

# Table of contents

|  |             |
|--|-------------|
| <b>Foreword</b> .....  | <b>V</b>    |
| <b>Preface</b> .....   | <b>VII</b>  |
| <b>Overview of contents</b> .....  | <b>IX</b>   |
| <b>Table of contents</b> .....   | <b>XI</b>   |
| <b>List of figures</b> .....   | <b>XVII</b> |
| <b>List of tables</b> .....  | <b>XIX</b>  |
| <b>List of abbreviations</b> .....   | <b>XXI</b>  |
| <b>1 Introduction</b> .....  | <b>1</b>    |
| 1.1 <i>Problem statement</i> .....   | 1           |
| 1.2 <i>Relevant research</i> .....   | 3           |
| 1.3 <i>Research questions</i> .....  | 10          |
| 1.4 <i>Structure of this study</i> .....                                   | 14          |
| <b>2 Conceptual basics</b> .....   | <b>17</b>   |
| 2.1 <i>Foundations and understanding of terms</i> .....                    | 17          |
| 2.1.1 Management control .....   | 17          |
| 2.1.2 Small and medium sized enterprises .....                             | 20          |
| 2.1.3 Distinction of management control from other terms .....             | 22          |
| 2.2 <i>Key concepts of management control and their applications</i> ..... | 25          |
| 2.2.1 Control strategies.....  | 25          |
| 2.2.1.1 Goals of a control system.....                                     | 25          |
| 2.2.1.2 Parameters of a control system .....                               | 27          |
| 2.2.1.2.1 Control subject .....  | 27          |
| 2.2.1.2.2 Control object.....  | 28          |
| 2.2.1.2.3 Control relationships.....                                       | 32          |
| 2.2.1.2.4 Control intensity.....   | 34          |
| 2.2.1.2.5 Control techniques .....   | 35          |
| 2.2.1.3 Integration into the management process .....                      | 37          |

|           |  |           |
|-----------|--|-----------|
| 2.2.2     | Research framework for management control.....                 | 39        |
| 2.2.2.1   | Overview of potential frameworks .....                         | 40        |
| 2.2.2.1.1 | System based views of control.....                             | 41        |
| 2.2.2.1.2 | Alternative frameworks to management control.....              | 43        |
| 2.2.2.2   | Selection of a framework .....                                 | 44        |
| 2.2.2.3   | Description of selected framework .....                        | 45        |
| 2.2.3     | Combinations of management control forms .....                 | 48        |
| 2.2.4     | Performance consequences and moderating effects .....          | 52        |
| 2.2.4.1   | Management control performance consequences .....              | 53        |
| 2.2.4.2   | Moderators of the performance effect.....                      | 56        |
| 2.3       | <i>SMEs and their liabilities</i> .....                        | 58        |
| <b>3</b>  | <b>Theoretical framework</b> .....                             | <b>63</b> |
| 3.1       | <i>Potential frameworks and selection of a framework</i> ..... | 63        |
| 3.2       | <i>Agency theory</i> .....                                     | 67        |
| 3.2.1     | Issues and suggested solutions .....                           | 69        |
| 3.2.2     | Critique .....   | 73        |
| 3.3       | <i>Social control theory</i> .....                             | 75        |
| 3.3.1     | Issues and suggested solutions .....                           | 77        |
| 3.3.2     | Critique .....   | 80        |
| 3.4       | <i>Application of the research framework</i> .....             | 80        |
| 3.4.1     | Contributions to the problem of MCS in SMEs .....              | 81        |
| 3.4.2     | Relationship between theories and control forms.....           | 82        |
| <b>4</b>  | <b>Hypotheses and research model</b> .....                     | <b>86</b> |
| 4.1       | <i>Direct effect of management control forms</i> .....         | 86        |
| 4.1.1     | Results control .....  | 87        |
| 4.1.1.1   | Theoretical considerations .....                               | 87        |
| 4.1.1.2   | Results control in large organizations.....                    | 87        |
| 4.1.1.3   | Results control in SMEs.....                                   | 89        |
| 4.1.2     | Behavior control .....   | 89        |
| 4.1.2.1   | Theoretical considerations .....                               | 89        |
| 4.1.2.2   | Behavior control in large organizations.....                   | 90        |
| 4.1.2.3   | Behavior control in SMEs.....                                  | 91        |

|          |   |            |
|----------|---|------------|
| 4.1.3    | Personnel control .....                                     | 92         |
| 4.1.3.1  | Theoretical considerations .....                            | 92         |
| 4.1.3.2  | Personnel control in large organizations .....              | 93         |
| 4.1.3.3  | Personnel control in SMEs.....                              | 94         |
| 4.1.4    | Cultural Control.....                                       | 95         |
| 4.1.4.1  | Theoretical considerations .....                            | 95         |
| 4.1.4.2  | Cultural control in large organizations .....               | 96         |
| 4.1.4.3  | Cultural control in SMEs .....                              | 97         |
| 4.2      | <i>Control combinations</i> .....                           | 98         |
| 4.2.1    | Theoretical considerations .....                            | 98         |
| 4.2.2    | Control combinations in large organizations.....            | 101        |
| 4.3      | <i>Moderating effects on management control forms</i> ..... | 102        |
| 4.3.1    | Age.....  | 103        |
| 4.3.1.1  | Theoretical considerations .....                            | 103        |
| 4.3.1.2  | Empirical findings.....                                     | 104        |
| 4.3.2    | Size .....  | 105        |
| 4.3.2.1  | Theoretical considerations .....                            | 105        |
| 4.3.2.2  | Empirical findings.....                                     | 105        |
| 4.3.3    | Life cycle stage.....                                       | 107        |
| 4.3.3.1  | Theoretical considerations .....                            | 107        |
| 4.3.3.2  | Empirical findings.....                                     | 107        |
| 4.3.4    | Management experience .....                                 | 109        |
| 4.3.4.1  | Theoretical considerations .....                            | 109        |
| 4.3.4.2  | Empirical findings.....                                     | 109        |
| 4.4      | <i>Research model and summary of hypotheses</i> .....       | 111        |
| <b>5</b> | <b>Preparation of empirical analysis .....</b>              | <b>112</b> |
| 5.1      | <i>Methodology</i> .....                                    | 112        |
| 5.1.1    | Selection of analysis methodology .....                     | 112        |
| 5.1.1.1  | Multivariate statistics.....                                | 112        |
| 5.1.1.2  | Key principles of structural equation models .....          | 113        |
| 5.1.2    | Choice for variance based analysis with PLS.....            | 116        |
| 5.1.3    | Partial least square algorithm .....                        | 118        |
| 5.1.3.1  | General description .....                                   | 118        |
| 5.1.3.2  | Moderating effects and group comparisons.....               | 120        |

|           |  |            |
|-----------|--|------------|
| 5.2       | <i>Measures</i> .....  | 122        |
| 5.2.1     | Main model.....  | 125        |
| 5.2.2     | Moderating and control variables.....                            | 132        |
| <b>6</b>  | <b>Survey design and sample</b> .....                            | <b>135</b> |
| 6.1       | <i>Preparation of the data sample</i> .....                      | 135        |
| 6.1.1     | Selection and design of data collection method.....              | 135        |
| 6.1.2     | Aggregation of sample.....                                       | 140        |
| 6.1.3     | Conducting the survey.....                                       | 141        |
| 6.2       | <i>Assessment of the data sample</i> .....                       | 142        |
| 6.2.1     | Responses.....   | 143        |
| 6.2.2     | Treatment of missing data.....                                   | 144        |
| 6.2.3     | Representativeness of sample.....                                | 147        |
| 6.2.4     | Analysis of biases.....  | 148        |
| 6.2.5     | Description of data sample.....                                  | 150        |
| 6.3       | <i>Determination of required significance level</i> .....        | 152        |
| <b>7</b>  | <b>Empirical results</b> .....                                   | <b>156</b> |
| 7.1       | <i>Main model</i> .....  | 156        |
| 7.1.1     | Measurement model.....   | 156        |
| 7.1.1.1   | Reflective measurement models.....                               | 157        |
| 7.1.1.1.1 | Assessment of reliability.....                                   | 157        |
| 7.1.1.1.2 | Assessment of validity.....                                      | 160        |
| 7.1.1.2   | Formative measurement models.....                                | 163        |
| 7.1.1.2.1 | Assessment of reliability.....                                   | 163        |
| 7.1.1.2.2 | Assessment of validity.....                                      | 166        |
| 7.1.2     | Structural model.....  | 167        |
| 7.2       | <i>Control combinations</i> .....                                | 169        |
| 7.3       | <i>Moderating effects</i> .....                                  | 174        |
| 7.3.1     | Group segmentation.....  | 175        |
| 7.3.2     | Company age as a moderator.....                                  | 176        |
| 7.3.3     | Company size as a moderator.....                                 | 178        |
| 7.3.4     | Company life cycle stage as a moderator.....                     | 179        |
| 7.3.5     | Management experience as a moderator.....                        | 181        |
| 7.3.6     | Control variables: finance structure and sector affiliation..... | 182        |
| 7.4       | <i>Results overview</i> .....                                    | 183        |

|           |   |            |
|-----------|---|------------|
| <b>8</b>  | <b>Discussion and conclusion.....</b>                                 | <b>185</b> |
| 8.1       | <i>Reflection on research questions .....</i>                         | <i>185</i> |
| 8.2       | <i>Review of the findings of the study.....</i>                       | <i>187</i> |
| 8.2.1     | Findings on the individual control forms .....                        | 187        |
| 8.2.2     | Findings on the combination of control forms .....                    | 192        |
| 8.2.3     | Evaluation of the contingency perspective on management control ..... | 194        |
| 8.2.4     | Evaluation of company age as a contingent factor .....                | 197        |
| 8.2.5     | Integration and overlap with other research areas .....               | 200        |
| 8.3       | <i>Research implications.....</i>                                     | <i>201</i> |
| 8.3.1     | Contribution to research .....  | 201        |
| 8.3.1.1   | Conceptual perspective .....  | 201        |
| 8.3.1.2   | Theoretical perspective .....   | 206        |
| 8.3.1.3   | Methodological perspective .....                                      | 208        |
| 8.3.2     | Limitations of this study and directions for further research.....    | 210        |
| 8.3.2.1   | Methodological limitations .....                                      | 210        |
| 8.3.2.2   | Conceptual limitations .....  | 212        |
| 8.4       | <i>Managerial implications.....</i>                                   | <i>213</i> |
| 8.4.1     | Implications for owners-managers of SMEs .....                        | 213        |
| 8.4.2     | Implications for venture capitalists and other stakeholders.....      | 217        |
| <b>9</b>  | <b>Appendix.....</b>  | <b>219</b> |
| 9.1       | <i>(A) Cover letter .....</i>   | <i>220</i> |
| 9.2       | <i>(B) Initial reminder .....</i>                                     | <i>221</i> |
| 9.3       | <i>(C) Second reminder .....</i>                                      | <i>222</i> |
| 9.4       | <i>(D) Questionnaire .....</i>  | <i>223</i> |
| 9.5       | <i>(F) Tables.....</i>  | <i>228</i> |
| <b>10</b> | <b>Bibliography.....</b>  | <b>239</b> |