Investigation of antecedents to performance in Swedish small and medium-sized companies

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ABSTRACT
Companies are constantly striving to make choices that lead to improved performance. In some cases these decisions may even determine their survival in the market. Many research papers have examined antecedents to predict their impact on performance. This paper explores the roles of social networking, risk taking, creativity, competitor benchmark orientation, and environmental opportunities as facilitators for improving the performance of a company. Our study is based on previous research and the foundation for the theoretical model. Our analysis includes 65 firms in Sweden and covers small and medium-sized firms. This thesis was able to identify a positive effect of social networking on performance. We were also able to identify a negative effect of risk taking and a positive effect of creativity on performance.

We consider our findings valuable for managers’ understanding of the implications of making decisions in choosing one antecedent over another. We also encourage other researchers to test the model using a larger number of samples because, although our sample size helped us to actualize the model, our conclusions cannot be generalized.
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Sincerely,

Natalia Åberg
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INTRODUCTION

1.1 BACKGROUND
Companies discover that relying on innovativeness for long-term growth and profitability can be a difficult, time-consuming, and expensive task (Pesämaa et al., 2013), so they are constantly searching for ways to generate new ideas that improve their innovation processes. The leading questions are by what and how performance can be influenced, and on which fundamentals managers can support their decisions.

In her essay, “The changing rules of global competitiveness in the 21st century”, Zhara Shaker predicted that “successful competitiveness in the 21st century will demand the use of visionary and dedicated leadership, a balanced scorecard that enhances corporate accountability, and sustained investment in creating dynamic capabilities. It will also require the effective management of intangible resources and assets to achieve growth” (Shaker, 1999).

A common sign in the global market is the fact that companies are struggling to find instruments to best adapt their strategies because of changing business conditions, without compromising the competitive positions of their products or services (Popadiuk and Choo, 2006).

For example, one common question for organizations is whether they should invest in new technology or in growth using existing technology. Acceptance of continuing with a new product can be a vital decision for a company, one that can involve a risk process, something which also implies a good understanding of customers’ acceptance of the product or service (Girardi et al., 2005). As a consequence, investment in technology has a more or less high failure rate. The results can depend on the risk involved in the investment. Hence, some firms avoid the risky situation by declining to invest in new technology. In other cases, companies can stay trapped by dominant customers, causing firms to miss out on the opportunities of new technologies due, for example, to resources limitations (Hult and Ketchen, 2001). In the short run, they will have higher profits, but in a changing market, they cannot compete with companies oriented toward newer technology, and thence they will have an increased risk of failure. Under this framework, managers search for knowledge to support their decisions and to minimize any negative impact of risks taken on their firm’s performance.

To the willingness to start a risky project we should add other factors upon which decisions are dependent, such as a company’s culture and the ability to obtain information on market demands and market trends. Recognizing a company’s opportunities and capabilities continuously impels managers to lead their organizations to actively innovating, since this connection is thought to have a positive effect on performance (Caruana et al., 1999). On the other hand, despite a widely disseminated view of the capacity to innovate as the most important factor that contributes to business performance (Porter, 1990), it seems that this
effect is not straightforward, meaning that the effects of innovative activities are not always beneficial for performance (Boso et al., 2013). This incongruity concerning the effects of innovation can confound managers in their decision-making.

The case of Microsoft exposes how management decisions could have a negative impact on the performance of a company. Microsoft implemented a management system known as “stack ranking”. This program forced each business area to rank a certain percentage of employees as top, good, average or poor performers. That means that even if the department was full of stars, a certain quota would be getting bad reviews, no matter how hard they worked. The program disengaged many workers in the company, and led to a culture that did not encourage cooperation or teamwork. Innovation and excellence fell victim to the need to compete with co-workers not only for recognition, but also for survival. Microsoft, once the leader in tech industry, with technologies like smart phones, social networking and e-reader tablets, risked their positions in front of competitors like Facebook, Apple and Google (Jacobsen, 2012).

There is also a lack of information on how firms use data from previous experience to improve their success rates, whether they learn from success or from mistakes. Therefore, there is a need for more data that can be used to build models of the relationship between innovativeness and performance (Pesämaa et al., 2013).

Another famous case happened when Parmalat, the multinational Italian dairy company, filed for bankruptcy protection in late December 2003. The disclosing, more than 14 billion euros of debt, was about eight times the amount reported by its former management. Despite the scandal surrounding, Parmalat emerged from bankruptcy and returned to the stock market in 2005 (Amon, 2009). The question is what circumstances caused the bankruptcy and what drove the stakeholders to let the company survive by investing more money.

The setup of the Parmalat group was a complex structure of a centralized and family-owned business in the European Union with few stakeholders. The company was plagued by a mix of conflicts between professional managers and shareholders. To make things worse there was a clash of interest between controlling shareholders and minority shareholders (Buchanan and Yang, 2005). By 2004, it was clear that investors remained keen on the company. Banks increased focus on getting comfortable with management (O’Connor, 2004). By 2010, the annual report shows a more mature company with an improved risk analysis and clear management position (Parmalat, 2010).

1.2 Problem Discussion
The following discussion approaches the problem that companies are facing and that justify the need to dig into the drivers of performance.

According to the Report of the World Commission on Environment and Development from 1987, the goals of economic and social development must be defined in terms of sustainability
in all countries, developed or developing, market-oriented or centrally planned (United Nations World Commission on Environment and Development, 1987).

There is a growing interest in the field of sustainability where the corporate sustainability performance impact on firms’ performance is very important (Goyal and Rahman, 2013). Corporate sustainability is considered to be a business and investment strategy that searches for best business practices to meet and balance the needs of current and future stakeholders (World Commission on Environment and Development, 1987; Artiach et al., 2010).

However, most of the research studies during the last two decades analyse the relationship between sustainability performance and firms’ performance mostly in developed countries (Goyal and Rahman, 2013).

Nowadays, it is becoming more demanding for managers to deliver better corporate sustainability strategies (Goyal and Rahman, 2013). This entails the complex task of providing competitive outcomes in the short term while seeking to protect, maintain and increase the human and natural resources required in the future. Accordingly, corporate sustainability performance measures the extent to which a firm embraces economic, environmental, social and governance factors into its operations, and ultimately the impact they exert on the firm and society (Artiach et al., 2010). In the long terms companies are striving to achieve benefit by adopting sustainability activities as the core of corporate strategy (Chabowski et al., 2011). In fact, commitment to sustainability issues has become an issue of strategic importance in this current competitive scenario (Artiach et al., 2010).

Moreover, the institutional environment can change the magnitude of the capabilities of performance relationship. The institutional environment can directly determine how firms’ formulate and implement a strategy that creates a competitive advantage (Gao et al., 2010; Ju et al, 2013). Furthermore, the performance impact of firms’ capabilities is moderated by the institutional environment. Institutions significantly shape firms’ strategies and behaviours in emerging economies. Thus firms can face serious institutional difficulties because of government intervention and the imperfection of the market mechanism (Ju et al., 2013).

For example the rigidities of the command economy could make a firm’s environment much less suitable for invention, innovation and affect the allocation of resources. The performance of the former Soviet bloc economies during the first twelve years of the transition was not as good as expected. The economic performance varied widely across the transition countries, with the central European countries of Poland, Slovenia, Hungary, Slovakia, and the Czech Republic that performed better than the Baltic states of Estonia, Latvia and Lithuania and the Balkan state of Bulgaria and Romania, which in turn performed better than Russia, Ukraine, and other countries in the Commonwealth of Independent States (Svejnar, 2002).

In general, the transition economies had different patterns of economic performance. While all transition economies experienced a fall in output at the start of the process, most countries in central and eastern Europe recovered growth after a few years, while Russia and most
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former Soviet Union countries (apart from the Baltic states of Estonia, Latvia and Lithuania) saw little or no recovery of growth through most of the 1990s (Roland, 2002). Transition countries further east have on average performed worse than their more Western counterparts, which suggests that geography-related initial conditions have been important in the transition process (Svejnar, 2002).

These different initial conditions greatly affected the subsequent performance of these countries. Poland, for example succeeded in renegotiating its debt, while Hungary kept its debt in full. The Hungarian approach imposed a heavy fiscal burden and induced a number of policies, including the revenue-oriented form of large-scale privatization (Svejnar, 2002).

Institutional transitions in emerging economies are expected to increase market efficiency and foster more transparent rules for firms (Peng, 2003). In the case of China, the country experiences dramatic changes in its market operation mechanisms, political system, legal framework, and market structure (Zhang et al., 2012) where many barriers to business operations are gradually removed in the transition process (Ju et al., 2013).

The above examples lead to a clear need to understand the processes that allow companies to remain competitive (Menzel, 2007; Galanakis, 2006). Under this scenario, innovation is given a role as a key driving force in promoting a firm’s long-term welfare (Jimenez and Valle, 2008; Kim et al., 2011). Although there are many authors who have scrutinized the driving factors that affect innovativeness and performance (Muhammad and Muhammad, 2012; Karnouskos, 2013; Edvardsson and Durst, 2012; Boso et al., 2013; Baker and Sinkula, 1999), it is still possible to shed more light on this issue.

Previous studies established a relationship between innovativeness and performance (Nybakk et al., 2009; Pesämaa et al., 2013; Muhammad and Muhammad, 2012; Boso et al., 2013). For example, Muhammad and Muhammad (2012) explored the impact of innovativeness. They tested empirically the influence of innovativeness on performance in small and medium-sized firms, concluding that there was evidence of the positive impact of innovation (Muhammad and Muhammad, 2012). On the other hand, large companies, despite a solid history of achievements in innovation, can create organizational mechanisms that hamper innovation (Conceição et al., 2002). The diversity of outcomes can depend on a firm’s characteristics, such as business area, industrial sector, size of the firm, country, or region. Because the process of innovation is an important issue for firms, the factors mentioned should be included in fact-finding concerning how the innovation process works and how these factors affect performance (Karnouskos, 2013). But the link between innovation and performance is also influenced by other behaviour in the firms, and these so-called antecedents have been studied as possible enablers of innovation: risk taking, creativity, competitor benchmark orientation, and environmental opportunities (Pesämaa et al., 2013; Muhammad and Muhammad, 2012). Additionally, in recent years social networking has been accorded high importance as an enabler of innovation and as a way to generate new ideas (Nybakk et al., 2009).
A better understanding of all of these factors is important in order that managers can have a well-informed set of recommendations so that they can take into account previous analyses in making decisions concerning the future of their companies.

Indeed, innovativeness is a complex concept that must be considered from multidimensional perspectives. Thus it is important to expand the scope of inquiry in order to grasp the driving forces that impinge upon performance from a wider perspective (Muhammad and Muhammad, 2012).

The present study will investigate the antecedents of innovativeness and examine their impact on performance, based on the analysis of the behaviour of firms located in Sweden. We expect, first, to expand the foundation for a better theoretical understanding of performance antecedents and, second, to support managers with a tool kit of clear advice about how to handle innovations in their desire to positively influence their companies’ paths.

1.3 Problem formulation and purpose
In this section, we will narrow down the problem we described in the preceding sections. We will describe what will be the focus of our thesis, its purpose, and the expected results.

We have discussed the role of innovation when innovation is considered to be the outcome of innovativeness. Our preliminary assumption is that innovation can lead to an improvement in the performance of a company.

In the light of previous studies, we will gather the factors that are considered relevant to the relationship between innovativeness and performance in order to understand their correlation. In other words the factors that correlate to performance are the target for this paper. We will also examine whether innovativeness can be considered a cultural trait (Girardi et al., 2005), because some companies have a strong culture of fostering innovativeness. Furthermore we will look at networking strategies, and we assume that a well-developed network strategy will increase knowledge regarding the demand for new products and, therefore, reduce risk and failure rates (Nybakk and Hansen, 2008).

This study will thus focus on the factors mentioned above and in the relevant literature, and in the analysis we will build a model to be tested.

We expect to provide the following contributions: First, to undertake an investigation of the assembled antecedents of innovativeness in order to actualize the model and to verify the impacts of antecedents on performance. Second, by analysing the interrelationships among antecedents, to gain a better understanding of the linkages between innovativeness and performance and, consequently, to enhance knowledge of this subject. Third, to create, based on the output of this research, a number of reliable statements about the factors that impinge upon performance so that managers can assess their strategies or decisions supported by this theoretical platform, and, fourth, to review behaviour concerning innovation and
performance in the Swedish market. Based on the information above, the research question would be:

**RESEARCH QUESTION**

What factors affect performance of Swedish small and medium size companies?

To reach our objective, we will develop a testable theoretical model with established multi-item factors. To further identify whether this model is valid in the Swedish context, we will conduct a survey among SMEs in Sweden. Our results will be compared to earlier results that use a similar approach.

We could resume the purpose of this study is twofold. First to expand the theoretical framework from the literature to a model of performance for Swedish small and medium size companies. Secondly to compare this relationship to results from previous studies. Several papers about this topic were assessed and after the review it was clear that the researchers whose work was relevant for our investigation were Pesämaa et al. (2013), Muhammad and Muhammad, (2012), and Nybakk et al. (2009). Our approach is to adopt their existing model and tailor this model to our own specific theoretical framework. The antecedents of innovativeness we plan to explore are risk taking, creativity, competitor orientation, environmental opportunities, and social networking (Figure 1.1). The model and the theoretical hypotheses will be tested in the Swedish market. In order to test our hypotheses, a set of questions will be developed based on the theoretical framework. A questionnaire will be sent to the Swedish firms. Their feedback will be collected and analysed using SPSS software, so that we can determine correlations and the validity of our variables and model. Based on the results, the theoretical model will be assessed and refined so that our
conclusions can achieve the goal of testing the model and exploring the antecedents that impact performance.

1.4 DELIMITATIONS
This study was limited to the Swedish market. The firms contacted are SMEs (small and medium-sized enterprises). The goal was to have a sample size of more than 100 firms.

The factors to be investigated are risk-taking, creativity, competitor benchmarking orientation, environmental opportunities, social networking and Innovativeness. The goal is to investigate the possible influence of these antecedents on performance.

If Innovativeness is found significant as antecedent to performance, we will also test a model of risk-taking, creativity, competitor benchmarking orientation, environmental opportunities and social networking as antecedents on innovativeness.

1.5 THESIS STRUCTURE
The thesis structure follows the guidelines recommended by the MBA program at BTH. It starts with an introductory chapter that includes the background, problem discussion, problem formulation and purpose, the purpose of the study, delimitations, and the thesis structure. The following is an overview of the upcoming chapters of this paper (Figure 1.2).

CHAPTER 2: THEORY
This chapter provides insight into the theoretical foundations of this study. Here there is a subchapter dedicated to innovativeness and another to performance. The concepts are based on other research in the same area, with references to the authors of this research. There is a subchapter dedicated to the antecedents that will be the main focus of the analyses in this thesis. An explanation of each antecedent and the respective hypotheses correlated with that antecedent are presented. The theory chapter also includes an illustration of the proposed hypothetical model.

CHAPTER 3: RESEARCH DESIGN
This chapter provides insight into the research methodology. The first subchapter discusses why a quantitative methodology was selected. The second explains the process of questionnaire development from theory to hypotheses, and it is followed by a third subchapter about considerations prior to the sampling and the way the data was collected. The last subchapter here is the plan of analysis that describes how we expect to analyse the data.

CHAPTER 4: RESULTS
This chapter presents a summary of the results and explains the process of descriptive statistics and the approach used for data evaluation and interpretation.
CHAPTER 5: ANALYSIS

In this chapter, the theoretical framework and the results collected are processed and analysed using statistical tools. A mapping between what was expected and what was found will be explained.

CHAPTER 6: CONCLUSIONS AND IMPLICATIONS

This chapter connects the problem discussions and the results as processed and analysed. A summary is presented in which the conclusions and possible implications are stated.

At the end of the thesis there is a section dedicated to References and another consisting of the Appendixes.

Figure 1.2 Thesis structure
2 THEORY

In this section, we will include a presentation of the fundamental literature concerning innovation, performance, and the factors that might drive the relationship between these two concepts. Based on the theoretical review, we will also provide the hypotheses that will be tested in this research paper.

2.1 PERFORMANCE FROM THE FIRM’S PERSPECTIVE

Defining the drivers of the firm’s performance is challenging and involves balancing an organization’s responsibilities to all the stakeholders, including owners, debt holders, employees, suppliers, customers, and the society at large (Merchant and Van der Stede, 2012). From a dynamic capabilities perspective, a firm’s capabilities are key internal drivers of its performance (Teece et al., 1997). According to Day (1994) capabilities are the accumulated knowledge and skills embedded in a firm’s organizational processes and routines. Thus, firms accumulate both tangible and intangible resources that are valuable, rare, and difficult to imitate. Those resources, distributed wisely across the firms, represent the ultimate sources of competitive advantage (Ju et al., 2013). There has been a substantial amount of research done in the realm of capabilities where three main capabilities are considered fundamental to yield firms’ performance. These three types of capabilities are related to the firm’s core functions: marketing capability, technological capability and production capability (Ju et al., 2013; Krasnikov and Jayachandran, 2008).

In his research Day (1994) considered marketing capability as the capability that enables firms to accumulate market knowledge, build customer relationships, and respond to customer needs. Marketing capability can also be reflected by firms’ ability to create points of difference, differentiate its products and services from competitors, and build strong brand equity (Ju et al., 2013).

Moreover Afuah (2002) defines technological capability as the organizational skills and abilities that enable firms to employ various technologies and develop new products. Like marketing capability, technological capability is embedded in organizational processes and routines and therefore relatively immune to competitors’ imitation. Generally, technological capability can boost firm’s performance. In some cases technological capability plays a critical role in product innovation. Consequently, firms can create differentiation advantage through utilizing advanced technology to generate continuous innovation and improve product design (Porter, 1990). In summary, firms can achieve competitive advantage by utilizing technological capability, which in turn enhances firms’ performance (Ju et al., 2013).

On the other hand, production capability is considered to help firms in reducing costs and increasing efficiency (Ju et al., 2013). Firms with high production capability focus pursue large-scale production, rigorous process improvements, and cost reduction through experience. As stated by Krasnikov and Jayachandran (2008) this was evidenced by the total quality
management program and business process reengineering adopted by many firms included in their research paper.

Ju et al (2013) study performance of local firms and wholly owned subsidiaries in the Chinese economy. The performance was measured in form of return of sale and market share. The independent variables were marked capability, technology capability and production capability. They found that marketing capabilities are positively correlated to market share but have a negative effect on return of sale. They also found that wholly owned subsidiaries have higher market share and return of sale than Chinese companies have. In other words, the performance impact of firms’ capabilities is moderated by the institutional environment (Ju et al., 2013). Alternatively firms’ capabilities have differential effects on financial performance and market performance for local and foreign firms.

Another perspective to take into account is the quality of products and production processes that are considered to affect the performance of all types of companies (Lai et al., 2009; Bermar, 1993). Hence, firms address different type of methods in order to improve quality. One of these methods is total quality management - TQM (Naidu et al., 2006). Despite all efforts to enhance quality, Bermar (1993) referred to different studies where the result varies from ⅓ to ⅔ of the companies that increased their profit or competitiveness after introducing TQM. In his research Bermar (1993) states that important factors to increase the probability of success are to focus on problems small enough so the project team can keep an overview, to avoid slogans communication to employers, to inform managers how the program benefits the employees and to keep focus on the company customers.

Another factor that moderates quality was investigated by Lai et al. (2009), when they explore the cognitive force on quality improvement. They found that cognitive forces could trig the growth of trust in a group of employees and therefore increase the quality. Thereby they imply that innovations could increase the competitiveness of the firms which would therefore obtain and therefore could obtain contracts with large international corporations.

The size of a firm could influence the performance, which underscores the importance of analysing the perspective of performance. The link between organizational capabilities and performance may vary for firms operating on different scales (Krasnikov and Jayachandran, 2008). According to Kocenda and Hanousek (2012), who studied the effect of firm size and management in the emerging Czech economy, the breakdown of large state owned enterprises and reconstructions created a large number of smaller firms that in turn promoted a new sort of management. In order to validate their assumption they used other large state owned companies that were privatized. However, they found that breaking up a large cooperation had a positive effect the first two to three years after which it disappeared.

Another study done on different types of shareholders was performed by Thomsen and Pedersen (2000). They studied performance and ownership structure for the largest European companies. In their study they highlighted the effect of the different types of large
shareholder, and divided them into five different types: bank (Germany), institutional, non-financial company, person/family and government. They found that the effect of the largest owners on the key performance indicator (KPI) “market to book value” was highest when the largest owner controlled 83% of the shares (Thomsen and Pedersen, 2000). In addition, they also found that with the largest owner as an institutional owner gave the highest KPI “market to book value”. A family or another company gave the highest sales growth. That means that ownership structure controls whether the company will struggle for maximum profit of growth. In our study one of the considerations to take into account is the size of the firm that we will include in our research.

Beyond the performance perspective discussed earlier, we regard in this paper the influence of collaboration on performance. Belderbos et al., (2004) studied different types of Research and Design (R&D) collaboration and how the type affects the productivity. They found that suppliers and competitors cooperation was significant in productivity growth. In general, cooperation with universities and research organizations on the other hand increased the sales per employee and the introduction of new services (Belderbos et al., 2004).

The innovation perspective is closely linked with performance. The Conference Board of Canada is a non-profit organisation whose main task is to investigate and analyse economic trend and organizational performance. In a report, they have presented Canada’s level of innovation compared to the other developed countries worldwide. With the help of the 2014 report we were able to see the role of innovation in its influence on firms’ performance worldwide.

Their report comprises 21 indicators for innovation taking into account scientific activities market share and entrepreneurial climate. The indicators for innovation performance are divided into three sections (The Conference Board of Canada, 2014):

- Creation
  - Number of Scientific articles
  - Top-cited paper index
  - Public R&D spending
  - Business enterprise R&D spending
  - Investment in information technology
  - Venture capital

- Diffusion
  - Patent by population
  - Patent index
  - Trademark index
  - Connectivity
  - Government online service index
  - Ease of entrepreneurship index

- Transformation
High and medium technology manufacturing
- Knowledge-intensive services
- Export market share for aerospace, electronics, office machinery and computers, pharmaceuticals and instruments
- New firms density
- Patenting in firms less than five years old

Based on these indicators the board reported Switzerland as the top ranked country on the innovation scale. They explained the top ranking of Switzerland as a result of the combination of excellence in research, patent and trademark that gives the cluster in Switzerland the ability to develop expertise in knowledge-intensive service score high in the two indicators export leadership in pharmaceutical and scientific instrument (The Conference Board of Canada, 2014). Canada was however ranked on the 13th place out of 16 peer countries. The Conference Board of Canada (2014) refers to a large number of explanations from industry and academia for the low Canadian performance. The conclusion stated that “firms’ appear to under-invest in innovation-related technologies”. To help the firms in Canada, the Conference Board of Canada started the “Centre for Business Innovation (CBI)” (The Conference Board of Canada, 2014a). CBI focuses on creating business innovation and independent research to increase the Canadian score on the level of innovation index. They do this by their research and activities and focus on five areas (The Conference Board of Canada, 2014b) to increase the Canadian innovation index rank:

- Business strategies for firms
- Capital Markets
- People
- Public Policy
- Performance measurement and macro analysis

CBI approaches all these areas by seeking partnership with individuals and institutions inside and outside Canada (The Conference Board of Canada, 2014c).

All these perspectives identified by the various researches studies and institutions have much in common, however for purposes of this study the innovation perspective will be used as the main focus for our research and analysis.

2.2 SMALL AND MEDIUM SIZE COMPANIES IN SWEDEN

The definition of SME is published by the European Commission (European Commission, 2005) and shown in Table 2.1.
Small and medium size companies (SME) are very important for the Swedish economy. There are more than 1.1 million SMEs in Sweden (SCB business register, 2013). That means that 99.8% of all Swedish companies are SMEs. Figure 2.1 shows the distribution of different companies in Sweden and Figure 2.2 the distribution for companies with 5 employees or more.

<table>
<thead>
<tr>
<th>Enterprise category</th>
<th>Headcount: Work Unit (AWU)</th>
<th>Annual turnover</th>
<th>Annual balance sheet total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium-sized</td>
<td>&lt;250</td>
<td>≤ €50 million</td>
<td>≤ €43 million</td>
</tr>
<tr>
<td>Small</td>
<td>&lt;50</td>
<td>≤ €10 million</td>
<td>≤ €10 million</td>
</tr>
<tr>
<td>Micro</td>
<td>&lt;10</td>
<td>≤ €2 million</td>
<td>≤ €2 million</td>
</tr>
</tbody>
</table>

Table 2.1 Definition of Small and medium size companies provided by the European Commission (European Commission, 2005)

Figure 2.1 Distribution of different company sizes. Data from the SCB business register (2013).
2.3 Foundation of the Innovation and Performance Topic

Porter (1990) in the Competitive advantage of nations discussed tendencies in the creation, organization and management of companies (Porter, 1990). In Italy, for example, successful international firms are often small or medium sized companies that are privately owned whose management operation is based on family decisions; in Germany, on the contrary, there is a clearly defined hierarchical management and practices where managers often have a technical background. There is not a universal managerial system. Competitiveness in a specific industry is the convergence of management practices, organizational modes in a country and the sources of competitive advantage in an industry. Porter (1990) also acknowledges the importance role of the leaders of the firms since they are essential for the survival and also the achieving of the competitiveness of the firms. Collis and Rukstad defined the competitive advantage of a firm consisting in two parts (Collis and Rukstad, 2008). The first is refers to the customer value proposition. This means that the firm should be able to answer why customers should buy their product or services. The second part of a firm’s advantage, also the focus in this research, is the ability to capture the unique activities or combination of activities that allow the firm to deliver the customer value proposition.

Individuals as leaders and managers affect the activities of the firms. Contingency theory suggests that individuals create contingencies, which affect the performance of a firm giving performance a relationship with innovativeness (Fiedler, 1965). Hofer (Hofer, 1975) extends the impact on performance by including the inputs to the individuals such as factors like size of the firm, managerial style and technology. From this perspective managers of every firm or organization need unique mechanisms that fit their contingencies and the mechanisms derived on this basis are nor static, as there is not a universally strategy applicable to achieve
Investigation of antecedents to performance in Swedish small and medium-sized companies

Jarle Pettersen and Natalia Åberg

performance (Caruana et al., 1999). Innovativeness has been highlighted as a moderator of the strategy-performance relationship (Nybak et al., 2009; Pesämaa et al., 2013).

There has been a substantial amount of research about innovativeness. In early 1934 the concept of innovation was already addressed by Schumpeter, when he linked innovation between enterprises and the role of the entrepreneur in economic processes (Schumpeter, 1934). He defined innovation as a continuously set of new combinations of existing resources and gave innovation a role as driver for economic development. During the past years innovation has been investigated from many perspectives. The main idea is that individuals or section within a firm do not innovate alone but through interaction with others. Therefore, interaction among actors and institutional settings is important for innovation activities (Fagerberg et al., 2005).

Recent international marketing research studies have drawn attention to the firm’s relational performance in international markets. It is highly risky and costly for firms to develop innovative new products (Boso et al., 2013). The impact on performance could be affected for the size of the firms.

2.4 INNOVATIVENESS

The concept of innovativeness can be described as efforts at implementing new ideas, and it can represent a trait of a firm (Hurley and Hult, 1998; Hult and Ketchen, 2001), while innovation refers to fresh new ideas that might result in a fundamental or some extensive change in a product or a service (Nybak et al., 2009). Merging both concepts results in considering innovation as the outcome, whereas innovativeness is the process that leads to innovation (Pesämaa et al., 2013). In another definition of innovation it could be seen as the result of carrying out ideas while innovativeness is seen as a characteristic of an organization or a person that carries out ideas (Calantone et al., 2002). In some papers innovation is limited to the development and use of new ideas (Muhammad and Muhammad, 2012). Despite this, there is substantial agreement found in research about innovation and, although there is no universal definition of innovation, there is a general consensus that innovation represents something new (Grønhaug and Kaufman, 1998; Nybak et al., 2009). Furthermore, drawing on the research literature, we will use the extensive work that has been done in attempting to identify the elements that affect innovativeness.

Having defined the conceptual basis of innovativeness and innovation, we also need to discuss the role of innovativeness. Some firms are more innovative than others, and some enjoy industrial success whereas others lack innovative capabilities. Some firms can easily adopt innovative ideas whereas others are reluctant to do so (Muhammad and Muhammad, 2012). This is because the creation and development of products or services can be expensive, risky, and time-consuming (Horrobin and DPhil, 2000), and the outcome does not always provide an advantage to the firm (Boso et al., 2013; Nybak et al., 2009). For example, Girardi et al. (2005) estimate that more than 66% of innovations fail, with the average innovation failure
costing $15 million. Therefore, managers are prudent when implementing innovations, and they look for ways to develop their opportunities for innovation into success. There are many examples of companies whose strategies rely on innovation, such as Gillette and Hewlett-Packard, which have relied on new products for profit and growth (Steenkamp et al., 1999). Chinese telecom firms such as ZTE, DTT, and Huawei entered the telecom industry by developing their innovation capabilities in a very risky market (Muhammad and Muhammad, 2012). So the approach to innovation plays an important role that can determine the future of a company. The very survival of firms depends on innovativeness because it helps managers devise solutions to business problems and may produce a new approach that can be more efficient and that can also contribute to business performance (Drucker, 1985).

Subramanian et al. (1996) describe innovativeness as an enduring organizational trait and state that a truly innovative organization shows innovative behaviour consistently over time (Subramanian and Nilakanta, 1966). The elements that can influence the success of a company through the innovation process can include the level of intercompany cooperation, information sharing, feedback from the sales force, R&D creativity, awareness of competitors’ strategies, the innovation level of the organization, and a capacity for intercompany learning processes. An organization’s ability to improve current products and to develop new products is essential for most companies to grow and continue to have positive cash flows. So, what do successfully innovative firms do right? This question, obviously, has many answers. And, as we discussed in the previous chapter, there is a need to understand the driving factors that affect innovativeness. Early research in the healthcare area found the impact of risk-taking, creativity, competitor benchmark orientation, and environmental opportunities on innovativeness and their influence on performance (Pesämaa et al., 2013). Social theory and network analysis have addressed the importance of networking among heterogeneous groups (Fagerberg et al., 2005). The idea behind social networking is to allow knowledge sharing at many levels and, in this way, to induce a positive influence on the innovativeness of the firm.

2.5 PERFORMANCE

The increasing popularity concerning ideas and strategies of innovativeness in different companies can be explained by the fact that companies seek ways of improving performance, especially in the long run. Innovativeness and organizational learning were shown by Hult and Ketchen (2001) to be very important factors for performance (Hult and Ketchen, 2001). Producing innovations can result in increased income, but the risk is that this development can have a negative impact on the business. In addition, this might produce a time delay between an innovation’s implementation and performance improvement. The organizational performance in services refers to the improvements and the effectiveness of the services provided (Dess and Robinson, 1984; Caruana et al., 2002). Firms are struggling; they are failing significantly because of a poor implementation of innovations.
Enhancing the learning process leads to an increase in the competitive advantage of a firm (Baker and Sinkula, 1999). Performance in this thesis is considered to be the outcome generated by innovation and innovativeness. The relationship between innovativeness and performance will be analysed in the next subchapter.

2.6 **ANTECEDENTS TO INNOVATIVENESS**

There is thus a need to understand in more detail the factors that affect the relationship between innovation and performance. It seems that the probability of failure is quite high if the incidence of what has happened is not understood. Knowing about this relationship will enable us to make improvements and, in that way, to reduce the possibility of failure. The following are the key factors (antecedents) that will be addressed:

2.6.1 **Social networking in relation to innovativeness and performance**

Small and medium-sized firms have limited internal networks for creating and refining ideas. With only a few persons involved, the creative process for refining an idea and the process for its commercialization are difficult. A social network helps the firm to test ideas and modify them in order to create commercial products for which there is a demand in the surroundings. In the forest industry in Norway, social networking provides a positive influence on innovativeness which then leads to a favourable impact on performance (Nybakk et al., 2009). What is interesting is that in small firms in Greece, social networking contributed to neither innovativeness nor to performance. The need for research on social networking is important for policy makers in order to develop tools to increase networking and to construct a comprehensive framework for both antecedents and consequences (Nybakk et al., 2009).

Ties make knowledge sharing possible, so a firm can gain the necessary complementary knowledge and cooperation to implement larger projects. This in turn can generate more knowledge in the firm (Nybakk et al., 2008; Ahuja, 2000). On this subject, Ahuja assessed from a theoretical point of view the effects of social networking relations on innovation. He found the important role of the direct and indirect ties (Ahuja, 2000).

Arora and Gambardella (1990) discussed networking strategies in the new area of biotechnology back in the late 1980s (Arora and Gambardella, 1990). They showed that previous market leaders in chemistry used a networking strategy to evolve and enter the biotechnology market. There are four types of network strategies that span from agreements with other companies, to university research agreements, to the acquisition of small firms with essential technologies, to being minority owners in other companies. All of these networking strategies are complementary and the increases in innovativeness correlate with the ability to create a network.

Social networking among heterogeneous groups has been highlighted by Fagerberg et al. (2005). Some authors have emphasized the advantages of having large and diverse social
circles (Granovetter, 1973). A study done in Norway indicates a positive link between networking and innovativeness (Nybakk et al., 2009).

A strong social network can produce growth (Zhao and Aram, 1995). It is possible to differentiate between strong and weak ties, where the strength of the relationship depends on factors such as trust, friendship, level of interaction, and the duration of the relationship (Granovetter, 1973).

Accordingly, we argue:

**H1: SOCIAL NETWORKING INCREASES THE OVERALL PERFORMANCE OF THE FIRM.**

### 2.6.2 Risk-taking in relation to innovativeness and performance

Risk-taking in relation to innovativeness and performance is also described as “the degree to which managers are willing to make resource commitment to capture opportunities that have a reasonable chance of costly failure” (Caruana et al., 2002). Innovations do not guarantee success, and their introduction is always risky. This makes risk-taking central to innovativeness.

Tang and Tang (2007) studied two characteristics of entrepreneurs: motivation for achievement and a propensity for risk-taking (Tang and Tang, 2007). They found that risk-taking was negatively correlated with performance.

They also found that the environment is important for risk-taking entrepreneurs. In a supportive community with a positive climate for entrepreneurs and strong support for entrepreneurs, there was no difference in success rates between risk-takers and other entrepreneurs. In areas where the entrepreneurial climate was not developed, and the financial and social resources were less developed, risk-taking was highly negative for the performance of the firm.

Hancer et al. (2009) studied risk-taking profiles among mid-level hotel managers in Turkey (Hancer et al., 2009). They found that there was no link between personal risk-taking profiles and firms’ performance. This was probably because the mid-level hotel managers needed top managers’ support and approval for risky projects and, therefore, there was a greater correlation with top management risk profiles. Thus, we hypothesize the following:

**H2: RISK-TAKING REDUCES THE OVERALL PERFORMANCE OF THE FIRM.**

### 2.6.3 Creativity in relation to innovativeness and performance

Creativity in relation to innovativeness and performance is described as efforts to develop and create novel ideas that are likely to be used (Crespell and Hansen, 2008). But every small step taken to change core products adds risks to the innovative organization (Girardi et al. 2005).
Van de Ven and Polley (1992) studied the creativity process of innovation (Van de Ven and Polley, 1992) of an inter-organizational joint venture that was created to help in the development of new products from new technology within the biomedical area (TAP). They tested whether they could create a model of how the organization was learning creatively.

They observed that the learning pattern changed over time. In the initial (expanding) time period, no learning occurred and negative results did not lead to a change of course. In the initial time period, wild plans were presented in order to establish a foundation. Plans were expansive and the people involved expected that the plans would change over time. In these early times, the organization was very successful and developed many new products. The creativity of the organization was high, with a large number of products as output. After a while, the TAP system became very complex, and a failure in one component jeopardized the whole project. In this initial phase, no real feedback occurred and the organization did not learn from error and could therefore not optimize the creativity with regard to more valuable and error-free products.

In this part of the project, the turnover of researchers and managers was relatively high, and this produced a drain of competence and knowledge of problem-solving from the project. In the contraction part of the TAP project, the organization received more and more feedback from the market and expended much time on problem-solving for existing products. They also focused on a single project. They began a time of trial-and-error learning to focus the creativity on the final target. The project could use feedback from the market to focus the creativity and organization’s knowledge to creatively solve problems. Accordingly, we argue:

**H3: CREATIVITY IS POSITIVELY CORRELATED TO PERFORMANCE.**

### 2.6.4 Competitor benchmark orientation in relation to innovativeness and performance

In this paper, competitor benchmark orientation refers to all the organizational efforts to follow and understand a competitor’s short-term strengths and weaknesses, as well as its long-term capabilities and strategies (Narver and Slater, 1990). An understanding of a competitor’s behaviour is recommended by Collis and Rukstad (2008) as part of the strategy of a firm. For him, the aim is to analyse a competitor’s strategies and to predict how they might change in the future, which includes assessing the capabilities and resources of both one’s own firm and of one’s competitors (Collis and Rukstad, 2008).

The research of Pesämaa et al. (2013) looked at the impact of competitor benchmark orientation in SMEs in Israel. They found influential effects of this factor from innovativeness to performance (Pesämaa et al., 2013). Therefore, we want to explore these effects in the Swedish market. Hence:

**H4: THE COMPETITOR BENCHMARK ORIENTATION RELATIONSHIP IS POSITIVELY CORRELATED TO PERFORMANCE.**
2.6.5 Environmental opportunities in relation to innovativeness and performance

The term environmental opportunities, also called environmental munificence, refers to the way managers perceive opportunities both as existing in the current market but also through exploring new markets. Assessing the opportunities are important, especially in terms of services, since dependence on where the service is located will influence the availability of resources. Consequently, the decision of a manager to locate a resource in one particular place or another can have many implications. The presence of resources can be translated into opportunities, and these opportunities can shape a new innovative approach (Caruana et al., 2002). So, an environmental opportunity is a factor that combines resource availability, the ability to identify market opportunities for growth, and a way to pursue new resource capabilities (Pesäämaa et al., 2013). In this study, we will use the same concept.

With respect to competitor benchmark orientation, Pesäämaa et al. (2013) included environmental opportunities in his research. The first assumption tested was that a firm with rich and plentiful environmental opportunities factors is more likely to succeed, while firms with low environmental opportunity factors might run into difficulties or be forced to specialize within a niche. Therefore, the hypothesis is:

**H5: ENVIRONMENTAL OPPORTUNITIES ARE POSITIVELY CORRELATED TO PERFORMANCE.**

2.6.6 The relationship between innovation and performance

Past findings concerning innovation and performance were based on direct relationship factors, resulting in an incomplete picture of the relationship; it is thus recommended that new studies should include both internal and external contingency factors, and not only internal ones (Wang, 2008).

Individuals such as leaders and managers affect the organizational innovativeness–performance relationship, especially in sectors dominated by services (Fiedler, 1965). Hofer (1975) complemented Fiedler by considering that these individual contributions to performance are conditioned by factors such as a firm’s size, managerial style, and technology (Hofer, 1975). Because individuals can affect performance in their respective companies, it might be concluded that the organizations affected by this need to develop particular strategies in order to achieve successful performance (Caruana et al., 1999).

There is a link between innovativeness and performance and the antecedents that affect and drive the link. Risk-taking, creativity, environmental opportunities, and competitor orientation are antecedents whose impacts were analysed in service delivery organizations, where it was discovered that a firm with a low learning orientation could benefit from risk-taking and creativity while a firm with a high learning orientation could improve its performance through competitor benchmarking and environmental opportunities (Pesäämaa et al., 2013). Hence:

**H6: THERE IS A POSITIVE CORRELATION BETWEEN INNOVATIVENESS AND PERFORMANCE.**
2.6.7 The proposed model

In this section the model to be tested in this paper is developed.

We have focused on the model used by Pesämaa et al. (2013) where they study learning orientation in Israel health care industry. They found that risk-taking, creativity, competitor benchmark orientation and environmental opportunities were significant antecedent to innovativeness.

Nybakk et al. (2009) studied antecedent to Norwegian forest owners’ innovativeness and the influence of economic performance depending on property size. They found that social networking and learning orientation were significant antecedent to innovativeness.

Muhammad and Muhammad (2012) found that social networking, entrepreneurial climate and learning orientation are significant antecedents to innovativeness.

The theoretical framework was a custom-tailored version of the model tested by Pesämaa et al. (2013) with inclusions of social networking as antecedents to innovativeness as tested by Muhammad and Muhammad (2012), and Nybakk et al. (2009). The model was chosen because this model supports the research questions and the hypotheses stated previous.

We collected the hypotheses specified in the previous sections and then merged the hypotheses with the visualisation of the research questions (Figure 1.1). The result is the proposed model that shows the antecedents of innovativeness that can influence performance (Figure 2.3).

![Figure 2.3 Proposed hypothetical model.](image-url)
3 RESEARCH DESIGN

3.1 METHODOLOGICAL APPROACH

This section describes how to approach the formulation of the problem. Here we will present our selection of a methodology that suits the research and the expected outcome from the application of the selected method.

There are different research designs that could be applied, depending on the type of research. The two most common ones are the qualitative and the quantitative research methods (Aliaga and Guderson, 2003). Qualitative research typically uses words. This entails using qualitative data, such as interviews and documents, that require participation and involvement from a researcher in order to understand and explain social phenomena. It focuses on a few individuals or subjects, so the results cannot be generalized. A typical example of qualitative research is the case study.

Quantitative research, on the other hand, involves numbers, and the researcher is an impartial observer. In this method, the findings, as numerical data, are collected from surveys or questionnaires. It involves a larger number of samples. The data is then analysed by using statistical measurements in a way that a researcher will be able to describe, test, and examine for cause-and-effect relationships (Burns and Grove, 1987). Hence, quantitative research is according to them used to test pre-determined hypotheses and produce generalizable results.

Creswell (2009) divides research methods into three different groups: Qualitative, quantitative and mixed methods. Those three groups are not separated - the different type of research methods goes on a continuous scale from purely qualitative to purely quantitative research designs with mixed methods in the middle. Creswell distinguishes between qualitative and quantitative research by the use of words (qualitative) versus numbers (quantitative) or by the use of open-ended questions (qualitative interview questions) versus closed end questions (quantitative hypotheses). The research method used is based on the research strategy used. Data from experiments are typically collected qualitative as observations from for example case studies or quantitatively using different types of instruments.

Ghauri and Grønhaug (2010) discussed the use of qualitative and quantitative research methods in business studies. They referred to some authors that argued for quantitative methods as more “scientific” only because they are quantitative. Ghauri and Grønhaug (2010) argued that neither qualitative nor quantitative methods are better or more scientific, but should be used in different applications. The selection between qualitative and quantitative research methods are based on the researcher's background and qualifications but also on the research purpose. Qualitative methods are typically used for exploratory studies, process oriented studies, studies with a holistic approach and studies with an emphasis on understanding. Quantitative methods on the other hand are used for studies with an...
emphasizes on testing and verification, controlled studies, studies with focus on hypothesis testing, studies that are result oriented and studies that are based on facts (Ghauri and Grønhaug, 2010).

Qualitative research strategies are used to investigate individual or group influence on a social or human problem. Qualitative research can be used within ethnography to study cultural groups in a natural environment by use of observation or interviews (Creswell et al., 2009; LeCompte and Schensul, 1999). Another type of qualitative research methods is the use of case studies (Creswell et al., 2009; Yin 2009).

Quantitative research is used for the testing of an objective theory. This is done by examining the relationship between variables. One examples of quantitative research methods is the use of survey type methods for example questionnaires or interviews to collect data (Creswell et al., 2009). Another example is the use of experimental research methods to measure the outcome from different types of treatment (Creswell et al., 2009).

Mixed mode research is a combination between qualitative and quantitative questions (Creswell et al., 2009).

One example of a mixed mode research design is Lai et al (2009) case study of continua quality improvement. They used a single case study of the company Largan Precision where they combined primary data in the form of focused interviews and secondary internal and external archive data (Lai et al., 2009).

Yin (Yin, 2009) discussed advantages and disadvantages of case studies compared to other research methods. He divides research methods into three purposes - exploratory, descriptive and explanatory. Case studies can be used for different sample sizes, from only one case to several thousand over several years.

Yin (Yin, 2009) described five research methods: Experiment, Survey, Archival Analysis, History and Case Study. Experiment, history and case studies are often used together with research questions like how, why and what. They are qualitative and used to explain relationships between observations. Survey and archival analysis are used with research questions like who, what, where, how many and how much. They are quantitative and often used when you would like to create a model for prediction based on new data. Yin also stated that all research methods can be used in exploratory, descriptive and explanatory studies (Yin, 2009).

Surveys and questionnaires are two of the most frequently used strategies to collect data for business studies (Ghauri and Grønhaug, 2010). Surveys and questionnaires could be either descriptive or analytical based on the research question/formulation (Ghauri and Grønhaug, 2010).

Ghauri and Grønhaug (2010) described the planning process to construct and execute a survey. Based on the aim of the study, the current state of knowledge and the resources
available, the necessary variables are defined. For a descriptive survey you describe a phenomena based on some measured variable, for an analytical survey you define independent, dependent and extraneous variables. For both types the sampling strategy has to be defined, such as research population and how to collect a random sample. Data can be collected by a single contact with the respondent or several contacts to some or all, where same questions are asked at different times to collect repeated data from the same respondent (Ghuri and Grønhaug, 2010).

We had two main ideas how to collect data to investigate the theory, either by using a survey or using a case study approach. If we had used the case study method, we would have received a small number of responses, but the quality of every data point would have been higher. It would also have been more difficult to create a valid model of the relationships, and the validation of the model would also have been difficult. Our decision to use quantitative research was reinforced when we noted that some of the literature studied applied a quantitative method, based on the fact that they also had a number of hypotheses to test.

As for our study, we have a number of hypotheses based on the theoretical preparations, complemented with a structural model that we want to analyse and measure. Our set of hypotheses can then, by applying quantitative research, be assessed with quantitative measures. On these grounds, we conclude that quantitative research is the best alternative for our study. The predetermined set of hypotheses will be tested, and the data collected from a survey will be statistically analysed in order to examine and quantify the cause and effect of the theory we want to test.

3.2 QUESTIONNAIRE DEVELOPMENT

This section describes the process of translating the theoretical framework and the hypotheses into a questionnaire in order to understand the relationship between the antecedents of innovativeness and performance.

Ghauri and Grønhaug (2010) describe the necessary steps in constructing a questionnaire. The first step is to review what type of information that is known and can be used as base for the study. The second step is to decide how to administer the questionnaire and whether it should be disguised or undisguised. The third step is to decide which questions to ask. What type of benefit each question will give and if there should be several questions for one issue. It is also necessary to find out if the interviewed persons are able to answer the questions or not. All questions have to be reviewed whether they are sensitive to the interviewed organisation or individual to answer or not. The fourth step is to decide how the questions shall be answered. Shall the question be open ended or closed with only a limited number of allowed answers? Closed ended questions could be with or without an escape route - that means an option to answer “don’t know” or NA (Not applicable) if the respondents cannot or are not willing to answer the question. The number of questions has also to be considered. It
is more difficult to get a complete answer if the questionnaire is too long (Ghauri and Grønhaug, 2010).

The model and research question to be tested in this investigation are shown in Figure 2.3. The target audience for the questionnaire is small and medium size companies in Sweden according to the description in Chapter 2.2 Small and medium size companies in Sweden. The questionnaire has closed ended questions except for some initial questions to identify the company and to enable us to send reminders to those who have not answered the questionnaire. For this investigation we decide that open ended questions are not mandatory to answer.

The number of questions for each research question will be based on previous investigations found in the literature.

An acronym and a number will be given to each question, making it easier to address the issues during the analysis phase. The topics to be covered and the respective acronyms are shown in Table 3.1.

<table>
<thead>
<tr>
<th>Area/Topic</th>
<th>Acronym</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social networking</td>
<td>NW</td>
<td>H1</td>
</tr>
<tr>
<td>Risk-taking</td>
<td>Risk</td>
<td>H2</td>
</tr>
<tr>
<td>Creativity</td>
<td>Crea</td>
<td>H3</td>
</tr>
<tr>
<td>Competitor benchmark orientation</td>
<td>Comp</td>
<td>H4</td>
</tr>
<tr>
<td>Environmental opportunities</td>
<td>Env</td>
<td>H5</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>INN</td>
<td>H6</td>
</tr>
<tr>
<td>Performance</td>
<td>Per</td>
<td>H1 .. H6</td>
</tr>
</tbody>
</table>

*Table 3.1 Mappings between areas, acronyms, and hypotheses.*

The main source for developing the questionnaire was Pesämaa et al. (2013), whose research about the learning orientation drivers of innovativeness and performance in service delivery was based on research done in Israel on the healthcare industry. From the Pesämaa survey we were able to extract relevant questions about all the subjects discussed in the theory section, except for social networking. To cover social networking we reverted to Nybakk and Hansen (2008), and Muhammad and Muhammad (2012), two studies that also adopt some of the queries explored by Pesämaa et al. Nybakk et al. (2009) investigated the antecedents of innovativeness in the forest industry in Norway, while Muhammad and Muhammad (2012) looked at the impact of antecedents of innovativeness on small firms’ performance in Pakistan.

The social networking questions were adapted from Nybakk and Hansen (2008) and Muhammad and Muhammad (2012). We took three common issues investigated by both, with a focus on a firm’s attitudes:
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- NW1: Top managers in the firm believe in cooperating with other firms in the same branch, but also in other areas.
- NW2: Our firm has a central position and an important role in our branch.
- NW3: Our firm is frequently represented in discussing common problems in our branch.

Because we wanted to include the interactions among firms, we added two additional statements from Nybakk and Hansen (2008):

- NW4: Our firm is involved in voluntary work and we help others using the firm’s knowledge and resources.
- NW6: Networking with industry experts and opinion leaders is part of our main strategy.

One final statement from Muhammad an Muhammad:

- NW5: The opinions of our firm are respected in our branch. Others often search out our opinions.

Creativity, competitor benchmark orientation, environmental opportunities, innovativeness, and performance were adopted from Pesämaa et al. (2013), and we adjusted the text to reflect the firm’s positions in their respective business branches:

- Crea1: The firm encourages creativity.
- Crea2: We are encouraged to use original approaches when handling problems in the workplace.
- Crea3: Managers here expect us to solve problems creatively.
- Comp1: In this firm competitor information is shared at all levels.
- Comp2: Our firm responds rapidly to competitors’ actions.
- Comp3: Our firm considers the analysis of competitors’ actions as part of a competitive advantage.
- Comp4: Top managers discuss competitors’ strategies.
- Env1: Our firm has many opportunities in existing and new markets.
- Env2: Our firm has many new opportunities based on existing or new products or services.
- Env3: Our firm has significant growth potential in the markets currently operating.
- INN1: Managers in the firm prefer to try innovative ideas rather than proceeding with old or proven ways.
- INN2: Our firm has introduced many new ways of working in the last three years.
- INN3: Our firm has introduced many new services and/or products in the last three years.
- INN4: Our firm believes that change in society leads to valuable new ideas or products.
- INN5: Our firm can easily find ideas and transform them into successful business applications.
- Per1: The overall performance of the firm in the last three years has reached the profitability that was expected.
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- Per2: Our firm has significant growth potential in the markets currently operating.
- Per3: In the last three years our firm provided more products and services than other firms in the same business.
- Per4: The level of effectiveness achieved by our firm in the last three years has been very high.
- Per5: In the last three years our firm reached a higher level of profitability compared to other firms in the same business.

We added a statement from Nybakk and Hansen (2008) that we thought might sharpen the perception of the firm’s performance:
- Per6: Our firm’s profitability has increased in the last three years.

Learning orientation questions were taken from Pesämaa et al. 2013 and Sinkula et al. 1997, where the first four questions, Learn1 to Learn4, were tested by Pesämaa et al., while the last two statements, Learn5 and learn6, had been suggested for future investigations and consequently had not been tested earlier.

- Learn1: Top managers believe that the firm’s capacity for learning is the key to our competitive advantage.
- Learn2: Our managers see learning by employees as an investment and not as a cost.
- Learn3: The firm’s values reflect a belief in learning by employees as a key to improvement.
- Learn4: The firm believes in learning as a matter of survival.
- Learn5: In our firm, we value learning from successes.
- Learn6: In our firm, we value learning from mistakes.

The questions about risk taking were adapted from the questions tested by Pesämaa et al. 2013. In our paper, we will refer to a firm instead of a business unit.

- Risk1: Top managers in this firm believe that higher financial risks are worth taking for higher rewards.
- Risk2: Our firm implement innovative ideas and strategies even if it means risk of failure.
- Risk3: Top managers in this firm like to take big financial risks.

The questionnaire was created using the Google Forms tool. This tool was selected because we were able to tailor the form to our research needs, to distribute the survey efficiently to a large number of respondents, and to collect the responses in a spreadsheet while dynamically managing the analysis of the data. The survey form contained a section dedicated to each of the eight topics along with their respective questions, and a free text field where the respondents could add their own comments. We realized that previous research on this subject had a mix of scales from 1 to 5 or from 1 to 7. We resolved to have one single measurement scale in order to provide a uniform approach to the analysis. Therefore, for our
research purposes we decided to rate the questions on a scale from 1 to 5 where 1 mean “strongly disagree” and 5 mean “strongly agree”.

The questionnaire to test the relationship between innovativeness and performance is formed as 42 questions corresponding to 8 areas. The complete questionnaire is shown in Appendix A.

3.3 SAMPLING AND DATA COLLECTION
This section explains the research design of the paper. It starts with a discussion about the methodology chosen. Then it describes the translation process from the theoretical framework and hypotheses into the questionnaire. The last two subchapters are dedicated to data collection and the plan of analysis that will be carried out in order to answer the research questions.

According to Hair et al. (2010) a researcher should take into account the fact that the effects of the sample size have considerable impact on the results of an analysis. This insight led us to focus on developing a good strategy for increasing the likelihood of getting a reasonable quantity of data. We learned from previous studies that the number of responses could be significantly less than the number of requests made. Our modest aim was to have a final sampling size of a minimum of 100 companies.

From a preliminary database of small and medium-sized firms, we removed firms with less than five employees and firms in bankruptcy. Additionally, we searched for other contact information such as e-mail addresses and contact names in order to have an up-to-date information list. We obtained a total of 282 companies with valid contact information that made up the final database. A request to answer the online survey (see Appendix 1) was distributed, using the Google Forms tool, to all of the firms in the database. A reminder was sent out after one week. Most of the answers came in in the first days after the inquiry and the reminders were distributed.

The answers were collected automatically using the Google Forms tool in a spreadsheet that was easy to manage and process with the statistics tool.

We obtained in total 65 responses from 282 requests (23%). Based on some of the feedback from the survey, we suspect that there are two reasons behind this low rate of response. The first is because of a lack of time in the time frame during which the data was collected, since this is considered a period of high workload which also occurs during the month when Easter is celebrated. The second reason is because some firms did not want to share their data, since they felt that it contained confidential information.

3.4 ANALYSIS PLAN
This section describes how we analysed the responses collected from the survey, and presents the fundamental concepts behind the statistical analysis.
The selection of the analysis approach for our data is based on the type of research and the type of data. For a quantitative research methodology, the expected type of data should be metric (Hair et al., 2010). This means that the database should consist of variables that can be measured in such a way that the variation or correlation among the variables themselves can be measured.

In our study, the set of variables consists of the 42 quantitative questions that were indicated in the development of the questionnaire. Each quantitative question will be a variable in the analysis of the results. To make the management of the analysis easier, each variable received an acronym consisting of three to four letters, along with the number of the respective question. The statistical analysis will be done using SPSS (version 22).

Hair et al. (2010) define validity as the degree to which a measure accurately represents what is supposed to be done, while reliability is defined as the degree to which the observed variable measures the “true” value and is “error free” (Hair et al., 2010). The first step in our statistical analysis is a data reduction using principal component analysis (PC) to identify a group of variables that are covariates. The variables that correspond to the significant principal components are used to create new calculated variables that can represent the data set.

Variables that do not contribute to any principal component are removed from the data set. The variables that have loadings exceeding 0.50 are considered as covariates and will be retained in the model; variables that have less than 0.50 will be removed (Hair et al., 2010). This method is repeated until the validity of the variables is acceptable (loading > 0.50). Covariance between different groups of variables (SN, Risk, Crea, Comp, Env, INN, or Per) should be identified, and if cross loading is detected, a reason for this should be included.

New variables are created from each of the principal components, where variables from the same groups (SN, Risk, Crea, Comp, Env, INN, or Per) are used to create new calculated variables.

Even if validity is assured, we as researchers must consider the reliability of the measurements, and therefore we include in the analysis Cronbach’s alpha, where the recommendation is that it should exceed the 0.70 level; see Hair et al. (2010).

For example, if the following variables for innovation, (INN1, INN3, and INN5), contribute to one of the principal components’ loadings at a value greater than 0.5, and the Cronbach’s alpha for the group of variables exceeds 0.7, the new calculated variable for innovation will be

\[ \text{New variable for INN} = (\text{INN1} + \text{INN2} + \text{INN3}) \times \frac{1}{3} \]

The new calculated variables are used to create models for the dependent variable Per, and for some or all of the independent variables SN, Risk, Crea, Comp, Env, and INN.
P-values for calculated variables are used to judge whether or not the independent variables are significant in the model, and the beta values are the coefficients for the variables.

We will use *** for p-values < 0.001, ** for p-values < 0.01 and * for p-values < 0.05.

The final model will be used to accept or reject hypotheses H1 to H6 postulated in the theory section.
Results

In this chapter, the results from the survey are treated. This includes the preparation of raw data, data reduction, and the testing of two models for antecedents to performance. Large tables can be found in the appendices.

4.1 From Questionnaire to Variables

In this section we describe the process of converting the answers from the questionnaire into variables that can be used in the SPSS analysis.

A questionnaire containing 42 quantitative questions was sent out to 282 small and medium-sized companies. We received 65 responses. The responses were retrieved from the Google Forms tool in a spreadsheet form and were then processed by the SPSS statistics tool.

In order to deal with the results, the questions from the questionnaire will be treated as variables, and the collected data as responses.

After processing the data with the SPSS tool, we obtained the descriptive statistics for all of the numerical variables, see Appendix B.

4.2 Data Reduction and PC-Analysis

This section describes the first step in the preparation of the data results. It describes how the descriptive statistical tables for numerical variables were handled until the final list of variables was obtained. The goal is to remove the variables that do not contribute to describing variation in the significant principal components, and to keep only the variables that provide more knowledge about the subject.

To reduce the dimensionality of the data table, we used principal component (PC) rotation to stepwise reduce the dimensionality of the data and to find new common dimensions in the data space that describe as much as possible of the data variation. The dimension reduction procedure and intermediate results are described in Appendix C.

The final list of variables in the final dimension reduction matrix is shown in Table 4.1.

<table>
<thead>
<tr>
<th>Component</th>
<th>Component</th>
<th>Component</th>
<th>Component</th>
<th>Component</th>
<th>Component</th>
<th>Component</th>
<th>Component</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW2: Our firm has a central position and an important role in our branch.</td>
<td>0.747</td>
<td>0.780</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW3: Our firm is frequently represented in discussing common problems in our branch.</td>
<td>0.738</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW4: Our firm is involved in voluntary work and we help others using the firm’s knowledge and resources.</td>
<td>0.554</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW5: The opinions of our firm are respected in our branch. Others often search out our opinions.</td>
<td>0.840</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk1: Top managers in this business unit believe that higher financial risks are worth taking for higher rewards.</td>
<td>0.400</td>
<td>0.552</td>
<td>0.694</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.1 Significant variables after dimension reduction. Variables NW1, NW6, Comp1, INN1, INN5, Per2, and Per3 removed. CA = Cronbach’s alpha. Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization. Data from SPSS.

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk2: Our firm implement innovative ideas and strategies even if it means risk of failure.</td>
<td>0.496</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.562</td>
<td></td>
</tr>
<tr>
<td>Risk3: Top managers in this firm like to take big financial risks.</td>
<td></td>
<td>0.841</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea1: The firm encourages creativity.</td>
<td></td>
<td>0.831</td>
<td>0.67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea2: We are encouraged to use original approaches when handling problems in the workplace.</td>
<td></td>
<td>0.643</td>
<td>0.450</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea3: Managers here expect us to solve problems creatively.</td>
<td></td>
<td></td>
<td>0.705</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp2: Our firm responds rapidly to competitors’ actions.</td>
<td></td>
<td>0.705</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp3: Our firm considers the analysis of competitors’ actions as part of a competitive advantage.</td>
<td></td>
<td></td>
<td>0.851</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp4: Top managers discuss competitors’ strategies.</td>
<td></td>
<td></td>
<td>0.827</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env1: Our firm has many opportunities in existing and new markets.</td>
<td>0.833</td>
<td></td>
<td></td>
<td>0.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env2: Our firm has many new opportunities based on existing or new products or services.</td>
<td></td>
<td>0.811</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env3: Our firm has significant growth potential in the markets currently operating.</td>
<td></td>
<td>0.841</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN2: Our firm has introduced many new ways of working in the last three years.</td>
<td></td>
<td></td>
<td>0.685</td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN3: Our firm has introduced many new services and/or products in the last three years.</td>
<td></td>
<td></td>
<td>0.683</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN4: Our firm believes that change in society leads to valuable new ideas or products.</td>
<td></td>
<td></td>
<td>0.740</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per1: The overall performance of the firm in the last three years has reached the profitability that was expected.</td>
<td>0.861</td>
<td></td>
<td></td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per4: The level of effectiveness achieved by our firm in the last three years has been very high.</td>
<td></td>
<td>0.570</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per5: In the last three years our firm reached a higher level of profitability compared to other firms in the same business.</td>
<td></td>
<td>0.811</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per6: Our firm’s profitability has increased in the last three years.</td>
<td></td>
<td>0.799</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bryman (2012) described Cronback’s alpha (CA) as a commonly used test of internal reliability. A value of 1 means perfect reliability and zero no reliability. Also Hair et al. (2010) have described Cronbach’s alpha (CA) and a “rule of thumb” for judging CA-levels and deciding whether a variable should be kept or not. Rule of thumb: Loading should exceed .50, which is true in most cases. Our loadings vary between .58 and .78 and have a Cronbach’s alpha that exceeds the recommended 0.70 level. CA for Creativity is marginally low, but Hair et al. (2010) recommend a level above .6 for exploratory studies. We have seven multi-item measures that share 73.86% of the data variance and a smallest eigenvalue = 0.96.

4.3 CREATION OF NEW VARIABLES DESCRIBING THE MAIN GROUP IN THE SURVEY

Following the SPSS data reduction process, new factors are formed based on the final variables.

From the final PC-data set in Table 4.1, we created new variables based on the survey variables:

- NW (Networking factor) = (nw2+nw3+nw4+nw5)/4
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- Risk (Risk-taking factor) = (Risk1+Risk2+Risk3)/3
- Crea (Creativity) = (Crea1+Crea2+Crea3)/3
- Comp (Competitor Benchmarking) = (comp2+comp3+comp4)/3
- ENV (Environmental Opportunities) = (Env1+Env2+Env3)/3 (muni1+muni2+muni3)/3
- INN (Innovativeness) = (inn2+inn3+inn4)/3
- Per (Performance) = (per1+per4+per5+per6)/4

Descriptive statistics for the new variables are shown in Table D.1 and histograms with normal distribution curves are shown in Table D.2. Both tables are found in Appendix D. All calculated variables can be treated as normally distributed in the calculations.

4.4 DATA EVALUATION AND INTERPRETATION

This section presents the models that were deduced from the newly-created calculated variables.

To describe the influence of the variables constructed on performance we created two different models:

Model 1:

$$Per = b_0 + b_1 * SN + b_2 * Risk + b_3 * Crea + b_4 * Comp + b_5 * Env$$

Model 2:

$$Per = b_0 + b_1 * SN + b_2 * Risk + b_3 * Crea + b_4 * Comp + b_5 * Env + b_6 * INN$$

The first model for performance (Model 1) that includes the calculated variables NW, Risk, Crea, Comp, and Env can explain 29.1% (Adjusted R^2) of the variance Table E.1. When INN enters the model (Model 2), we can explain 28.0% of the variance (Table E.2). Testing individually (Table E.3, Model 2), we reject H4 - Comp (beta 0.10; p-value = 0.384), H5 - Env (beta = 0.12; p-value = 0.345) and H6 - INN (beta = 0.06; p-value = 0.698) as not significant regarding the effect on Per. Even H3 - Crea should be rejected with this model (beta = 0.24; p-value = 0.384).

From Model 1 we found, as expected, that NW and H1 have a significant effect on Per (beta = 0.45; p-value < 0.001***). Risk, H2 (beta = -0.43; p-value < 0.001***), and Crea, H3 (beta = 0.26; p-value = 0.021*) also have significant effects on Per (Table E.3).

Our initially proposed model in Figure 2.3 could not be accepted and we therefore were forced to reformulate a new model. Figure 4.1 and Figure 4.2 show the new model, including beta values and significant factors for Model 1 and Model 2.
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The two models above will be the core of our analysis phase. We expect, through the analysis of the results, to validate the hypothesis from the theoretical framework.
5 ANALYSIS

In this chapter, we will discuss the findings from the survey and validate the assumptions presented in the model for antecedents to performance.

5.1 ASSESSMENT OF THE MODEL

In this section, we will analyse the two models.

Thanks to the reliability of models and coefficients reported from the SPSS tool, we are able to know how well each theoretical measure works. The first model contains SB, Risk, Crea, Comp, and Env as independent variables, and performance as a dependent variable. We conclude that Model 1 provides proof of Hypotheses H1, H2, and H3. Model 1 rejects Hypotheses H4 and H5.

When Inn entered the model (Model 2), we could not find a connection between innovation (or innovativeness) and performance, and therefore H6 was rejected. This means that we could not validate the model in Figure 2.3.

Due to the limitations of the sample size, we decided to not investigate the influence of learning on the model since we noted that if we did include LO in the model, there would be fewer degrees of freedom to validate other factors.

5.2 THEORETICAL FINDINGS

In this section we will align our results with the problem formulation, validate a model, and discuss our findings.

From the results, we have shown that SN, Risk, and Crea are significant in modelling the performance of a company. Comp, Env, and INN are not significant factors in determining the performance of a company, and they are therefore rejected (Table 5.1). We therefore accept hypotheses H1, H2, and H3, and reject hypotheses H4, H5, and H6.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Text</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Social Networking (SN) increases the overall performance (Per) of the firm.</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>Risk-taking (Risk) reduces the overall performance of the firm.</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>Creativity (Crea) is positively correlated to performance.</td>
<td>Accepted</td>
</tr>
<tr>
<td>H4</td>
<td>The Competitor benchmark orientation relationship (Comp) is positively correlated to performance.</td>
<td>Rejected</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Text</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>H5</td>
<td>Environmental opportunities (Env) are positively correlated to performance.</td>
<td>Rejected</td>
</tr>
<tr>
<td>H6</td>
<td>There is a positive correlation between innovativeness (INN) and performance.</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

Table 5.1 List of accepted and rejected hypotheses.

The model validated H1. As described by Nybakk et al. (2009), we found that social networking increased the overall performance of a company. The findings are also in line with Zhao’s findings (Zhao and Aram, 1995) that social networking can produce growth. We did not have enough data to study the relationship between strong and weak networking relationships and therefore could not investigate the theory developed by Granovetter (1973).

These results mean that networking affects the performance of a company. A p-value of < 0.001 validates a strong result and, furthermore, these findings are consistent with the extant literature. This means that the probability of improving performance can be increased by expanding the social network.

We also confirmed the same connection between risk-taking and performance as Tang and Tang (2007) found. This means that risk-taking reduces the overall performance of a firm. This could be because risk gives a higher probability of failure that is not compensated for by a higher outcome. It could also be explained because firms with low performance take higher risks than other firms to try to increase their performance. The effects of risk-taking on performance are at the same level, but in the opposite direction as are those of networking.

The results mean that risk-taking reduces the performance of a firm. A p-value of < 0.001 validates this result as a strong result; and the findings are consistent with the extant literature.

In relation to H3, the model validates the hypothesis. Van de Ven and Polley (1992) found in a study that creativity needs feedback from the market to create high performance, and we confirmed also these findings in our study (Van de Ven and Polley, 1992). This is also supported by Boso et al. (2013). The absolute value of the effects of creativity on performance is half of the effect of networking and risk-taking on performance. A p-value for risk-taking of 0.02 shows that the effect is significant.

The research of Pesämaa et al. (2013) has shown that under certain conditions (high learning orientated firms) the competitor benchmark level of the firm would influence the performance of the company. We could not establish this connection. This could be due to a small sample size, and therefore the model could not validate the impact of competitor benchmark orientation (H4).

In the same way as for Comp, for Env (H5) we could not establish a causal connection between environmental opportunities and performance. Pesämaa et al. (2013) found the same
connection for environmental opportunities as for competitor benchmarking. However, the model was not able to validate environmental opportunities. This could be, as mentioned before, because of too small a sample size (Pesämaa et al., 2013).

In relation to H6, Pesämaa et al. (2013) found that learning orientation is an important factor for an organization’s innovativeness and that innovativeness impinges upon the strength of the performance of a firm. From our data, we could not find a connection between innovativeness and performance. This means that the factors in H1, H2, and H3 impinge directly on performance and do not have an impact through innovativeness, as we were expecting.

From the discussion, we have validated a model for antecedents to performance (Figure 4.1). The significant antecedents are shown in Figure 5.1.

![Figure 5.1 Significant antecedents to performance.](image)

The goal of our thesis was to investigate the antecedents that affect innovativeness and to analyse their impact on performance. This analysis was carried out using the proposed model and the set of respective hypotheses.

The resulting model bypassed innovativeness and it did not do what it was expected to in the proposed model. In this way the factors analysed will have a direct impact on performance, so the final model will be Model 1, as shown in Figure 4.1.

Model 1 verifies that social networking, risk-taking, and creativity are significant. As expected, we could confirm that these factors impinge upon the performance of companies. These three effects confirm the same mechanisms for Swedish companies as for the markets studied in the research literature.
6 CONCLUSION AND IMPLICATIONS

6.1 FINDINGS AND PROBLEM FORMULATION
Through our research we have been able to test the role of antecedents to performance in the Swedish market.

Our preliminary assumption was that innovation can lead to improvement of a firm’s performance. We could validate this assumption through our analysis and found that performance definitely is influenced by innovation factors (Nybakk et al., 2009; Pesämaa et al., 2013; Muhammad and Muhammad, 2012; Boso et al., 2013).

We found that social networking, risk-taking, and creativity are important factors of performance in Swedish SME and updated the model accordingly (Figure 5.1). Those factors influence, represent and drive the firm’s culture and in consequence could be regarded as the firm’s cultural trait as described by Girardi et al. (2005).

This model acknowledges the great worth of social networking as one of the main factors that drives a firm’s performance. In this area, we assumed that a well-developed network strategy would increase knowledge regarding the demand for new products and, therefore, reduce risk and failure rate. Consequently, we would advise managers to support activities that encourage the growth of networking (Figure 5.1). In this way a firm’s performance could be enhanced after having first created well-developed networking capabilities (Boso et al., 2013) such as networking among heterogeneous groups (Fagerberg et al., 2005, Nybakk et al., 2009; Nybakk and Hansen, 2008).

Another important factor studied was risk-taking, which we found contributed negatively to performance. We could not investigate whether companies with lower performance take more risks, or whether companies that take higher risks perform worse. This finding confirms the study by Tang and Tang (2007) and Hancer et al. (2009) where they also found that risk-taking was negatively correlated to performance (Tang and Tang, 2007; Hancer et al., 2009).

The third significant factor reviewed was creativity. We confirm the findings by Van de Ven and Polley (1992), who established that performance in the form of solved problems from the TAP project increased when the organisation focused on creative problem solving. In this way, we could see that creativity is positively correlated to performance (Van de Ven and Polley, 1992; Crespell and Hansen, 2008). Furthermore we could see that leaving room to creativity provides a positive effect on the performance of the firm.

In regard to the factors competitor benchmark orientation and environmental opportunities, we found that both these factors were insignificant contributors to the performance of the company. The evaluation analysis could not provide their significance on innovativeness due to limited sampling size.
Our findings may be considered as a theoretical framework supporting a manager’s decision. This framework may encourage managers to develop social networking capabilities and promote the creativity of employees, in order to attain improved performance.

In summary, this thesis contributes to a wider generalization of the impact of social networking, risk-taking, and creativity as factors that influence the performance of companies.

6.2 IMPLICATIONS AND FURTHER RESEARCH

Different types of companies develop different types of strategies. Marketing companies focus on marketing and technology companies focus on technology. To be successful in innovation, they need both types of strategies. We suggest testing whether there are any connections between a marketing focus, a technology focus, and success (Ju et al., 2013; Krasnikov and Jayachandran, 2008).

The suggested areas for further research would include an investigation of the effects of learning orientation as antecedents to performance. Accordingly, we would also encourage researchers to replicate and extend the present study by using the model in Figure 5.1.

The association between corporate sustainability performance and firms’ performance is not included in this paper. Further studies on this association in a different environment are required in order to reach reliable and conclusive results. The sustainability area of study is so broad that currently there is no accepted framework (Goyal et al., 2013).

Another important observation is that most of the researchers considered financial performance as the substitute for firms’ performance (Goyal et al., 2013). In this paper we analysed firms with financial performance but we recommend future researches to include non-profit firms in order to extend the understanding of the performance drivers.

We did not assess the effects of institutional environment on the relationship between performance and innovation (Gao et al. 2010; Ju et al, 2013). We considered that capturing its impact would provide a deeper insight into how its effect determine performance outcome and recommend this for future studies.

Due to the limited number of responses, we were not able to test a model for companies of different sizes. In order to get more generalizable results, we strongly suggest that future studies work with a larger number of samples. We suggest that further studies should be devoted to competitor benchmark orientation and environmental opportunities.

6.3 CONCLUSION

In conclusion, our study sheds new light on the generalizability and boundary conditions of firms’ performance relationships in Swedish small and medium sized companies.
We accomplished our investigation of the assembled antecedents of innovativeness by actualizing the model in Figure 5.1. The model concludes that social networking, risk-taking, and creativity are important significant factors of performance.

We were able to enhance the knowledge of the linkages between innovativeness and performance, and our contribution consists of asserting on the one hand the positive effects of social networking and creativity on performance and on the other hand, the negative effects of risk-taken.

On the basis of what has been stated above we conclude that it is necessary to have a managing strategy within firms which includes a theoretical fundament about performance. Hence, we recommend managers to develop social networking capabilities and to promote the creativity of employees, in order to attain improved performance.
7 REFERENCES


Investigation of antecedents to performance in Swedish small and medium-sized companies

Jarle Pettersen and Natalia Åberg


Investigation of antecedents to performance in Swedish small and medium-sized companies
Jarle Pettersen and Natalia Åberg


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Appendix A. List of Survey Questions

The following list of questions was included in the survey:

COMPETITOR BENCHMARK ORIENTATION (COMP)

- In this firm competitor information is shared at all levels.
- Our firm responds rapidly to competitors’ actions.
- Our firm considers the analysis of competitors’ actions as part of a competitive advantage.
- Top managers discuss competitors’ strategies.

CREATIVITY (CREA)

- The firm encourages creativity.
- We are encouraged to use original approaches when handling problems in the workplace.
- Managers here expect us to solve problems creatively.

ENVIRONMENTAL OPPORTUNITIES (ENV)

- Our firm has many opportunities in existing and new markets.
- Our firm has many new opportunities based on existing or new products or services.
- Our firm has significant growth potential in the markets currently operating.

INNOVATIVENESS (INN)

- Managers in the firm prefer to try innovative ideas rather than proceeding with old or proven ways.
- Our firm has introduced many new ways of working in the last three years.
- Our firm has introduced many new services and/or products in the last three years.
- Our firm believes that change in society leads to valuable new ideas or products.
- Our firm can easily find ideas and transform them into successful business applications.

LEARNING ORIENTATION (LEARN)

- Top managers believe that the firm’s capacity for learning is the key to our competitive advantage.
- Our managers see learning by employees as an investment and not as a cost.
- The firm’s values reflect a belief in learning by employees as a key to improvement.
- The firm believes in learning as a matter of survival.
- In our firm, we value learning from successes.
- In our firm, we value learning from mistakes.
SOCIAL NETWORKING (NW)

- Top managers in the firm believe in cooperating with other firms in the same branch, but also in other areas.
- Our firm has a central position and an important role in our branch.
- Our firm is frequently represented in discussing common problems in our branch.
- Our firm is involved in voluntary work and we help others using the firm’s knowledge and resources.
- The opinions of our firm are respected in our branch. Others often search out our opinions.
- Networking with industry experts and opinion leaders is part of our main strategy.

PERFORMANCE (PER)

- The overall performance of the firm in the last three years has reached the profitability that was expected.
- Our firm has significant growth potential in the markets currently operating.
- In the last three years our firm provided more products and services than other firms in the same business.
- The level of effectiveness achieved by our firm in the last three years has been very high.
- In the last three years our firm reached a higher level of profitability compared to other firms in the same business.
- Our firm’s profitability has increased in the last three years.

RISK-TAKING (RISK)

- Top managers in this business unit believe that higher financial risks are worth taking for higher rewards.
- Our firm implements innovative ideas and strategies even if it means risk of failure.
- Top managers in this firm like to take big financial risks.
Appendix B. **Descriptive statistics for all original numerical variables**

<table>
<thead>
<tr>
<th>Variable Description</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp1: In this firm competitor information is shared at all levels.</td>
<td>1</td>
<td>5</td>
<td>3.3</td>
<td>1.15546</td>
</tr>
<tr>
<td>Comp2: Our firm responds rapidly to competitors’ actions.</td>
<td>1</td>
<td>5</td>
<td>3.4</td>
<td>0.98107</td>
</tr>
<tr>
<td>Comp3: Our firm considers the analysis of competitors’ actions as part of a</td>
<td>1</td>
<td>5</td>
<td>3.5</td>
<td>1.09083</td>
</tr>
<tr>
<td>competitive advantage.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp4: Top managers discuss competitors’ strategies.</td>
<td>1</td>
<td>5</td>
<td>3.5</td>
<td>1.18727</td>
</tr>
<tr>
<td>Crea1: The firm encourages creativity.</td>
<td>3</td>
<td>5</td>
<td>4.5</td>
<td>0.58835</td>
</tr>
<tr>
<td>Crea2: We are encouraged to use original approaches when handling problems in the</td>
<td>1</td>
<td>5</td>
<td>4.0</td>
<td>0.88334</td>
</tr>
<tr>
<td>workplace.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea3: Managers here expect us to solve problems creatively.</td>
<td>3</td>
<td>5</td>
<td>4.4</td>
<td>0.60725</td>
</tr>
<tr>
<td>INN1: Managers in the firm prefer to try innovative ideas rather than proceeding</td>
<td>1</td>
<td>5</td>
<td>3.7</td>
<td>0.87101</td>
</tr>
<tr>
<td>with old or proven ways.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN2: Our firm has introduced many new ways of working in the last three years.</td>
<td>1</td>
<td>5</td>
<td>3.8</td>
<td>1.00886</td>
</tr>
<tr>
<td>INN3: Our firm has introduced many new services and/or products in the last three</td>
<td>1</td>
<td>5</td>
<td>3.6</td>
<td>1.03729</td>
</tr>
<tr>
<td>years.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN4: Our firm believes that change in society leads to valuable new ideas or</td>
<td>1</td>
<td>5</td>
<td>3.8</td>
<td>1.05315</td>
</tr>
<tr>
<td>products.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN5: Our firm can easily find ideas and transform them into successful business</td>
<td>1</td>
<td>5</td>
<td>3.6</td>
<td>1.06111</td>
</tr>
<tr>
<td>applications.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn1: Top managers believe that the firm’s capacity for learning is the key to our</td>
<td>1</td>
<td>5</td>
<td>4.1</td>
<td>1.03844</td>
</tr>
<tr>
<td>competitive advantage.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn2: Our managers see learning by employees as an investment and not as a cost.</td>
<td>2</td>
<td>5</td>
<td>4.3</td>
<td>0.7927</td>
</tr>
<tr>
<td>Learn3: The firm’s values reflect a belief in learning by employees as a key to</td>
<td>2</td>
<td>5</td>
<td>4.3</td>
<td>0.81542</td>
</tr>
<tr>
<td>improvement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn4: The firm believes in learning as a matter of survival.</td>
<td>2</td>
<td>5</td>
<td>4.5</td>
<td>0.73117</td>
</tr>
<tr>
<td>Learn5: In our firm, we value learning from successes.</td>
<td>2</td>
<td>5</td>
<td>4.1</td>
<td>0.80054</td>
</tr>
<tr>
<td>Learn6: In our firm, we value learning from mistakes.</td>
<td>1</td>
<td>5</td>
<td>4.0</td>
<td>0.99952</td>
</tr>
<tr>
<td>Env1: Our firm has many opportunities in existing and new markets.</td>
<td>2</td>
<td>5</td>
<td>4.3</td>
<td>0.93413</td>
</tr>
<tr>
<td>Env2: Our firm has many new opportunities based on existing or new products or</td>
<td>2</td>
<td>5</td>
<td>4.3</td>
<td>0.98864</td>
</tr>
<tr>
<td>services.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env3: Our firm has significant growth potential in the markets currently operating.</td>
<td>2</td>
<td>5</td>
<td>4.3</td>
<td>0.87897</td>
</tr>
<tr>
<td>NW1: Top managers in the firm believe in cooperating with other firms in the same</td>
<td>1</td>
<td>5</td>
<td>4.2</td>
<td>0.87486</td>
</tr>
<tr>
<td>branch, but also in other areas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW2: Our firm has a central position and an important role in our branch.</td>
<td>1</td>
<td>5</td>
<td>3.9</td>
<td>1.05885</td>
</tr>
<tr>
<td>NW3: Our firm is frequently represented in discussing common problems in our branch.</td>
<td>1</td>
<td>5</td>
<td>2.8</td>
<td>1.25614</td>
</tr>
<tr>
<td>NW4: Our firm is involved in voluntary work and we help others using the firm’s</td>
<td>1</td>
<td>5</td>
<td>2.5</td>
<td>1.26339</td>
</tr>
<tr>
<td>knowledge and resources.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW5: The opinions of our firm are respected in our branch. Others often search out</td>
<td>1</td>
<td>5</td>
<td>3.4</td>
<td>1.1315</td>
</tr>
<tr>
<td>our opinions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW6: Networking with industry experts and opinion leaders is part of our main</td>
<td>1</td>
<td>5</td>
<td>3.3</td>
<td>1.23394</td>
</tr>
<tr>
<td>strategy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per1: The overall performance of the firm in the last three years has reached the</td>
<td>1</td>
<td>5</td>
<td>3.5</td>
<td>1.14669</td>
</tr>
<tr>
<td>profitability that was expected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per2: Our firm has significant growth potential in the markets currently operating.</td>
<td>1</td>
<td>5</td>
<td>4.2</td>
<td>1.01195</td>
</tr>
<tr>
<td>Per3: In the last three years our firm provided more products and services than</td>
<td>1</td>
<td>5</td>
<td>3.3</td>
<td>1.11696</td>
</tr>
<tr>
<td>other firms in the same business.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per4: The level of effectiveness achieved by our firm in the last three years has</td>
<td>1</td>
<td>5</td>
<td>3.7</td>
<td>0.89657</td>
</tr>
<tr>
<td>been very high.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per5: In the last three years our firm reached a higher level of profitability</td>
<td>1</td>
<td>5</td>
<td>3.4</td>
<td>1.07081</td>
</tr>
<tr>
<td>compared to other firms in the same business.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per6: Our firm’s profitability has increased in the last three years.</td>
<td>1</td>
<td>5</td>
<td>3.3</td>
<td>1.30033</td>
</tr>
</tbody>
</table>
Table B.1 Descriptive statistics for all the original numerical variables. Data from SPSS.

<table>
<thead>
<tr>
<th>Risk1: Top managers in this business unit believe that higher financial risks are worth taking for higher rewards.</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk2: Our firm implements innovative ideas and strategies even if it means risk of failure.</td>
<td>1</td>
<td>5</td>
<td>3.5</td>
<td>1.16086</td>
</tr>
<tr>
<td>Risk3: Top managers in this firm like to take big financial risks.</td>
<td>1</td>
<td>4</td>
<td>2.1</td>
<td>0.96377</td>
</tr>
</tbody>
</table>
Appendix C. Dimension reduction

To reduce the dimensionality of the data table, we use principal component rotation to find new common dimensions in the data space that describe as much as possible of the data variation. In the first principal component (PC) rotation, we obtained eight significant components. Non-significant variables with limited contribution to the model (loadings < 0.5) were removed. The rotated component matrix is shown in Table C.1. From the first PC-rotation, we removed NW1, NW6, and Comp1.

The new rotated component matrix is shown in Table C.2. From this data set, we removed the following variables, INN1, INN5, and Per3, that only contributed to a limited degree to the largest principal components.

The third rotated component matrix is shown in Table C.3. The variable Per2, in the performance group, that is a covariate with the environmental opportunities group, was removed to refine the PC-rotation. The final list of variables in the final dimension reduction matrix is shown in Chapter 4, Results in Table 4.1.

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW1: Top managers in the firm believe in cooperating with other firms in the same branch, but also in other areas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.737</td>
<td></td>
</tr>
<tr>
<td>NW2: Our firm has a central position and an important role in our branch.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.760</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW3: Our firm is frequently represented in discussing common problems in our branch.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.712</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW4: Our firm is involved in voluntary work and we help others using the firm’s knowledge and resources.</td>
<td></td>
<td></td>
<td></td>
<td>0.566</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW5: The opinions of our firm are respected in our branch. Others often search out our opinions.</td>
<td></td>
<td></td>
<td></td>
<td>0.794</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW6: Networking with industry experts and opinion leaders is part of our main strategy.</td>
<td></td>
<td></td>
<td></td>
<td>0.758</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk1: Top managers in this business unit believe that higher financial risks are worth taking for higher rewards.</td>
<td></td>
<td>0.498</td>
<td></td>
<td>0.476</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk2: Our firm implement innovative ideas and strategies even if it means risk of failure.</td>
<td></td>
<td></td>
<td></td>
<td>0.644</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk3: Top managers in this firm like to take big financial risks.</td>
<td></td>
<td></td>
<td></td>
<td>0.732</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea1: The firm encourages creativity.</td>
<td>0.712</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea2: We are encouraged to use original approaches when handling problems in the workplace.</td>
<td>0.482</td>
<td>0.624</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea3: Managers here expect us to solve problems creatively.</td>
<td></td>
<td>0.720</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp1: In this firm competitor information is shared at all levels.</td>
<td></td>
<td></td>
<td></td>
<td>0.634</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp2: Our firm responds rapidly to competitors’ actions.</td>
<td></td>
<td></td>
<td></td>
<td>0.751</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Investigation of antecedents to performance in Swedish small and medium-sized companies
Jarle Pettersen and Natalia Åberg

Table C.1 First PC rotation with all variables included. Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization. Data from SPSS.

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp3: Our firm considers the analysis of competitors’ actions as part of a competitive advantage.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.845</td>
<td></td>
</tr>
<tr>
<td>Comp4: Top managers discuss competitors’ strategies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.788</td>
<td></td>
</tr>
<tr>
<td>Env1: Our firm has many opportunities in existing and new markets.</td>
<td>0.765</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env2: Our firm has many new opportunities based on existing or new products or services.</td>
<td>0.835</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env3: Our firm has significant growth potential in the markets currently operating.</td>
<td>0.886</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN1: Managers in the firm prefer to try innovative ideas rather than proceeding with old or proven ways.</td>
<td></td>
<td>0.422</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.484</td>
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</tr>
<tr>
<td>INN2: Our firm has introduced many new ways of working in the last three years.</td>
<td>0.450</td>
<td>0.508</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN3: Our firm has introduced many new services and/or products in the last three years.</td>
<td>0.561</td>
<td>0.510</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN4: Our firm believes that change in society leads to valuable new ideas or products.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.734</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN5: Our firm can easily find ideas and transform them into successful business applications.</td>
<td>0.581</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Per1: The overall performance of the firm in the last three years has reached the profitability that was expected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.857</td>
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</tr>
<tr>
<td>Per2: Our firm has significant growth potential in the markets currently operating.</td>
<td>0.750</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per3: In the last three years our firm provided more products and services than other firms in the same business.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.430</td>
<td></td>
</tr>
<tr>
<td>Per4: The level of effectiveness achieved by our firm in the last three years has been very high.</td>
<td>0.598</td>
<td></td>
<td>0.433</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per5: In the last three years our firm reached a higher level of profitability compared to other firms in the same business.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.806</td>
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</tr>
<tr>
<td>Per6: Our firm’s profitability has increased in the last three years.</td>
<td></td>
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<td></td>
<td>0.778</td>
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<table>
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<tr>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW2: Our firm has a central position and an important role in our branch.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>0.730</td>
</tr>
<tr>
<td>NW3: Our firm is frequently represented in discussing common problems in our branch.</td>
<td></td>
<td></td>
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<td></td>
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<td>0.749</td>
</tr>
<tr>
<td>NW4: Our firm is involved in voluntary work and we help others using the firm’s knowledge and resources.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>0.603</td>
</tr>
<tr>
<td>NW5: The opinions of our firm are respected in our branch. Others often search out our opinions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.830</td>
</tr>
<tr>
<td>Risk1: Top managers in this business unit believe that higher financial risks are worth taking for higher rewards.</td>
<td>0.440</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>0.444</td>
</tr>
<tr>
<td>Risk2: Our firm implement innovative ideas and strategies even if it means risk of failure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.600</td>
</tr>
<tr>
<td>Risk3: Top managers in this firm like to take big financial risks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>0.704</td>
</tr>
</tbody>
</table>
**Table C.2 Second PC rotation with NW1, NW6, and Comp1 removed. Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization. Data from SPSS.**

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crea1: The firm encourages creativity.</td>
<td>0.832</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea2: We are encouraged to use original approaches when handling problems in the workplace.</td>
<td></td>
<td>0.446</td>
<td>0.682</td>
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<tr>
<td>Crea3: Managers here expect us to solve problems creatively.</td>
<td></td>
<td></td>
<td></td>
<td>0.741</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp2: Our firm responds rapidly to competitors’ actions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.751</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp3: Our firm considers the analysis of competitors’ actions as part of a competitive advantage.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.850</td>
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<tr>
<td>Comp4: Top managers discuss competitors’ strategies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.791</td>
</tr>
<tr>
<td>Env1: Our firm has many opportunities in existing and new markets.</td>
<td>0.807</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Env2: Our firm has many new opportunities based on existing or new products or services.</td>
<td></td>
<td>0.830</td>
<td></td>
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</tr>
<tr>
<td>Env3: Our firm has significant growth potential in the markets currently operating.</td>
<td></td>
<td></td>
<td>0.879</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>INN1: Managers in the firm prefer to try innovative ideas rather than proceeding with old or proven ways.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.554</td>
</tr>
<tr>
<td>INN2: Our firm has introduced many new ways of working in the last three years.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.556</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN3: Our firm has introduced many new services and/or products in the last three years.</td>
<td>0.486</td>
<td></td>
<td></td>
<td></td>
<td>0.625</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN4: Our firm believes that change in society leads to valuable new ideas or products.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.723</td>
<td></td>
</tr>
<tr>
<td>INN5: Our firm can easily find ideas and transform them into successful business applications.</td>
<td>0.526</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.408</td>
<td></td>
</tr>
<tr>
<td>Per1: The overall performance of the firm in the last three years has reached the profitability that was expected.</td>
<td>0.853</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per2: Our firm has significant growth potential in the markets currently operating.</td>
<td>0.722</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per3: In the last three years our firm provided more products and services than other firms in the same business.</td>
<td>0.425</td>
<td></td>
<td></td>
<td></td>
<td>0.531</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per4: The level of effectiveness achieved by our firm in the last three years has been very high.</td>
<td>0.595</td>
<td></td>
<td></td>
<td></td>
<td>0.418</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per5: In the last three years our firm reached a higher level of profitability compared to other firms in the same business.</td>
<td>0.803</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per6: Our firm’s profitability has increased in the last three years.</td>
<td>0.802</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW2: Our firm has a central position and an important role in our branch.</td>
<td>0.744</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW3: Our firm is frequently represented in discussing common problems in our branch.</td>
<td>0.742</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW4: Our firm is involved in voluntary work and we help others using the firm’s knowledge and resources.</td>
<td>0.573</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW5: The opinions of our firm are respected in our branch. Others often search out our opinions.</td>
<td>0.789</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk1: Top managers in this business unit believe that higher financial risks are worth taking for higher rewards.</td>
<td>0.483</td>
<td>-0.403</td>
<td></td>
<td>0.448</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Investigation of antecedents to performance in Swedish small and medium-sized companies  
Jarle Pettersen and Natalia Åberg

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk2: Our firm implement innovative ideas and strategies even if it means risk of failure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.741</td>
</tr>
<tr>
<td>Risk3: Top managers in this firm like to take big financial risks.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.697</td>
</tr>
<tr>
<td>Crea1: The firm encourages creativity.</td>
<td>0.714</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea2: We are encouraged to use original approaches when handling problems in the workplace.</td>
<td>0.505</td>
<td>0.563</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crea3: Managers here expect us to solve problems creatively.</td>
<td>0.744</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp2: Our firm responds rapidly to competitors’ actions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.754</td>
</tr>
<tr>
<td>Comp3: Our firm considers the analysis of competitors’ actions as part of a competitive advantage.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.843</td>
</tr>
<tr>
<td>Comp4: Top managers discuss competitors’ strategies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.796</td>
</tr>
<tr>
<td>Env1: Our firm has many opportunities in existing and new markets.</td>
<td>0.764</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.401</td>
</tr>
<tr>
<td>Env2: Our firm has many new opportunities based on existing or new products or services.</td>
<td>0.815</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Env3: Our firm has significant growth potential in the markets currently operating.</td>
<td>0.898</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN2: Our firm has introduced many new ways of working in the last three years.</td>
<td>0.457</td>
<td>0.520</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN3: Our firm has introduced many new services and/or products in the last three years.</td>
<td>0.582</td>
<td>0.515</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN4: Our firm believes that change in society leads to valuable new ideas or products.</td>
<td></td>
<td></td>
<td>0.749</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per1: The overall performance of the firm in the last three years has reached the profitability that was expected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.841</td>
</tr>
<tr>
<td>Per2: Our firm has significant growth potential in the markets currently operating.</td>
<td>0.786</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Per4: The level of effectiveness achieved by our firm in the last three years has been very high.</td>
<td>0.456</td>
<td>0.567</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per5: In the last three years our firm reached a higher level of profitability compared to other firms in the same business.</td>
<td></td>
<td></td>
<td>0.821</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per6: Our firm’s profitability has increased in the last three years.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.741</td>
</tr>
</tbody>
</table>

Table C.3 Third PC rotation with NW1, NW6, Comp1, INN1, INN5, and Per3 removed. Extraction method: principal component analysis; rotation method: varimax with Kaiser normalization. Data from SPSS.
Appendix D. Calculated new variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW = (nw2+nw3+nw4+nw5)/4</td>
<td>1.25</td>
<td>5.00</td>
<td>3.13</td>
<td>0.9208</td>
</tr>
<tr>
<td>Risk = (Risk1+Risk2+Risk3)/3</td>
<td>1.33</td>
<td>4.33</td>
<td>2.84</td>
<td>0.8168</td>
</tr>
<tr>
<td>Crea = (Crea1+Crea2+Crea3)/3</td>
<td>2.67</td>
<td>5.00</td>
<td>4.28</td>
<td>0.5483</td>
</tr>
<tr>
<td>Comp = (comp2+comp3+comp4)/3</td>
<td>1.33</td>
<td>5.00</td>
<td>3.45</td>
<td>0.9096</td>
</tr>
<tr>
<td>Env= (Env1+Env2+Env3)/3</td>
<td>2.33</td>
<td>5.00</td>
<td>4.29</td>
<td>0.8247</td>
</tr>
<tr>
<td>INN = (inn2+inn3+inn4)/3</td>
<td>1.00</td>
<td>5.00</td>
<td>3.75</td>
<td>0.8765</td>
</tr>
<tr>
<td>Per = (per1+per4+per5+per6)/4</td>
<td>1.75</td>
<td>5.00</td>
<td>3.47</td>
<td>0.9159</td>
</tr>
</tbody>
</table>

Table D.1 Descriptive statistics for aggregated variables (N = 65). Data from SPSS.
Table D.2 Histogram with a normal distribution plot for all seven constructed variables. Remark: "," are used as decimal point ".". Data from SPSS.
Appendix E. Model Summary

A model for performance that includes Env, Crea, Risk, Comp, and NW can explain 29.1% (Adjusted R^2) of the variance (Table E.1). Inclusion of INN reduces Adjusted R^2 to only 28.0% (Table E.2). From Model 1 we accept hypotheses H1, H2, and H3 and reject hypotheses H4 and H5. From Model 2 we reject hypothesis H6 (Table E.3).

<table>
<thead>
<tr>
<th>Model 1 Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Env = (Env1+Env2+Env3)/3, Crea = (Crea1+Crea2+Crea3)/3, Risk = (Risk1+Risk2+Risk3)/3, Comp = (comp2+comp3+comp4)/3, NW = (nw2+nw3+nw4+nw5)/4

Table E.1 A model for performance that includes Env, Crea, Risk, Comp, and NW can explain 29.1% (Adjusted R^2) of the variance. Data from SPSS.

<table>
<thead>
<tr>
<th>Model 2 Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Env = (Env1+Env2+Env3)/3, Crea = (Crea1+Crea2+Crea3)/3, Risk = (Risk1+Risk2+Risk3)/3, Comp = (comp2+comp3+comp4)/3, NW = (nw2+nw3+nw4+nw5)/4, INN = (inn2+inn3+inn4)/3

Table E.2 A model for performance that includes Env, Crea, Risk, Comp, NW, and INN can explain 28.0% (Adjusted R^2) of the variance. Data from SPSS.

<table>
<thead>
<tr>
<th>Decision</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized Coefficients</td>
<td>t</td>
</tr>
<tr>
<td>H1: NW = (nw2+nw3+nw4+nw5)/4</td>
<td>0.452</td>
<td>3.851</td>
</tr>
<tr>
<td>H2: Risk = (Risk1+Risk2+Risk3)/3</td>
<td>-0.425</td>
<td>-3.681</td>
</tr>
<tr>
<td>H3: Crea = (Crea1+Crea2+Crea3)/3</td>
<td>0.256</td>
<td>2.363</td>
</tr>
<tr>
<td>H4: Comp = (comp2+comp3+comp4)/3</td>
<td>0.114</td>
<td>1.005</td>
</tr>
<tr>
<td>H5: Env = (Env1+Env2+Env3)/3</td>
<td>0.139</td>
<td>1.184</td>
</tr>
<tr>
<td>H6: INN = (inn2+inn3+inn4)/3</td>
<td>0.056</td>
<td>0.390</td>
</tr>
</tbody>
</table>

***p-value<.001; ** p-value<.01; *p-value<.05

Table E.3 From Model 1 we accept hypotheses H1, H2, and H3 and reject hypotheses H4, H5, and H6. Data from SPSS.