5. **Empirical study of market-driving behavior in emerging technology firms**

With the theoretical groundwork laid (Chapters 2 & 3) and the questionnaire on hand (Chapter 4) the empirical investigation of the research model and hypotheses was started. The empirical study was conducted on a set of 224 emerging – i.e. young, technology savvy and growth oriented – companies. As discussed in Chapter 2 these companies possess unique characteristics, liabilities and strengths which make them particularly worthwhile objects for the study of market-driving behavior. Their dynamism, innovativeness and entrepreneurial character should provide the preconditions for acting in a market-driving way.

First, details about the data collection process are discussed. In a second step key sample properties will be reviewed. Finally the statistical analysis of the measurement and structural models will be presented.

### 5.1 Data collection

The following sections will explain the process for selecting companies for the sample, the survey procedure itself and the editing of the sample data before the statistical analysis was conducted.

#### 5.1.1 Selection of target companies for survey

In a joint effort by the author together with other PhD candidates from RWTH Aachen a comprehensive database of emerging firms in the German high tech sector has been created. Starting point was a larger database by the German chamber of industry and commerce (IHK) which contained all business start-ups in Germany during the past approximately 50 years. Out of the database a sub sample was generated in a first step that contained companies which met the following criteria:

1. Age no older than 12 years – i.e. market entry in 1994 or later
2. Original start-up by one or a group of founders – i.e. excluding derivative ventures
3. High tech companies according to their industry classification code

The definition of high tech companies utilized was developed by the German Fraunhofer Institut and comprised industries that were identified as knowledge intensive, high technology or advanced technology industries based on criteria such as...
their R&D share of revenue and share of academics within the workforce. This first step yielded a sub sample of ~31,000 out of the initial 500,000+ companies.

The second step was a manual validation of 6,000 randomly selected companies out of this pool. The companies were individually looked up on the Internet, their data checked and information complemented where available. Key data points for verification were founding date of the company, whether it was an original (by one individual or a group of founders) or derivative (i.e. by another company) start-up, number of employees and a contact person (ideally the founder/ managing director). This step left 1,800 companies who explicitly fulfilled or at least had not been identified as violating the demanded criteria.

5.1.2 Survey procedure

These 1,800 companies were contacted via e-mail (initial contact and up to two reminders) and asked to participate in the survey. In order to do so they were provided with a link to the online survey and an individual password that could only be used once for participating in the survey. Apart from the online survey potential participants were also offered the possibility to receive a PDF file which they could print, fill in and return via regular mail or fax. Until the survey was closed after a four week response window, 280 companies participated for a total response rate of 15.5%.

5.1.3 Sample representativeness

To ensure that the generated sample was representative in terms of the companies that responded a comparison between the original database and the sample responses was conducted. Therefore the zip code breakdown for the two groups was compared. As can be seen in Figure 9 there was no major distortion in the composition between the two. The largest discrepancy occurred in the PLZ 7 area. Overall the sample can be considered representative of the population as a whole.

483 The definitions were developed by the Fraunhofer Institut Systemtechnik und Innovationsforschung; see e.g. Grupp and Legler (2000).