Team Experience	6.32	3.68	.232*	.218*							
(4) Total Employees (Log Transformed)	4.89[2]	1.13	-.037	-.001	-.031						
(5) Total Sales	2,81[1]	.69	-.016	.058	.129	.802**					
(6) Team Size (Log Transformed)	1.77[2]	.89	.-.001	.289**	.078	.338**	.262*				
(7) Strategic Autonomy	10.85	3.87	.156	.357**	.018	-.110	-.182	.144			
(8) Job Autonomy	29.32	4.93	.173	.086	.203	-.021	.035	.042	.293**		
(9) Exploitation Priority	11.45	2.84	-.065	-.030	.128	-.123	-.124	.076	.093	.176	
(10) Corporate Venture Success	33.39	6.85	.125	.273	.023	.068	.096	.139	.440**	.447**	-108

**. Correlation is significant at the .01 level (2-tailed). *. Correlation is significant at the .05 level (2-tailed).
[1]. This value is represented through a dummy variable (see 6.4.1).
[2]. The natural logarithm is used in the regression analysis in order to correct skewness (see 6.4.1). The average size of the firms was 279.11 (SD=691.85) full-time employees. The average size of the corporate venture was 9.55 (SD=15.14) full-time employees.

The results of the step-wise multiple regression analyses on corporate venture success are reported in Table 6.4. In Model 1 (as the first step) the control variables are regressed on the dependent variable. The two main effect variables are added in Model 2 in the second step to test the hypothesized effects of job autonomy (Hypothesis 1) and strategic autonomy (Hypothesis 2) on corporate venture success. Finally, the interaction effects on corporate venture success between the autonomy constructs and the policy variable exploitation priority are assessed in Model 3 (Hypotheses 3 and 4). As described in Subsection 6.4.3, the regressions are tested for potential heteroscedasticity influence. We performed Koenker tests on all regressions reporting Chi-squares that show no significant effects, which provides evidence that heteroscedasticity is not present. It is also tested whether multicollinearity effects are present. Therefore, variance inflation factors (VIF) were calculated for each regression (cf. Aiken, West, & Reno, 1991). The highest score of 2.17 is well below the critical value of 10 that would indicate multicollinearity effects (cf.

Tabachnick & Fidell, 2007). To properly assess multicollinearity constraints in the interaction terms, the variables were mean-centered before multiplication (cf. Hayes, 2009).

Table 6.4: Results from Multiple Regression Resting Effects on Corporate Venture Success [a]

Variables	Model 1	Model 2	Model 3
Control Variables			
Environmental Dynamism	.101	.022	-.097
Maturity Stage	.257*	.149	.127
Team Experience	-.101	-.130	-.076
Total Employees	-.124	-.136	-.171
Total Sales	.144	.200	.212
Team Size	.081	.040	-.018
Main Effects			
Strategic Autonomy		.327**	.357**
Job Autonomy		.416***	.499***
Moderating Variable			
Exploitation Priority			-.158
Interaction Effects (Moderation)			
Strategic Autonomy * Exploitation Priority			.264**
Job Autonomy * Exploitation Priority			.249**
R²	.098	.348	.502
Adjusted R²	.028	.278	.426
F	1.391	5.003***	6.597***
Chi-Square (Koenker Test)	2.400	8.467	13.858

* p<.05; **p<.01; ***p<.001.
[a] N=87; Standardized coefficients

Model 1 only shows one significant regression coefficient indicating a positive relationship between maturity stage and venture success (β=.257, p<.05). Model 2 shows two significantly positive regression coefficients on corporate venture success for strategic autonomy (β=.327, p<.01) and job autonomy (β=.416, p<.001), which leads to the conclusion that the Hypothesis 1 and Hypothesis 2 cannot be rejected. The explanatory power of Model 2 is highly significant (p<.001), showing a significant improvement compared to Model 1 (p<.05). Model 3 retains the significance of the two regression coefficients on strategic autonomy (β=.357, p<.01) and job

autonomy (β=.499, p<.001). Moreover, the model shows positive moderation effects of exploitation priority with a significant regression coefficient on the interaction term between strategic autonomy and exploitation priority (β=.264, p<.01) and the interaction term between job autonomy and exploitation priority (β=.249, p<.01). These results lead to the conclusion that Hypothesis 3 and Hypothesis 4 cannot be rejected. Model 3 has a significant increase in explanatory power compared to Model 2 (p<.05).

Hence, the regression analyses find outcomes consistent with Hypothesis 1 and Hypothesis 2, which predicts that strategic autonomy and job autonomy are positively associated with corporate venture success as strategic autonomy facilitates explorative venture development based on the ability to take responsive initiatives (cf. Nonaka, 1988; Andersen & Nielsen, 2007) and job autonomy enhances venture managers to develop work methods fitting the novel task environment (cf. Hennessey & Amabile, 2010; Unsworth & Clegg, 2010).

The outcomes are also consistent with Hypothesis 3 and Hypothesis 4, which predict that a business policy with a priority for exploitation will enforce the positive effects of strategic autonomy and job autonomy. A corporate policy with an exploitation priority may enhance the positive effect of strategic autonomy on corporate venture success. That is, the performance effect of strategic autonomy can be substantially higher in situations with high exploitation priority compared to situations with low or medium exploitation priority (Figure 6.2). The illustration below is computed based on the statistical data.

Figure 6.2: Interaction Effect between Strategic Autonomy and Exploitation Priority
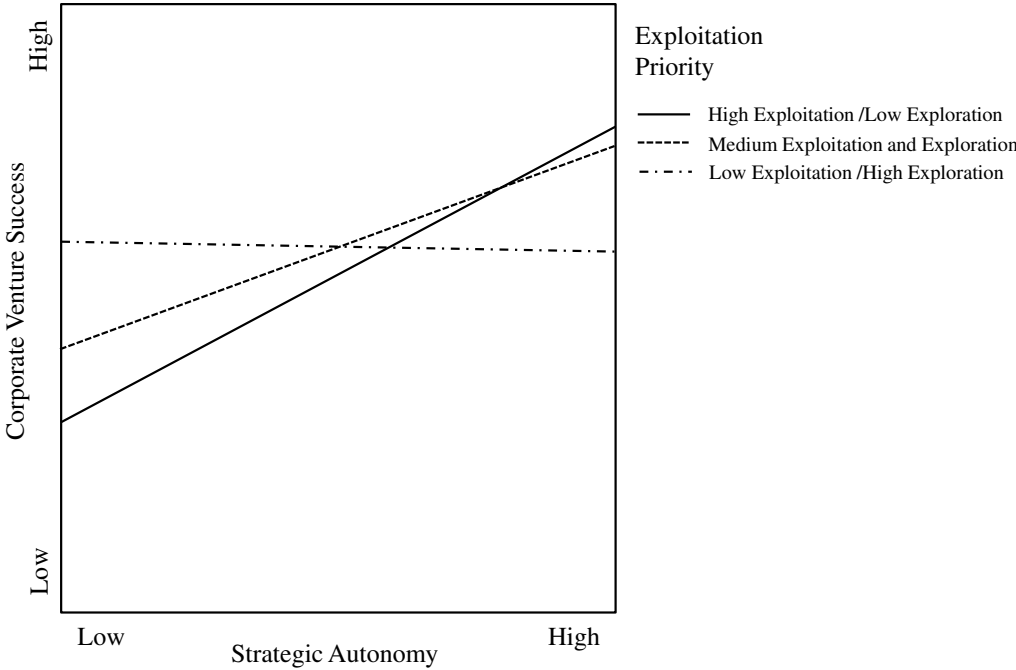
Similarly, a corporate policy with an exploitation priority may have incremental positive effects on corporate venture success when corporate management simultaneously grants job autonomy to the venture manager. Hence, the positive performance effect of job autonomy can be substantially higher in situations with high exploitation priority compared to situations with low or medium exploitation priority (Figure 6.3). The interaction effect of Figure 6.3 is computed based on the statistical data.

Figure 6.3: Interaction Effect between Job Autonomy and Exploitation Priority
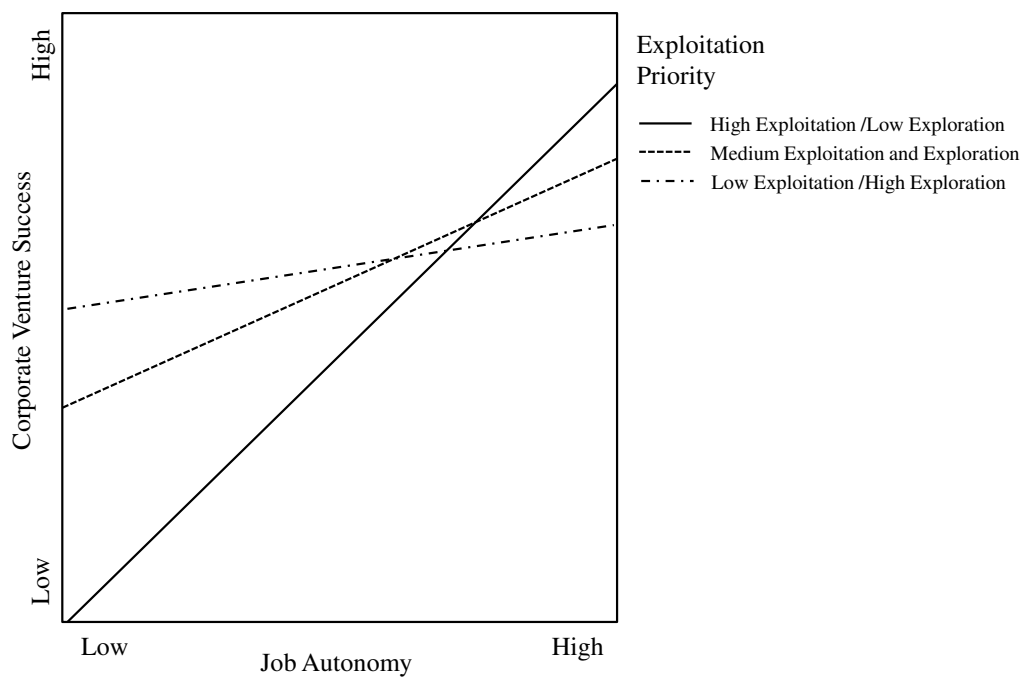
These findings indicate that the effectiveness of both strategic autonomy and job autonomy increase significantly when corporate management simultaneously emphasizes exploitation priority in the venture manager's work-mode decisions.

6.6 DISCUSSION

It was stated that corporate venturing is an effective way for corporations to develop opportunities that extend the corporate business portfolio as a basis for ongoing strategic renewal and adaptation for long-term survival (cf. Kuratko, 2010). Approximately at the same time it was proposed that effective corporate venture management is linked to (a) semi-autonomous structures (cf. Covin et al., 2010) with (b) loose corporation-venture relations (cf. Burgers et al., 2009). From these two statements we may derive that the freedom of action that the corporations grant to their ventures and the business policy they impose affect corporate venture success (cf. Thornhill & Amit, 2000). In accordance with the conclusions drawn from the two statements, (1) we analyzed how corporate venture success is influenced by job autonomy and strategic autonomy that is granted by corporate

management to the venture managers. We also (2) investigated the moderating effects of corporate business policy that forces exploitation priority in the venture manager's decision making. In the following, we discuss the research results guided by our four hypotheses.

Ad (1), the results are consistent with *Hypothesis 1* whereby it is indicated that corporate venture success is enhanced when corporate management provides venture managers with higher levels of job autonomy. Job autonomy can enable the ventures to break out of established routines, procedures and norms (cf. Shalley & Gilson, 2004; Parker, 2014) to develop new capabilities that fit the task environment of the novel business environment (cf. Kanter, 1989). The results are also consistent with *Hypothesis 2* as it is indicated that strategic autonomy is positively related to corporate venture success. Strategic autonomy can trigger exploration as it provides venture managers the freedom to take responsive strategic initiatives and thereby engage in experimental learning about new effective ways to achieve market impact (cf. Andersen, 2004). We may state that the empirical study is consistent with the hypothesized assumption that the job autonomy of venture managers can be beneficial for developing new capabilities and that the strategic autonomy of the venture manager can be beneficial to explore new market opportunities.

Ad (2) we also tested the proposed moderation effect of business policy on the relations of strategic autonomy and job autonomy on corporate venture success. Consistent with *Hypothesis 3*, our results indicates that the positive effect of strategic autonomy on corporate venture success can be amplified when corporate management simultaneously emphasizes a business policy that forces venture managers to consider exploitation priority in their work-mode decisions. In line with *Hypothesis 4,* the regression results show also that the positive effect of job autonomy on corporate venture success can be increased by corporate management when simultaneously enforcing a business policy that forces venture managers to consider exploitation priority in their strategic decision making.

Main contribution of the study

In conclusion, our results indicate that corporate venture success is positively affected by both job autonomy and strategic autonomy, which is amplified by a business policy that simultaneously imposes exploitation priority in the strategic decisions and work-mode decisions of the venture manager. These findings lead us to the main contribution of the study.

So, our study provides a management model that shows how corporate management may master the challenge to balance the corporate venture activities such that the new business can be invented and reaches profitability. Our results offer fairly straightforward recommendations for corporate venture management by generally acknowledging the positive influence of a "guided hands-off strategy". The findings show that corporate management can gain significantly greater corporate venture success by (1) granting venture managers with the authority to make autonomous strategic decisions and (2) to make autonomous work-mode decisions. This broad decision authority enables venture managers to engage effectively in explorative activities to invent the new business. However, corporate management should (3) at the same time impose a business policy that enforces the exploitation objective to increase profitability.

Prior research suggested that effective exploration may depend on a balance between tight and loose corporation-venture relations (cf. Thornhill & Amit, 2000) with a certain relatedness between the corporation and the ventures (cf. Kuratko et al., 2009; Crockett et al., 2013) reflecting differentiation-integration design aspects (cf. Burgers et al., 2009). Consistent with our findings, these prior studies highlight the need to provide some freedom to enable effective explorative activities for inventing the new business but also emphasize to ensure that corporate ventures also engage to a certain degree in exploitation activities to increase profitability. In line with these prior findings, our results indicate that corporate ventures are most successful when corporate management grants venture managers with the autonomy to effectively engage in explorative

activities and simultaneously promotes a business policy emphasizing exploitative venture activities. Our study allows us to also draw further conclusions.

Further contributions of the study

The study contributes to the venture management literature in five further ways. *First*, it shows that corporate venture autonomy fundamentally depends on the dispersion of power from corporate management to the venture manager. The finding indicates that corporate venture autonomy is not necessarily created by separating corporate venture activities from the corporate mainstream activities (structural differentiation) (see, e.g., Burgers et al., 2009), but may also be sufficiently generated through power dispersion. *Second,* our study extends the conceptual understanding of the role and effect of different kinds of decision authority providing operational freedom (job autonomy) and strategic freedom (strategic autonomy) to the venture manager for effective corporate venture management. In contrast, prior research has not differentiated between strategic and work-mode aspects in the decision making of corporate ventures (see, e.g., Thornhill & Amit, 2000; Crockett et al., 2013). Thus, we contribute a new construct that enable researchers to measure the decision authority of corporate ventures more precisely. *Third*, the study identifies business policy as a strategic integration device where exploitation priority enforces the positive effects of autonomous strategic and operational action by enhancing economic efficiencies. *Fourth,* the proposed corporate venture management model is tested on a sample of SMEs and thereby updates the limited pool of empirical studies supporting the assumption that it is beneficial to establish corporate ventures as (semi-)autonomous subunits even in less formalized organizations (cf. Johnson, 2012; Garrett & Covin, 2013). *Fifth*, our results hold methodological implications to future research endeavors as the thesis shows that the autonomy of corporate ventures can effectively be measures by capturing the decision authority of the venture managers. Prior studies have often measured the independence of the corporate venture operations (i.e.,

workflows, procedures and processes) from the corporation as an indicator for corporate venture autonomy (see, e.g., Kuratko et al., 2009; Johnson, 2012; Garrett & Covin, 2013).

6.7   CHAPTER CONCLUSION

The chapter answers RQ3 and provides an answer to the PS. The answers are briefly summarized in the following two subsections.

6.7.1   ANSWER TO THE RQ3

The results of the performed multiple regression analysis enable us to answer *RQ3: How are the autonomy dimensions related to the success of the corporate ventures?* Model 2 (shown in Table 6.4) supports our assumption that strategic autonomy and job autonomy are both positively related with corporate venture success. Also, the study further developed the autonomy construct (Figure 5.2) evaluated in Chapter 5. Exploitation priority is included as a variable that moderates the positive impact of strategic autonomy and job autonomy on corporate venture success (see Figure 6.1). The hypothesized moderation effects were tested and could not be rejected.

6.7.2   ANSWER TO THE PS

The study in this chapter provides also an answer to the *PS: How can corporate management effectively manage corporate ventures?* The results of the multiple regression analysis reveal an empirical management model (Model 3 in Table 6.4) which shows how corporate management can effectively manage corporate ventures by following three principles. Corporate management should grant the venture managers with both, (1) the authority to make work-mode decisions without approval (job autonomy) and (2) the authority to make strategic decisions without approval (strategic autonomy). Corporate management should at the same time (3) enforce a

business policy that forces the venture manager to consider exploitation priority in their strategic

decisions and work-mode decisions.