The use of controlling for corporate management in Western Austrian companies: An empirical analysis

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Structure of the presentation

- Problem statement and relevance
- Literature review
- Theoretical framework & research hypotheses
- Research design & data
- Variables of the study
- Results
  - Descriptive statistics
  - Logistic regression analysis:
    - Contextual factors to describe the company and use of controlling
    - Contextual factors describing corporate governance and personality and use of controlling
- Summary and discussion of the results
- Summary of hypotheses testing

Problem statement & relevance

- Rapidly changing external and internal environmental conditions as reason why the future prospects of companies are subject to **higher dynamics**, **uncertainties** and **volatilities**, which are the main reasons for increased **risks** (Deimel et al. 2017, 92)

- Such developments also present challenges to family businesses, and it is therefore necessary to know and use the resources available to achieve the **company's goals** and achieve **competitive advantage** (McIvor 2005, 44; Castaldo 2007, 28)

- Thus, the relevance and **importance of controlling** for companies appears fundamentally undisputed, but it is often clear in practice that especially small and medium-sized enterprises do not use controlling for corporate management (Situm 2015, 16; Theuermann 2014), so that negative target deviations cannot be recognized timely (Amann & Petzold 2014, 32)

- Despite the aforementioned relevance of controlling for (family) companies, only **relatively few empirical studies** have been found which have analyzed the use of controlling in (family) companies in the German-speaking and international area (Feldbauer-Durstmüller et al. 2007; Helsen et al. 2017; Prencipe et al. 2014; Salvato & Moores 2010)

Literature review (1/2)

Table 1: Summary of literature review

Source	Sample description	Main results
Berens, Püthe & Siemes (2005)	213 companies from Germany with sales between 2.5 and 75 million EUR	• Weak expression of the use of instruments and methods in controlling in medium-sized companies • Especially in small companies there are gaps in the areas of investment accounting and planning system • With increasing company size, the professionalism in controlling increases
Rautenstrauch & Müller (2005)	188 companies from Germany of the manufacturing industry	• For small and medium-sized enterprises, the controlling tasks are taken over by the members of the business performance or by the financial management • For larger SMEs, it is more likely to find specialist departments for controlling • A higher proportion of academics in larger companies leads to a higher quality of the controlling instruments used
Deimel (2008)	101 small and medium-sized enterprises from Germany with an annual turnover of up to EUR 50 million	• For small and medium-sized companies, strategic corporate planning is far too weak • Weak financial and human resources, the concentration of operational agendas on business personalities and weak business skills are obstacles to the introduction of business planning in SMEs
Feldbauer-Durstmüller, Duller, Mayr, Neubauer & Ulrich (2012)	950 companies from Germany and Austria	• Size of the company is crucial for the use of controlling instruments • There are differences between Germany and Austria regarding the organization of controlling • Non-family businesses tend to use more modern and sophisticated strategic controlling tools compared to family businesses
Hiebl, Feldbauer-Durstmüller & Duller (2013)	479 Austrian and 97 Bavarian medium and large companies	• Medium-sized family businesses are building up the necessary resources to organize controlling internally • Family businesses establish their own controlling bodies to a significantly lesser extent than non-family businesses • As the size of a business increases, so does the likelihood that the company will be installing controlling positions • The presence of external management increases the likelihood of independent controlling instances
Duller, Feldbauer-Durstmüller & Hiebl (2014)	296 companies from Austria with at least 50 employees	• There are sometimes different priorities between family and non-family businesses with regard to traditional controlling functions, but these differences are not statistically significant • Family businesses tend to think that controlling is of little importance
Andric & Kammerlander (2017)	101 family SMEs from Eastern Switzerland	• Lack of time resources and knowledge are major reasons for a lack of controlling • Non-financial goals and goals of the family can not be sufficiently mapped with controlling instruments, which justifies their non-use • Strategic instruments of controlling are rarely used because strategy is not formalized in writing

Literature review (2/2)

The **main findings** can be summarized as follows

- **Company size** plays a key role in whether is controlling is used or not. This finding is closely related to the **resource-based approach** of business administration, as larger companies have more capacity and resources and can thus "afford" to introduce controlling (Berens et al. 2005, 190; Deimel 2008, 296, Hiebl et al 2013, 95; Rautenstrauch & Müller 2005, 207)

- The existence of controlling depends heavily on whether a company is led by a **third-party manager** or not. When a third-party manager is deployed, controlling is used more often (Hiebl et al. 2013), which is in line with **principal agency theory**. Controlling can be seen as a kind of monitoring system to control the operations of the external manager

- Further explanatory variables are the **lack of experience** or **lack of know-how** on the subject of controlling (Andric & Kammerlander 2017, 13; Deimel 2008, 296; Sierke et al. 2017, 31) and the **lack of recognition of the importance** or the **benefits** of controlling for corporate governance (Deimel et al. 2017, 100; Duller et al. 2014, 29)

Theoretical framework & research hypotheses (Resource-based-view)

- With increased size there are **more capacities/resources** to apply/use controlling (Berens et al. 2005; Deimel 2008; Feldbauer-Durstmüller et al. 2012; Rautenstrauch & Müller 2005)
- **High correlation** between increase in size and age and **increased experience** with increased age (Correa Rodríguez et al. 2003; Cucculelli et al. 2014; Esteve-Pérez & Manez-Castillejo 2008; Jovanovic 1982; Thornhill & Amit 2003)
- **Non-linear relationship** between usage of controlling and company growth due to control problems with size (Glancey 1998; Nunes et al. 2010; Qian et al. 2008; Vannoni 2000)
- **Knowledge** (education) as **resource** (Eisenhardt & Santos 2005; Grant 1996) and **lack of knowledge** as precursor for non-application of controlling (Andric & Kammerlander 2017; Botta 2002; Deimel 2008; Sierke et al. 2017)

H1: *The bigger the company is, the higher the likelihood that controlling will be used.*
H2: *The older the company is, the higher the likelihood that controlling will be used.*
H3: *There is a significant non-linear effect in company size, which increases the likelihood that controlling will be used.*
H4: *There is a significant nonlinear effect in the age of the company, which increases the likelihood that controlling will be used.*
H5: *The higher the level of education of the managing director, the higher the likelihood that controlling will be used.*

Theoretical framework & research hypotheses (Agency theory)

- In the first generation, there is **no** or **minimal agency cost** because there is no division between management and control or concentration of ownership (Ang et al. 2000; Jensen & Meckling 1976; Schulze et al. 2002; Shleifer & Vishny 1986)
- Therefore, a **negative relationship** between the use of controlling and older generations can be assumed (Salvato & Moores 2010)
- In multigenerational successions, agency costs and subsequent costs **increase** (Blanco-Mazagatos et al. 2007; Molly et al. 2010; Sharma 2006), so that there is a positive relationship between the use of controlling and younger generations (Salvato & Moore 2019). Ang et al. (2000) and Songini & Gnan (2015) point to agency costs in this context, which can be **reduced** by the introduction of a **controlling system**.
- When external managers operate in the enterprise, formalized control systems are **more likely** to be found (Schachner et al. 2006) because this form of management generates the highest agency costs (Ang et al. 2000).

H6: *With increasing generation of the company, the likelihood that controlling is used increases.*

H7: *Using a third-party manager increases the likelihood of controlling being used.*

Research design and data

- more than 36,000 companies in western Austria (Tyrol, Salzburg and Vorarlberg) were contacted with a **questionnaire**, which had been developed based on a literature review to guarantee content validity and measurement accuracy (DePoy & Gitlin 2011, 204; Greenstein & Davis 2013, 67)

- A total of 1,054 completed questionnaires were returned, which had to be reduced due to missing data. After reduction, **692 completed questionnaires** remained, which were evaluated for the following analyzes (457 mirco, 191 small, 32 medium-sized and 12 big enterprises)

- The classification of enterprises by size was made in accordance with the recognized **criteria** of the **European Commission** for the definition of micro, small and medium-sized enterprises. In the classification by industry the classification criterion of **ÖNACE2008** was used.

- To test the research hypotheses **logistic regression** was applied. This method is suitable for the problem of the work, since the dependent variable was binary coded and thus also probabilities for one of the two states can be calculated (Marques de Sá 2007, 271; Burns & Burns 2008, 568-569)

Variables of the study

Table 2: Variables of the study

The CONTROLLING variable was defined as a dependent variable and coded binary so that it can be analyzed as part of a logistic regression (Eckstein 2016, 225, Kahane 2008, 144). For the variables SIZE, AGE, EXPERIENCE_MAN, and AGE_MAN, a logarithmic transformation was used to normalize the distribution of the data (Montgomery & Runger 2011, 337). To test hypotheses 3 and 4, the variables SIZE and AGE were squared so that the non-linear effect of these independent variables on the dependent variable can be tested (Kahane, 2008, 100, Winker 2007, 199-200).

TYPE OF VARIABLE/ CONTEXT FACTOR	ABBREVIATION	NAME	SCALE-LEVEL	DESCRIPTION
Dependent	CONTROLLING	Controlling	nominal	Dummy variable for describing whether a company has controlling (1 = yes, 0 = no)
Context factors to describe the company	SIZE	Size of the company	ratio	ln(Number of employees)
	AGE	Age of the company	ratio	ln(Age of the company)
	INDUSTRY	Industry of the company	nominal	Dummy variables(1 = industry concerned, 0 = not); Classification of the industry according to ÖNACE 2008
Context factors to describe corporate governance and personality	SEX	Sex of the manager	nominal	1 = male; 0 = female
	AGE_MAN	Age of the manager	ratio	ln(Age of the manager)
	EDUCATION	Highes education of the manager	nominal	Dummy variable (1 = given, 0 = not given) for the following training: A = compulsory school, B = teaching, C = high school diploma, D = master exam, E = university of applied sciences; F = University; G = secondary school; H = other
	EXPERIENCE_MAN	Number of years in the professional life of manager	ratio	ln(Number of years of professional experience of the manager)
	CONTROL	Management of the company	nominal	Dummy variable (1 = given, 0 = not given) for the following possibilities of management and ownership of the enterprise: family owned and run by family; in family property, but not run by family; Not family property, but run by family; miscellaneous
	GENERATION	Generation of the company	nominal	Dummy variable (1 = given, 0 = not given) for the following generation options: 1st generation; 2nd generation; 3rd generation; 4th generation; 5th generation

Results: Descriptive statistics (1/2)

Table 3: Descriptive statistics concerning context factors to describe the company

The classification of the industries was based on the Austrian ÖNACE 2008 and includes the following industries: A = agriculture and forestry, B = mining, C = production of goods, D = energy supply; E = water supply, F = construction, G = trade, maintenance and repair of motor vehicles, H = transport and storage, I = accommodation and catering, J = information and communication, K = provision of financial and insurance services, L = property and housing, M = provision of professional, scientific and technical services, N = provision of other economic services, P = education, Q = health and social care, R = arts, entertainment and recreation, S = provision of other services, T = production of goods and provision of self-consumption services.

	n	MEAN	MEDIAN	STANDARDDEV.
Variable				
AGE (in years)	692	33.500	23.500	38.310
SIZE (absolute)	692	33.551	5.000	299.496

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T
8	1	83	6	3	67	36	15	137	55	16	11	65	39	11	45	14	69	11

Table 4a: Descriptive statistics concerning context factors to corporate governance and personality

The legend of the training can be found in Tab. 2. w = female; m = male. Since the distributions of the variables are not normally distributed, non-parametric U-tests were used to compute the tests for differences (Hol 2006, 368).

			MEASURES OF DESCRIPTIVE STATISTICS			U-Test
Variable		n	MEAN	MEDIAN	STANDARDEV.	Sign.
AGE (in years)	f	252	47.107	49.000	10.634	0,000
	m	440	50.357	51.000	9.869	
EXPERIENCE-MAN (in years)	f	252	25.933	27.000	11.131	0,000
	m	440	30.125	30.000	10.613	

Results: Descriptive statistics (2/2)

Table 4b: Descriptive statistics concerning context factors to corporate governance and personality
The legend of the training can be found in Tab. 2. w = female; m = male. Since the distributions of the variables are not normally distributed, non-parametric U-tests were used to compute the tests for differences (Hol 2006, 368).

EDUCATION	A	B	C	D	E	F	G	H
f (abs.)	2	40	48	17	33	65	40	7
m (abs.)	5	53	77	114	40	102	35	14
f+m (abs.)	7	93	125	131	73	167	75	21

» The analysis of education shows that most respondents (n = 167) attended a **university** (F). The second most frequent training is a **master exam** (D) (n = 131) followed by a **high school diploma** (C) (n = 125).

GENERATION	1st GENERATION	2nd GENERATION	3rd GENERATION	4th GENERATION	5th GENERATION
f (abs.)	135	73	21	15	8
m (abs.)	233	113	64	10	20
f+m (abs.)	368	186	85	25	28

» When analyzing the generation, it is noticeable that the majority of companies are led by the **1st** and **2nd generation**.

Results: Summary of all context factors

Table 5: Logistic regression results for all contextual factors:

The regression was made to the dependent variable CONTROLLILNG. The chi-squared value is based on the Hosmer Lemeshow test and in all cases has a value greater than 0.05, indicating that there is a good model fit (Burns & Burns 2008, 580). The standard errors are each shown below the coefficient in brackets. The variables GENERATION were defined as follows: GENERATION_1 = 1st generation, GENERATION_2 = 2nd generation, GENERATION _3 = 3rd generation, GENERATION_4 = 4th generation. *** sign. <0.01; ** sign. <0.05; * Sign. <0.10.

VARIABLES	MODEL VII	MODEL VIII	MODEL IX
SIZE	0,532***	0,549***	0,600***
	(0,147)	(0,151)	(0,155)
SIZE²	-0,033	-0,042	-0,049*
	(0,027)	(0,028)	(0,029)
GENDER	0,485**	0,497***	0,466**
	(0,187)	(0,190)	(0,192)
AGE_MAN	-1,707**	-1,767**	-1,854**
	(0,826)	(0,844)	(0,851)
OTHER_EDUCATION	-0,908*	-0,845	-0,835
	(0,519)	(0,529)	(0,532)
CONTROL_2		2,072***	2,139***
		(0,720)	(0,721)
CONSTANT	4,174*	3,848	3,819
	(2,365)	(2,418)	(2,436)
Chi-Square	12,070	10,061	11,226
Sign. Chi-Square	0,148	0,261	0,189
R^2 (Nagelkerke)	0,139	0,159	0,164

Summary and discussion of the results (1/2)

- Similar to previous studies, it was found that the likelihood of having a controlling increases with the **size** of an enterprise (Berens et al. 2005; Feldbauer-Durstmüller et al. 2012)
- With increasing company size, **management complexity** seems to be **increasing**, which can no longer be coped with only through the presence and involvement of senior management in day-to-day operations (Davis 2008, 135; Deimel 2008, 288; Miller et al. 2013, 556; Voss & Brettel 2014, 579)
- From the point of view of the RBV, smaller companies have a **lack of resources**, so that controlling is rather **less** used (Sierke et al. 2017)
- The **age** of the company **can not** explain the use of controlling
- The study shows that the **industry** of the company has **no influence** on whether controlling is used or not. This finding is in divergence to the results of Andric & Kammerlander (2017), who found in their study an industry dependence for their use of controlling
- A **non-linear effect** in the variables enterprise **size** and **age** could **not** be proven

Summary and discussion of the results (2/2)

- A **higher level of education** of the managing director does **not** lead to a higher probability of the use of controlling. This result is in divergence to previous empirical results in which lack of know-how and knowledge inhibit the use of controlling (Deimel 2008; Sierke et al. 2017)

- The **generation** of the company plays **no role** in explaining the use of controlling, which is in contrast to the theoretical expectations of increasing agency costs with higher generations (Blanco-Mazagatos et al. 2007, 331; Molly et al. 2010, 132; Sharma 2006, 44)

- The use of a **third-party manager significantly increases the likelihood of using controlling**. This finding is in line with previous studies and shows that outsourced management promotes professionalization of corporate governance (Hiebl et al. 2013; Schachner et al. 2006)

- It can therefore be stated that there is still sufficient potential to implement a professionalization of corporate control (Berens et al. 2005) and that controlling remains of little significance (Duller et al. 2014)

- The **resource-based approach** can only be used to a limited extent to explain the use of controlling in (family) companies. Even the **agency theory** can not fully explain the use of controlling. It therefore makes sense to consider a **coupled approach** of both theory levels to be able to define a theoretical basis

Summary of hypotheses testing

No.	Hypothesis	Test result
H1	The bigger the company, the higher the likelihood that controlling will be used.	✓
H2	The older the company is, the higher the likelihood that controlling will be used.	REJECTED
H3	There is a significant non-linear effect in company size, which increases the likelihood that controlling will be used.	REJECTED
H4	There is a significant nonlinear effect in the age of the company, which increases the likelihood that controlling will be used.	REJECTED
H5	The higher the level of education of the managing director, the higher the likelihood that controlling will be used.	REJECTED
H6	With increasing generation of the company, the likelihood that controlling is used increases.	REJECTED
H7	Using a third-party manager increases the likelihood of controlling being used.	✓

Literature

- Amann, K., & Petzold, J. (2014). *Management und Controlling: Instrumente – Organisation – Ziele*. Wiesbaden: Gabler Fachverlage GmbH.
- Andric, M., & Kammerlander, N. (2017). Wozu Controlling? *Controlling & Management Review, 61*(2), 8-15.
- Ang, J. S., Cole, R. A., & Lin, J. W. (2000). Agency costs and ownership structure. *The Journal of Finance, 55*(1), 81-106.
- Bartholomeusz, S., & Tanewski, G. A. (2006). The relationship between family firms and corporate governance. *Journal of Small Business Management, 44*(2), 245-267.
- Bauweraerts, J. (2018). Entrepreneurial orientation and performance in private family firms: A configurational model. *Canadian Journal of Administrative Sciences*, doi.org/10.1002/cjas.1513.
- Berens, W., Püthe, T., & Siemes, A. (2005). Ausgestaltung der Controllingsysteme im Mittelstand – Ergebnisse einer Untersuchung. *Controlling & Management, 49*(3), 186-191.
- Blanco-Mazagatos, V., de Quevedo-Puente, E., & Castrillo, L.A. (2007). The trade-off between financial resources and agency costs in the family business: An exploratory study. *Family Business Review, 20*(3), 199–213.
- Botta, V. (2002). Ganzheitliche Steuerung mittelständischer Unternehmen aus Aufgabe des Controlling. *Controlling und Management, 46*(1), 77-87.
- Burns, R., & Burns, R. (2008). *Business research methods and statistics using SPSS*. London, UK: Sage Publications.
- Carlock, R. S., & Ward, J. L. (2001). *Strategic planning for the family business: Parallel planning to unify the family and business*. New York, NY: Palgrave MacMillan.
- Castaldo, S. (2007). *Trust in market relationships*. Glos, UK: Edward Elgar.
- Correa Rodríguez, A, Acosta Molina, M., González Pérez, A. L., & Medina Hernández, U. (2003). Size, age and activity sector on the growth of the small and medium firm size. *Small Business Economics, 21*(3), 289-307.

Literature

- Cucculelli, M., Mannarino, L., Pupo, V., & Ricotta, F. (2014). Owner-management, firm age, and productivity in Italian family firms. *Journal of Small Business Management, 52*(2), 325-343.
- Davis, J. A. (2008). Toward a typology of family business systems, in: J. Tàpies & und J. Ward (Eds.), *Family values and value creation: The fostering of enduring values within family-owned businesses* (pp. 127-154). New York, NY: Palgrave MacMillan.
- DePoy, E., & Gitlin, L.N. (2011). *Introduction to research: Understanding and applying multiple strategies*, St. Louis, MO: Elsevier.
- Deimel, K., Ellenberger, M., & Molitor, M. (2017). Strategische Planung in kleinen und mittleren Unternehmen in Deutschland, in: A. Gadatsch, A. Krupp & A. Wiesehahn (Eds.), *Controlling und Leadership* (pp. 91-108). Wiesbaden: Springer Fachmedien.
- Deimel, K. (2008). Stand der strategischen Planung in kleinen und mittleren Unternehmen (KMU) in der BRD. *Zeitschrift für Planung & Unternehmenssteuerung, 19*(3), 281–298.
- Domino, G., & Domino, M.L. (2006). *Psychological testing: An introduction.* New York, NY: Cambridge University Press.
- Duller, C., Feldbauer-Durstmüller, B., & Hiebl, M. R. W. (2014). Funktionen des Controllings in Familienunternehmen: Die Informationsversorgungsfunktion wird weniger intensiv wahrgenommen als in Nicht-Familienunternehmen. *Controller Magazin, 39*(1), 26-29.
- Eckstein, P. P. (2016). *Angewandte Statistik mit SPSS: Praktische Einführung für Wirtschaftswissenschaftler*. Wiesbaden: Springer Fachmedien.
- Eisenhardt, K. M., & Santos, F. M. (2006). Knowledge-based view: A new theory of strategy?, in: A. Pettigrew, H. Thomas & R. Whittington, R. (Eds.), *Handbook of strategy & management* (pp. 139-164). London: Sage.
- Esteve-Pérez, S., & Manez-Castillejo, J. A. (2008): The resource-based theory of the firm and firm survival. *Small Business Economics, 30*(3), 231-249.
- Exler, M. W., & Situm, M. (2014). Indikatoren zur Früherkennung von Unternehmenskrisen in der Beraterpraxis: Ansatzpunkte zur Etablierung eines internen Frühwarnsystems. *Krisen-, Sanierungs- und Insolvenzberatung, 10*(2), 53-59.

Literature

- Feldbauer-Durstmüller, B., Duller, C., Mayr, S., Neubauer, H., & Ulrich, P. (2012). Controlling in mittelständischen Familienunternehmen – ein Vergleich von Deutschland und Österreich. *Controlling & Management, 56*(6), 408-413.
- Feldbauer-Durstmüller, B., Wimmer, B., & Duller, C. (2007). Controlling in österreichischen Familienunternehmen dargestellt am Bundesland Oberösterreich. *Zeitschrift für Planung & Unternehmenssteuerung, 18*(4), 427-443.
- Foss, N. J., Knudsen, C., & Montgomery, C. A. (1995). An exploration of common ground: Integrating evolutionary and strategic theories of the firm, in: C. A. Montgomery (Eds.). *Resource-based and evolutionary theories of the firm: Towards a synthesis* (pp. 1-19). New York: Springer.
- Giovannini, E., Maraghini, M. P., & Riccaboni, A. (2011). Transmitting knowledge across generations: The role of management accounting practices. *Family Business Review, 24*(2), 126-150.
- Glancey, K. (1998). Determinants of growth and profitability in small entrepreneurial firms. *International Journal of Entrepreneurial Behavior & Research, 4*(1), 18-27.
- Grant, R M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*(2), 109-122.
- Gray, S. J., Salter, S. B., & Radebaugh, L. H. (2001). *Global accounting and control: A managerial emphasis*. New York, NY: John Wiley & Sons.
- Greenstein, T. N., & Davis, S. N. (2013). *Methods of family research*. Thousand Oaks, CA: Sage Publications.
- Helsen, Z., Lybaert, N., Steijvers, T., Orens, R., & Dekker, R. (2017). Management control systems in family firms: A review of the literature and directions for the future. *Journal of Economic Survey, 31*(2), 410-435.
- Hendry, C., Arthur, M., & Jones, A. (1995). Adaptation and resource management in the small-medium-firm, in: The Journal of Entrepreneurship, 4(2), 165-184.
- Ho, R. (2006). *Handbook of univariate and multivariate data analysis and interpretation with SPSS*. Boca Raton, FL: Chapman & Hall/CRC.

Literature

- Hope, O.-K., Thomas, W. B., & Vyas, D. (2013). Financial reporting quality of U.S. private and public firms. *The Accounting Review, 88*(5), 1715-1742.
- Hiebl, M. R. W. (2013). Einfluss von Controlling-Systemen auf die Unternehmensführung mittelgroßer Familienunternehmen. *Controlling & Management Review, 57*(1), 78-84.
- Hiebl, M., Feldbauer-Durstmüller, B., & Duller, C. (2013). Die Organisation des Controllings in österreichischen und bayerischen Familienunternehmen. *Zeitschrift für KMU und Entrepreneurship, 61*(1/2), 83-114.
- Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency cost, and ownership structure. *Journal of Financial Economics, 3*(4), 305–360.
- Jovanovic, B., & MacDonald, G. M. (1994). The life cycle of a competitive industry. *Journal of Political Economy, 102*(2), 322 – 347.
- Jovanovic, B. (1982). Selection and the evolution of industry. *Econometrica, 50*(3), 649 – 670.
- Kahane, L. H. (2008). *Regression basics*. Thousand Oaks, CA: Sage Publications.
- Korang Adjei, E., Eriksson, R. H., Lindgren, U., & Holm, E. (2019). Familial relationships and firm performance: The impact of entrepreneurial family relationships. *Entrepreneurship & Regional Development, 31*(5/6), 357-377.
- Koropp, C., Grichnik, D., & Gygax, A.F. (2013). Succession financing in family firms. *Small Business Economics, 41*(2), 315–334.
- Krishnaswamy, K.N., Sivakumar, A.I., & Mathirajan, M. (2006). *Management research methodology: Integration of principles, methods and techniques*. New Delhi: Dorling Kindersley.
- Lenox, M. J., Rockart, S. F., & Lewin, A. Y. (2011). Interdependency, competition, and industry dynamics, in: Markman, G. D., & Phan, P. H. (Eds), *The competitive dynamics of entrepreneurial entry* (pp. 54-84). Glos, UK: Edward Elgar.
- Levy, M., Powell, P., & Yetton, P. (2002). The dynamics of SME information systems. *Small Business Economics, 19*(4), 341-354.

Literature

- Lumpkin, G. T., McKelvie, A., Gras, D. M., & Nason, R. S. (2010). Is strategy different for very small and new firms? *Journal of Small Business Strategy, 21*(2), 1-26.
- Märk, S., & Situm, M. (2018). *Familienunternehmen und ihre Stakeholder: Problemstellung – Lösungsmodelle – Praktische Umsetzung*. Berlin-Heidelberg: Springer.
- Marques de Sá, J. P. (2007). *Applied statistics using SPSS, STATISTICA, MATLAB and R*. Berlin-Heidelberg: Springer Verlag.
- Mayr, A. (2015). Controlling in Klein- und Kleinstunternehmen durch Steuerberater. *Zeitschrift für KMU und Entrepreneurship, 63*(3/4), 325-334.
- Merchant, K. A., & Van der Stede, W. A. (2007). *Management control systems: Performance measurement, evaluation and incentives*. Essex, UK: Pearson.
- McIvor, R. (2005): *The outsourcing process: Strategies for evaluation and management*. Cambridge, UK: Cambridge University Press.
- McKee, T., & Lensberg, T. (2002). Genetic programming and rough sets: A hybrid approach to bankruptcy prediction. *European Journal of Operational Research, 138*(2), 436–451.
- Miller, D., Le Breton-Miller, I., Minichilli, A., Corbetta, G., & Pittino, D. (2014). When do non-family CEOs outperform in family firms? Agency and behavioural agency perspectivce. *Journal of Management Studies, 51*(4), 547-572.
- Miller, D., Minichilli, A., & Corbetta, G. (2013). Is family leadership always beneficial? *Strategic Management Journal, 34*(5), 553-571.
- Mitter, C. (2014). Controlling in Familienunternehmen. *Zeitschrift für KMU und Entrepreneurship, 62*(4), 345-352.
- Molly, V., Laveren, E., & Deloof, M. (2010). Family business succession and its impact on financial structure and performance. *Family Business Review, 23*(2), 131–147.
- Montgomery, D. C., & Runger, G. C. (2011). *Applied statistics and probability for engineers*. Hoboken, NJ: John Wiley & Sons.

Literature

- Nunes, P. M., Serrasqueiro, Z. S., & Leitao, J. (2010). Are there nonlinear relationships between the profitability of Portuguese service SME and its specific determinants? *The Service Industries Journal, 30*(8), 1313-1341.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations. A resource dependence perspective*. New York, NY: Harper & Row.
- Portisch, W. (2013). Risikoerkennung und Sanierungswürdigkeitsprüfung durch Kreditinstitute: Sanierungsentscheidungen nachvollziehbar treffen. *Krisen-, Sanierungs- und Insolvenzberatung, 9*(4), 149–154.
- Prencipe, A., Bar-Yosef, S., & Dekker, H. C. (2014). Accounting research in family firms: Theoretical and empirical challenges. *European Accounting Review, 23*(3), 361-385.
- Press, J. S., & Wilson, S. (1978). Choosing between logistic regression and discriminant analysis. *Journal of the American Statistical Association, 73*(364), 699 – 705.
- Qian, G., Li, L., Li, J., & Qian, Z. (2008). Regional diversification and firm performance. *Journal of International Business Studies, 39*(2), 197-214.
- Rautenstrauch, T., & Müller, C. (2005). Verständnis und Organisation des Controlling in kleinen und mittleren Unternehmen. *Zeitschrift für Planung & Unternehmenssteuerung, 16*(2), 189-209.
- Salvato, C., & Moores, K. (2010). Research on accounting in family firms: Past accomplishments and future challenges. *Family Business Review, 23*(3), 193-215.
- Schachner, M., Speckbacher, G., & Wentges, P. (2006). Steuerung mittelständischer Unternehmen: Größeneffekte und Einfluss der Eigentums- und Führungsstruktur. *Zeitschrift für Betriebswirtschaft, 76*(6), 589-614.
- Schmid-Gundram, R. (2016). *Controlling-Praxis im Mittelstand: Aufbau eines Controllingsystems ausgehend von Lexware, DATEV oder SAP*. Wiesbaden: Springer Fachmedien.
- Schulze, W. S., Lubatkin, M. H., & Dino, R. N. (2002). Altruism, agency, and the competitiveness of family firms. *Managerial and Decision Economics, 23*(4), 247-259.

Literature

- Senegović, I., Bublić, V., & Ćorić, G. (2015). Family business succession risks: The Croatian context, in: P.-L. Dana & V. Ramadani (Eds.), *Family businesses in transition economies: Management, succession and internationalization* (pp. 175-198). Springer: Cham.
- Serrasqueiro, Z. S., & Nunes, P. M. (2008). Performance and size: Empirical evidence from Portuguese SMEs. *Small Business Economics, 31*(2), 195-217.
- Shapiro, C. (1989). The theory of business strategy. *RAND Journal of Economics, 20*(1), 125-137.
- Sharma, P. (2006). An overview of the field of family business studies: current status and directions for the future. in: P. Z. Poutziouris, K. X., Smyrnios, & S. B. Klein (Eds.), *Handbook of research on family business* (pp. 25-55). Glos: Edward Elgar.
- Shleifer, A., & Vishny, R. (1986). Large shareholders and corporate control. *Journal of Political Economy ,94*(3), 461–488.
- Sierke, B. R. A., Algermissen, J., & Brinkhoff, S. (2017). Outsourcing von Controlling als Option für den Mittelstand. *Controlling & Management Review, 61*(2), 22-33.
- Situm, M., & Märk, S. (2018) The succession process from the perspective of financial institutions: A focused view on external vs. internal succession. *International Journal of Entrepreneurship and Small Business, 34*(2), 204-232.
- Situm, M. (2016). *Finanzierungsstruktur optimieren: Praxisleitfaden für Unternehmer und Berater*. Herne: NWB-Verlag.
- Situm, M. (2015). Die Saldenlisten als Informationsinstrument gegenüber Kreditinstituten. *Der Betriebswirt, 56*(2), 16–21.
- Sohrabi, B., Raeesi, I., & Khanlari, A. (2010). Intellectual capital components, measurement and management: A literature survey of concepts and measures. in: P. López Sàez, G. Martin de Castro, J. E. Navas López & M. Delgade-Verde, M. (Eds.), *Intellectual capital and technological innovation: Knowledge-based theory and practice* (pp. 1-38). Hershey, PA: IGI Global.

Literature

- Songini, L., & Gnan, L. (2015). Family involvement and agency cost control mechanisms in family small and medium-sized enterprises. *Journal of Small Business Management, 53*(3), 748-779.
- Sousa, C. A. A., & Hendriks, P. H. J. (2006). The diving bell and the butterfly: The need for grounded theory in developing a knowledge-based view of organizations. *Organizational Research Methods, 9*(3), 315-338.
- Taschner, A. (2012). Kennzahlennutzung in KMUs. *Der Betriebswirt, 53*(2), 19-24.
- Theuermann, C. (2014). *Controlling in österreichischen KMU: Anforderungen, zukünftige Entwicklungen und Kompetenzprofil des KMU-Controllers*, URL: https://www.campus02.at/rechnungswesen/wp-content/uploads/sites/6/2016/05/Studie_Controlling_Mittelstand_2013_2014_WEB_8742_DE.pdf, retrieved 7th July 2019.
- Thornhill, S., & Amit, R. (2003). Learning about failure: Bankruptcy, firm age, and the resource based view. *Organization Science, 14*(5), 497 – 509.
- Vannoni, E. (2000). Diversification, the resource based view and productivity: Evidence form Italian manufacturing firms. Empirica, 27(1), 47-63.
- Voordeckers, W., van Gils, A., & van den Heuvel, J. (2007). Board composition in small and medium-sized family firms. *Journal of Small Business Management, 45*(1), 137-156.
- Voss, U., & Brettel, M. (2014). The effectiveness of management control in small firms: Perspectives form resource dependency theory. *Journal of Small Business Management, 52*(3), 569-587.
- Wambach, M., & Wunderlich, D. (2002). Die Bedeutung des Controlling für das Rating mittelständischer Unternehmen. *Zeitschrift für Controlling, Accounting & System-Anwendungen, 46*(1), 37-43.
- Weber, J. (2018). Theorie und Praxis im Controlling: Koexistenz oder Interaktion? *Controlling & Management Review, 62*(7), 38-45.
- Winker, P. (2007). Empirische Wirtschaftsforschung und Ökonometrie, Berlin-Heidelberg: Springer Verlag.
- Wirtz, B. W. (2003). *Mergers & Acquisitions Management: Strategie und Organisation von Unternehmenszusammenschlüssen*. Wiesbaden: Gabler.
- Zirkler, B., & Hofmann, J. (2015). Wie sich Basel III auf das Rating von KMUs auswirkt. *Controlling & Management Review, 59*(2), 60-68.