DOING THE UNEXPECTED – WHY GERMAN FAMILY FIRMS DIFFER FROM NON-FAMILY FIRMS IN MANAGEMENT ACCOUNTING, PLANNING, AND RISK INTEGRATION

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Abstract

In the management accounting literature, planning and budgeting play important roles. In theory and practice, it is assumed so far that companies rely mainly on expected values in the context of planning. Scenarios and risk aspects (in the sense of volatility) play only a minor role. Against the background of new digital possibilities, the discussion on the integration of risk aspects in planning and management accounting is, however, gaining speed again. This applies in particular to family-owned companies, which have always been attested in the literature to have a more risk-averse management style than other companies. The article deals with the question of why companies have so far not or only poorly integrated risk aspects into operational planning and budgeting. This article deals with the consideration of risk aspects in corporate planning based on a sample of 261 German companies. The results of the empirical analysis show that family enterprises and non-family enterprises differ significantly from each other in terms of the consideration of risk aspects. While risk aversion should actually lead to family businesses integrating risks more closely, exactly the opposite is the case. A line of argumentation based on socioemotional wealth (SEW) is being used for this purpose.

Keywords: Management Accounting, Planning, Budgeting, Family Firms, Empirical Study

Authors' individual contribution: Conceptualization – P.U.; Methodology – P.U. and R.R.; Formal Analysis – R.R.; Writing – Original Draft – P.U. and R.R.; Writing – Review & Editing – P.U. and R.R.; Visualization – P.U. and R.R.; Supervision – P.U. and R.R.

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1. INTRODUCTION

In recent years, several new aspects have emerged in the field of management accounting, both in terms of the theoretical basis and practical implementation. With regard to the theoretical basis, classical, contingency-oriented work based on principal-agent theory has been supplemented by aspects of embedded agency (Englund & Gerdin, 2011; Hiebl, 2018) and the configuration approach (Gerdin & Greve, 2004).

Management accounting as a sub-discipline of business administration is topical in theory and practice and has been affected by several trends for quite some time. At this point, the increasing internationalization with related aspects such as the harmonization of accounting (Becker & Ulrich, 2016), digitalization (Rikhardsson & Yigitbasioglu,

2018; Friedl, 2019; Nobach, 2019), the changed role model and business partnering of management accountants (Nobach & Immel, 2017; Rieg, 2018) as well as the increasing project work in companies including the consequences for management accounting (Schmid, 2019) should be mentioned as examples.

In the area of the classical instruments of operational accounting, such as cost accounting and corporate planning, unfortunately not many new, groundbreaking developments have been discussed in recent years. This may not even be necessary, as the instruments are already very mature and practical. In addition, theory and practice focus on the one hand on the interactions of these instruments within the framework of management accounting systems (Malmi & Brown, 2008; Cescon, Costantini, & Grassetti, 2019) and on the other hand on the effects of digitization and new technologies (Quattrone, 2016).

However, a large gap can be identified in theory and practice in the field of corporate planning. Most companies still rely on secure, i.e., clear values in planning and control. This is astonishing because even before the great wave of digitalization, there was a discussion about the use of scenarios and simulations in business accounting. For various reasons, however, these methods are not sufficiently implemented in practice. Firstly, not all companies are familiar with the methods. On the other hand, they are sometimes – not always justified – perceived as too complex in practice. Moreover, the individual added value for decision-makers can only be identified in the long term. In the short term, in order to use these methods, companies would have to make investments whose return could only be measured in the long term and by knowing the opportunities and risks of a decision. This is too vague for many decision-makers in practice.

Against this background, the following research question arises in the combination of business planning, risk aspects, and family businesses:

To what extent do family businesses and non-family businesses differ in the area of integrating risk aspects into management accounting in general and operational planning and budgeting in particular?

Our main contributions are as follows:

1) From our point of view we offer the first combination of theories on family businesses and instrumental design of risks and planning;

2) We carry out an empirical study on the areas mentioned above;

3) We come to the conclusion that family businesses treat risks in management accounting, planning, and budgeting differently from non-family businesses.

The present paper is intended to supplement existing arguments on the use of management accounting in German companies, especially family firms, and to enrich empirical research on planning and budgeting in SMEs with current findings. The further progress of the paper is as follows. After its introduction, a review of the current state of the literature follows, literature and theory lead to the derivation of research-leading hypotheses in Section 3, which are subjected to an empirical test in Section 4. The paper concludes in Section 5 with a discussion of the results and recommendations for action for business practice.

2. LITERATURE REVIEW

2.1. Risk integration in planning and budgeting

Planning and budgeting are important components of management control systems (Anthony & Govindarajan, 2007; Malmi & Brown, 2008). Management control systems theory forms a general framework to understand how managers influence others in an organization in order to implement the strategic and operational goals of the firm. In so doing managers have to consider possible threats and events challenging the accomplishment of an organization's goals. This resonates also in the definition of enterprise risk management by the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2017). Enterprise risk management aims at integrating risk aspects in all and every decision and action – not at least in budgeting and planning.

Integrating risk aspects in budgeting and planning can take place in all phases: deploying, formulating, and using plans and budgets. While deploying plans and budgets identifying, assessing and aggregating risks helps in evaluating overall risk and opportunities of the plan and budget alternatives (Arena & Arnaboldi, 2013). Formulating plans with explicitly considering risks goes beyond the typical point estimates or "average" expected values often used in companies that do not reflect risks appropriately. Alternatives are calculating risk-based performance metrics like risk-adjusted returns (e.g. expected return divided by capital at risk), estimating economic capital, or providing a range of possible outcomes, the so-called bandwidth plan (Gleißner & Romeike, 2012). Firms may consider risks in using budgets and plans through applying rolling forecasts and rolling budgets (Hansen, 2011). Additionally, managers might reevaluate budget needs and reallocate resources during a budget period if needed (continuous budgeting, Frow, Marginson, & Ogden, 2010), combine centralized planning with decentralized decision-making (Andersen, 2010), or plan "budget slack" upfront to cope with unforeseen events (Elmassri & Harris, 2011).

Comparing actual achievement with plans and budget is prone to misjudgments if a firm does not consider the impacts of uncertainty and risks on performance (Parnell & Dent, 2009). Hence, it seems self-evident and is a normative principle in management accounting to hold managers only for those results responsible which they can control (Burkert, Fischer, & Schäffer, 2011). Yet, some studies do not support that this happens (Collier & Berry, 2002).

The benefits of integrating risk aspects in planning and budgeting might lead to increased effectiveness of budgeting (Arena & Arnaboldi, 2013) and, for example, to more accurate earnings forecasts for capital markets (Ittner & Michels, 2017). It seems then worthwhile for firms to integrate risks appropriately. Yet the amount of research in this area is limited and further studies are needed (Soin & Collier, 2013).

2.2. Existing ERM frameworks

In recent years, many standards have been developed in this area, including the German Act on Control and Transparency in Companies (KonTraG) and the obligation to introduce an early risk detection system (PwC, 2011a), followed by further requirements such as the German Corporate Governance Code (DCGK) and the Accounting Law Modernization Act (PwC, 2011a; PwC, 2011b). In general, Fahrion, Kaufl, and Hein (2012) define risk as a measure to identify uncertainties regarding the occurrence of assumptions in the future. Diederichs (2013) extends the perspective to include a direct reference to corporate goals and strategies: risks here include the danger that events, decisions, actions, or omissions prevent a company from achieving its defined goals or implementing its strategy.

The development of a risk management system and the inclusion of risk in corporate decisions also play an important role with regard to good corporate governance and are the cornerstones of the internal control system and compliance management (Fahrion et al., 2012), which can mean that risk management can help to identify risks at an early stage and take preventive measures which in turn can counteract risks affecting the company's ability to survive (Mahlert, 2012) The scenario technique is regarded as an appropriate instrument in the context of taking risks into account in strategy, planning and controlling (Gleißner & Wolfrum, 2013).

2.3. Family firms

The main problem for the quantification of family firms arises from the different definitions of family-owned companies in literature. There is still no consensus on the conceptualisation and standardised definition of the family business (Astrachan, Klein, & Smyrnios, 2002; Astrachan & Shanker, 2003). There is, therefore, a two-sided approach to the labelling of family businesses.

Family businesses can be both large and small and medium-sized enterprises controlled by a family (Ayyagari et al., 2007). Worth mentioning are the qualitative characteristics of family-owned companies, strong relationships with stakeholders such as suppliers, partners, etc. and a positive image with regard to employees (Aganin & Volpin, 2005; Carrigan & Buckley, 2008; Panwar, Paul, Nybakk, Hansen, & Thompson, 2014).

A company-owned and run by a family is clearly a family business. A family business is run with the intention of pursuing a desired future for the family and in accordance with its values and preferences. Decisions and actions are influenced by family dynamics and these decisions/actions will certainly differ from companies that have neither family ownership nor family management to influence them (Chua, Chrisman, & Sharma, 1999).

For Chua et al. (1999) the essence of a family business consists of a vision developed by a dominant coalition controlled by one or a few families. It is crucial that the vision continues to be designed and pursued in a way that is potentially sustainable for generations of the family. To capture this and be inclusive of all other definitions in the literature, they propose the following definition: The family business is a business managed and/or managed with the intention of shaping and/or pursuing the vision of the business held by a dominant coalition controlled by members of the same family or a small number of families in a way that is potentially sustainable over generations of the family or families (Chua et al. 1999, p. 25).

The main distinguishing feature for the criterion of the definition of family-owned enterprises is the amount of the family's ownership share (Berrone, Cruz, Gomez-Mejia, & Larraza-Kintana, 2010; Gómez-Mejía, Haynes, Núnez-Nickel, Jacobson, & Moyano-Fuentes, 2007). In addition, there are other distinguishing features for the definition of the family business, such as control by family members, e.g. if the CEO of the company is a family member, and a more long-term perspective that deals with the succession and continuity of the company (Martos, 2007).

As already mentioned, family-owned businesses, place more value on non-financial aspects than non-family businesses. This is just one reason why family businesses tend to care more about their employees and therefore prefer soft factors such as employer satisfaction, loyalty, and trust (Covin, 1994; Carrigan & Buckley, 2008; Orth & Green, 2009; Krappe, Goutas, & von Schlippe, 2011; Binz, Hair, Pieper, & Baldauf, 2013). It is more valuable to establish a trusted identity that corresponds to the concept of the family and focuses more on social performance than the mere pursuit of financial performance and high-profit margins (Bjuggren & Sund, 2001; Chua, Chrisman, & Steier, 2003; Sharma, Chrisman, Pablo, & Chua, 2001).

2.4. Extant research on the integration of risks in family businesses

Although family companies have often recognized the urgency of introducing methods and instruments for mapping risks not only in management accounting but also in other functional areas in recent years, most of them lack sufficient implementation competence in matters of management and control systems and parallel consideration of risk issues (Felden, Hack, & Hoon, 2014). Schulze, Lubatkin, and Dino (2003) attribute this (inadequate) decision-making behaviour to the rather risk-averse attitude of family companies towards non-family businesses, in line with the results of the study by Naldi, Nordqvist, Sjöberg, and Wiklund (2007).

To the best of our knowledge, empirical findings on the concrete integration of risk issues in planning and budgeting in family-owned companies are not yet available. 81 percent of SMEs, some of which overlap with family-owned companies, reported in a study by PwC (2011a) that this is already associated with a high to a very high degree of relevance. 30 percent of the companies surveyed stated with regard to the linking of risk and budgeting that they had not yet included the likelihood of risks in their planning.

From a scientific perspective, a separate, rather theoretically oriented research line has developed in recent years to take account of risk issues in

medium-sized companies and family businesses, which is also based on contingency theory, behavioral theory, and socioemotional wealth (Hiebl, 2013; Falkner & Hiebl, 2015), where family businesses are generally presented as risk-averse compared to non-family businesses (Hiebl, 2014). This is also seen in the theory of socioemotional wealth (Gómez-Mejía et al., 2007).

Some recent studies indicate that family businesses do indeed deal with risks in different ways (McAdam, Clinton, & Dibrell, 2020). Fang, Siau, Memili, and Dou (2018) also address the cognitive limitations of the decision-makers involved in their discussion of uncertainty, risk, and investment decisions. Myhaylov and Zurbriegg (2020), on the other hand, establish a close relationship between risk management and succession planning in family businesses. Even if these areas should be closely linked in practice, this is not the case in all family businesses, either methodologically or systemically. Finally, Hiebl, Duller, and Neubauer (2019) examine the state of research on enterprise risk management in family businesses and can show that both family influence and company size are important contingency factors in previous studies.

This article follows a similar, but slightly different line of argumentation, since it is postulated that medium-sized family businesses formally capture risks less often and thus integrate them less frequently into planning and budgeting, since the effects of contingency theory and socioemotional wealth overlap.

3. HYPOTHESES

Based on the contingency theory, SEW, and the empirical findings already outlined, detailed hypotheses are now derived.

Contingency theory goes back to Burns and Stalker (1961), Lawrence and Lorsch (1967) and postulates a connection between environment and company, e.g. a connection between increasing company size and organisational differentiation was found in organisations (Child, 1972).

In the area of managerial accounting, especially operational planning and budgeting, family influence has been identified as an important contingency factor in recent years (Hiebl, Duller, Feldbauer-Durstmüller, & Ulrich, 2015); however, a definition of the family business is a prerequisite to illustrate the influence of the family; although research on family businesses has developed rapidly in recent years, a uniform definition is not discernible (Chua et al., 1999) For this contribution we focus on the perspective of family businesses, which postulates an influence of the family through the dimensions of ownership and management in the company.

Based on the theoretical arguments presented so far, it is assumed that family businesses integrate risks less frequently into their planning, although they should do so because of their more long-term orientation. However, there is a lack of empirical evidence for this. The argumentation on the importance of family influence for management accounting is based on the fact that the increasing use of management accounting instruments can be understood as an aspect of professionalisation and formalisation (Giovannoni, Maraghini, & Riccaboni, 2011).

Existing research on management accounting in family businesses assumes that in family businesses, in addition to aspects such as the management of the business, the control of decisions, but especially the control of external managers by the family, is also a priority. Management accounting is therefore seen more as control than a steering mechanism. As a result, the companies' understanding of management accounting is also more oriented towards the aspect of control. At the same time, this would mean that – contrary to the theory on family businesses in general described so far – the purpose of control would tend to be understood in the short term and accompanying the operative events. In the following hypotheses, we will then go into what this means for risk integration. Therefore we hypothesize:

Hypothesis 1a (H1a): Family businesses see management accounting more as a tool of control than non-family businesses.

Hypothesis 1b (H1b): Owned-led firms see management accounting more as a tool of control than other firms.

In the canon of management accounting tools, risk control is a task of management accounting that deals with the evaluation and control of risks within risk management. Risk control is thus at the interface of management accounting and risk management. As a consequence of *H1*, we assume that family businesses apply risk control less frequently due to the strongly operative character of management accounting and risk management. The owner-entrepreneurs are partly aware of the risks in the company, but due to the lower legal requirements and the tendency to handle things informally and not to write them down, risks are not formalised and therefore not assessed and managed by risk control. Therefore we hypothesize:

Hypothesis 2a (H2a): Family businesses use risk control as a management accounting instrument less frequently than non-family businesses.

Hypothesis 2b (H2b): Owner-led firms use risk control as a management accounting instrument less frequently than other firms.

The contingency-oriented literature on management accounting and controlling postulates that the understanding of management accounting in companies is subject to a development process characterized by various phases (Khandwalla, 1974) While in SMEs and family businesses there is an assumption that a direct connection is established between controlling and livelihood security, which corresponds to a rather reactive view, in larger companies and non-family companies, management accounting is also associated more strongly with functions such as consulting corporate management and orientation towards value orientation. Since family-owned companies usually have simpler and less future-oriented management accounting instruments than non-family businesses and attach less importance to planning and consulting, it is reasonable to assume that both in philosophy and methodical-instrumental implementation risk aspects – understood as fluctuation margins – play less of a role in the operational planning and budgeting of

family-owned companies than in non-family businesses.

This is where a paradox comes into play: the orientation and philosophy of family-owned companies should be inherently more long-term than that of non-family businesses. We assume, however, that family businesses do not recognize this paradox and, with regard to risk aspects, incorporate fluctuations, uncertainties, scenarios, and risks less strongly in their planning. In this respect, their actions are even – to use the term – riskier than those of non-family businesses. Therefore we hypothesize:

Hypothesis 3a (H3a): In family businesses, risk aspects are less often integrated into operational planning and budgeting than in non-family businesses.

Hypothesis 3b (H3b): In owner-led firms, risk aspects are less often integrated into operational planning and budgeting than in other firms.

Company size and family sometimes run counter to each other in management accounting and planning. With size comes complexity and thus c.p. the degree of formalization and professionalization of the instruments in management accounting. Since there might be an interaction effect between size and family influence, we hypothesize that with larger companies, the family effect on risk integration might be lesser.

Hypothesis 4a (H4a): There is an interaction effect of size and family influence on the risk integration in family businesses.

Hypothesis 4b (H4b): There is an interaction effect of size and family influence on the risk integration in owner-led firms.

4. METHODOLOGY

4.1. Data collection and sample

In order to test the hypotheses derived, 1,900 companies with at least 50 and a maximum of 5,000 employees in the German federal states of Baden-Württemberg, Bavaria, and Saxony were contacted in 2015. The market database was used for sample generation. The study was carried out as a comprehensive study on the subject of management accounting, whereby the results presented here refer to the instrument part of the survey.

The questionnaire was previously subjected to a plausibility check in six expert interviews with decision-makers. Three of the six decision-makers were SMEs as defined by European Commision (1996, 2003), i.e., companies with up to 249 employees. The small number of pre-tests is an additional limitation of this contribution.

The study was conceptualised as a postal survey. The individual companies were contacted by letter to participate. After the first processing period from September to November 2014, a reminder was sent by e-mail. A total of 288 companies (15.05 percent) responded during the entire period from September 2014 to January 2015, of which only 261 questionnaires were usable (13.74 percent). The response is therefore comparatively acceptable.

This means that the final sample for this contribution is represented by 261 companies. In order to exclude a possible non-response bias, Armstrong and Overton (1977) examined the first and the last third of the responses to structural differences, both with regard to the control variables company size, industry affiliation, and age as well as the use of the queried controlling instruments. The results gave no reason to assume a non-response bias.

4.2. Variables

4.2.1. Independent variables

Family influence

There are several ways in the literature to reflect family influence in companies (Westhead & Cowling, 1998; Astrachan et al. 2002; Dyer, 2003; Chrisman, Chua, & Sharma, 2005; Hiebl, Duller, Feldbauer-Durstmüller, & Ulrich, 2015). The study covers family influence in the company on the basis of the two dimensions "shareholder structure" and "participation in the company's management board". These two variables were collected differently. The shareholder structure was recorded in such a way that the respondents were asked to indicate the three most important shareholder groups and the respective percentage share of the participation. In a second step, the survey respondents' shareholder structure was reclassified by the study's authors so that the groups "majority-owned by the family", "less than 50%" or "not owned by the family" were created. With regard to the management structure, the three-level measurement scale "family members only", "mixed body" and "no management by family members" was given to the respondents for election. Based on these two attributes and following Speckbacher and Wentges (2012), the variable *Family* was formed, which takes the value "1" if the company is majority family-owned and if the management structure of the company consists only of owners or is mixed.

According to this definition, 128 companies were defined as family firms and 87 were defined as non-family firms. In addition, another sub-variable *Owner_led* was constructed, where the majority of shares is family-owned and a member of the founding family is the head of the company's executive board.

4.2.2. Control variables

Company size

The majority of contingency theoretical studies regard company size as an important influencing factor, especially in the area of planning and control mechanisms (Chenhall, 2003). In contrast to other studies (Speckbacher & Wentges, 2012), no classes were given to the test persons, the company size was queried by the attribute "number of employees", which made a retrospective classification of the companies possible (the smallest group with less than 100 employees served as a reference class, N = 66), but which were based on reference studies (Loan-Clarke, Boocock, Smith, & Whittaker, 1999; Kotey, 2005). There are several reasons for the formation of a categorical variable in this study. On the one hand, the existence of growth

thresholds is still possible within the SME group (Albach, 1976). Here, the formation of algorithms offers the possibility of uncovering any differences between individual size categories. On the other hand, the classification reflects the two competing quantitative SME views of the European Commission (1996, 2003), which defines SMEs up to 249 employees, and the IfM Bonn (2002), which extends the size classification to up to 499 employees.

Industry
The sector affiliation was used as an indicator of environmental uncertainty in this study (Brachtendorf, 2004). Here, the dummy variable *Industry* was formed for the manufacturing sector (N = 91). The remaining sectors (N = 170) served as reference groups.

Age
Several empirical studies have already shown in the past that the age of a company influences the design of controlling systems in general and controlling instruments in particular (Moores & Mula, 2000; Moores & Yuen, 2001). In the context of the present study, a closed question was posed, based on Speckbacher and Wentges (2012), to determine the period in which the company was founded. From this, the ordinal variable *Alter* was derived as the difference between the year 2015 and the year of foundation.

Environmental uncertainty
Environmental uncertainty is a classic contingency factor in studies on management in general and management accounting in particular. This factor can change the way companies deal with management accounting. Increased environmental uncertainty is expected to lead to a greater urge for certainty and figures, as generated by management accounting itself and its tools.

Strategy type
There may exist a link between the company strategy and the need for resource management and control as such, we opted to control for strategy type. As a basis, we used the typology proposed by Miles, Snow, Meyer, and Coleman (1978). In this typology, defenders, analyzers, prospectors, and reactors are distinguished with regards to different approaches towards corporate strategy, strategic planning, and strategic foresight. For our analysis, we created a dummy variable *Strategy* (N = 72) with a value of "1" if the firm either belonged to the analyzer or prospector category (hence, the reactor and defender categories served as a reference group, N = 70). This was deemed operational because analyzers and prospectors are believed to rely more heavily on formalized strategic planning than defenders and reactors, rendering the differentiation between those two groups practicable for our analysis.

Table 1. Control variables

Control variable (short name)	*Control variable (long name)*	*Type*	*Reference*
Strategy	Type of strategy: 0 = prospector/analyzer, 1 = reactor/defender	Nominal	Miles and Snow (1986)
zSize	Size of firm, measured as no. of employees	Numeric, z-transformed	Eierle and Haller (2009)
zEnvironmental_Uncertainty	Environmental uncertainty	z-transformed scale of ordinal variable [1;5]	Duncan (1972), Gordon and Narayanan (1984)
zAge	Age of firm in years	z-transformed numerical variable	Moores and Mula (2000), Speckbacher and Wentges (2012)
Industry	Industrial company	Dichotomous, 0 = no, 1 = yes	Brachtendorf (2004)

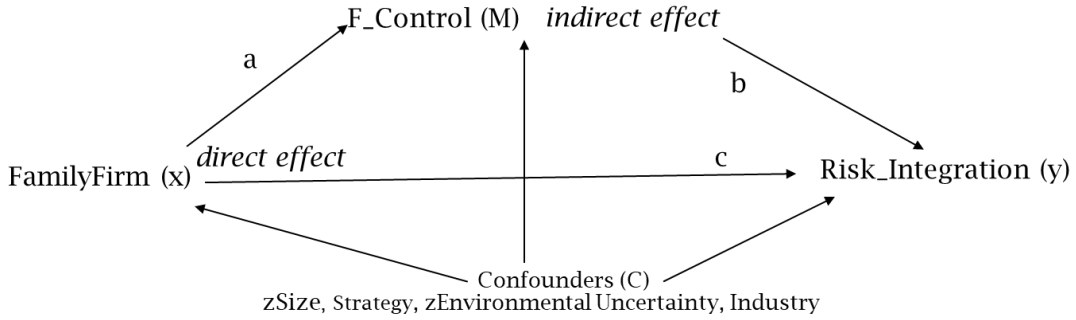
Table 2. Dependent variables

Hypothesis	*DV (short name)*	*DV (long name)*	*Type*
H1: Effect of "familyness" on control function.	zF_Control	Control function of management accounting and control	z-transformed scale of ordinal variable [1;5]
H2: Effect of "familyness" on instruments.	zInstr_planning_budgeting	Instrument "planning and budgeting"	z-transformed scale of ordinal variable [1;5]
	zInstr_riskcon	Instrument "risk control"	z-transformed scale of ordinal variable [1;5]
	zInstr_strategicplanning	Instrument "strategic planning"	z-transformed scale of ordinal variable [1;5]
	zInstr_prognosis	Instrument "prognosis"	z-transformed scale of ordinal variable [1;5]
	zInstr_scenario	Instrument "scenario planning"	z-transformed scale of ordinal variable [1;5]
H3 and H4: Effect of "familyness" on risk integration.	Integration_risk	Integration of risk aspects into planning and budgeting	Dichotomous, 0=no, 1=yes

4.3. Conceptual model

As a basis for the empirical study, a conceptual model was first developed. This contains all tested variables as well as the cause-effect relationships between them.

Figure 1. Conceptual model



4.4. Statistical inference

Still, many empirical studies rely on null hypothesis significance tests with p-values (Fanelli, 2010; Ioannidis, 2005) despite questionable usefulness (Greenland et al., 2016; Kline, 2013). Following the suggestion of the American Statistical Association, this study employs the so-called estimation approach instead (Cumming, 2014; Wasserstein & Lazar, 2016). The estimation approach uses sample data to estimate effect sizes and their precision, i.e., confidence intervals. Typical median effect sizes of observational studies in the business lie around values of +/-0.19 for correlation coefficients (Ellis, 2010) which translates into +/-0.38 standard deviations.

5. RESULTS

5.1. Descriptive results

First, we depict descriptive statistics for all nominal variables in Table 3. We see that a majority of respondents are from family firms (59.53%) and around 31 % are led by owners. Cross-tabulating the variables family firm, owner-led, and risk integration reveal additional insights (Table 4): 80 from 128, i.e., 62.5% of family firms are owner-led. Only 16% integrate risk aspects into planning and budgeting (over all respondents). Family firms integrate risk aspects at a rate of 12% of all family firms and owner-led firms at a rate of 6% of all owner-led firms. The integration of risk into planning and budgeting is distinctively higher in non-family firms. This is the first hint on *H3.*

Table 3. Descriptive statistics for nominal variables

		Family_firm	***Owner_led***	***Strategy***	***Industry***	***Integration_risk***
Sample size	N	215	261	190	261	261
Frequency	0	87	181	127	170	219
	1	158	80	63	91	42
Relative	0	40.47%	69.35%	66.84%	65.13%	83.91%
	1	59.53%	30.65%	33.16%	34.87%	16.09%

Table 4. Cross-tabulation of family firm, owner-led, risk integration

		Risk integration into planning		
		No	***Yes***	***Total***
Family_firm	***No***	60	27	87
	Yes	113	15	128
	Total	173	42	215
Owner_led	***No***	144	37	181
	Yes	75	5	80
	Total	219	42	216

Table 5. Descriptive statistics for interval-scaled variables

					Instruments				
	Size	***Environmental uncertainty***	***Age***	***Function "Control"***	***Planning and budgeting***	***Risk control***	***Strategic planning***	***Prognosis***	***Scenario planning***
N	217	193	261	218	209	203	209	212	203
Mean	7992.63	2.83	59.22	3.96	4.42	2.84	3.48	3.87	2.53
Media	375	3	46	4	5	3	4	4	2
Std. dev.	50870.68	0.93	51.02	0.93	0.86	1.34	1.21	1.13	1.24
Min	4	1	1	1	1	1	1	1	1
Max	572800	5	259	5	5	5	5	5	5

5.2. Test results

5.2.1. Hypothesis 1 (H1)

The first hypothesis (*H1*) tests the effects of family firm (*H1a*) and owner-led firms (*H1b*) on the control function of management accounting and control. Table 7 depicts the results.

Table 6. Correlations between variables

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1. Family_firm	1	0.370	-0.232	0.167	0.148	0.134	0.199	0.050	-0.544	0.060	0.173	0.083	0.034	0.160
2. Owner_led		1	-0.148	0.136	0.138	0.049	0.102	0.070	-0.588	-.258	0.068	0.005	0.216	-0.555
3. zF_control			1	0.078	0.035	0.048	0.041	0.167	0.081	-0.012	-0.049	-0.047	-0.017	-0.073
4. zInstr_planning_budgeting				1	0.237	0.215	0.458	0.257	-0.152	0.002	0.086	0.080	0.061	-0.084
5. zInstr_riskcon					1	0.277	0.382	0.441	-0.086	-0.015	0.160	-0.084	0.043	-0.168
6. zInstr_strategicplanning						1	0.391	0.275	-0.105	0.123	0.093	-0.082	0.074	-0.062
7. zInstr_prognosis							1	0.462	-0.161	0.047	0.148	-0.045	0.094	-0.084
8. zInstr_scenario								1	0.029	0.088	0.063	-0.094	0.142	0.084
9. Integration_risk									1	0.005	-0.161	-0.189	-0.100	-0.105
10. Strategy										1	0.105	0.0027	0.001	-0.316
11. zSize											1	0.063	0.004	-0.062
12. zEnvironmental_uncertainty												1	0.140	0.018
13. zAge													1	-0.109
14. Industry														1

Note: Depending on the type of variable, the table reports Pearson correlation coefficients, point biserial correlation coefficients, and Yule's Q respectively. The correlations indicate that instruments correlate significantly with each other; this supports our choice of using multilevel modeling with repeated measurement design.

Table 7. Regression results for H1: Effect on control function

H1a; *DV = zF_Control, IV = Family_firm,* ***Control variables:*** *Strategy, Size, Envirionmental uncernainty, Age, Industry*												
Model fit:	Adjuster R^2:	0.024	F:	1.710	p-value:	0.000122						
Coefficients												
Model	*Unstandardized coefficients*		*Standardized coefficients*			*95% confidence interval for B*		*Correlations*			*Collinearity statistics*	
	B	***Std. error***	***Beta***	***t***	***Sig.***	***Lower bound***	***Upper bound***	***Zero-order***	***Partial***	***Part***	***Tolerance***	***VIF***
(Constant)	-0.322	0.142		-2.272	0.024	-0.602	-0.042					
Family_firm	0.453	0.157	0.223	2.894	0.004	0.144	0.762	0.232	0.219	0.218	0.956	1.046
Strategy	0.026	0.162	0.012	0.162	0.872	-0.294	0.347	0.012	0.013	0.012	0.968	1.033
zSize	-0.011	0.077	-0.011	-0.142	0.887	-0.163	0.141	-0.049	-0.011	-0.011	0.954	1.049
zEnvironmental_uncertainty	-0.025	0.076	-0.025	-0.327	0.744	-0.176	0.126	-0.047	-0.025	-0.025	0.970	1.031
zAge	-0.012	0.077	-0.012	-0.157	0.876	-0.163	0.139	-0.017	-0.012	-0.012	0.966	1.035
Industry	0.124	0.162	0.059	0.769	0.443	-0.195	0.443	0.073	0.060	0.058	0.954	1.048
H1b; *DV = zF_Control, IV = Owner_led,* ***Control variables:*** *Strategy, Size, Envirionmental uncernainty, Age, Industry*												
Model fit:	Adjuster R^2:	0.005	F:	1.152	p-value:	0.000335						
Coefficients[a]												
Model	*Unstandardized coefficients*		*Standardized coefficients*			*95% confidence interval for B*		*Correlations*			*Collinearity statistics*	
	B	***Std. error***	***Beta***	***t***	***Sig.***	***Lower bound***	***Upper bound***	***Zero-order***	***Partial***	***Part***	***Tolerance***	***VIF***
(Constant)	-0.240	0.136		-1.767	0.079	-0.508	0.028					
Owner_led	0.394	0.175	0.182	2.250	0.026	0.048	0.740	0.148	0.172	0.171	0.884	1.131
Strategy	0.088	0.165	0.042	0.534	0.594	-0.238	0.415	0.012	0.041	0.041	0.949	1.053
zSize	-0.037	0.077	-0.037	-0.483	0.630	-0.189	0.115	-0.049	-0.037	-0.037	0.978	1.023
zEnvironmental_uncertainty	-0.043	0.077	-0.043	-0.555	0.580	-0.195	0.109	-0.047	-0.043	-0.042	0.974	1.027
zAge	0.015	0.079	0.015	0.195	0.845	-0.140	0.171	-0.017	0.015	0.015	0.930	1.076
Industry	0.258	0.167	0.123	1.544	0.124	-0.072	0.588	0.073	0.119	0.117	0.907	1.102

We see in both regressions significant and positive coefficients for *Family_Firm* (0.453 standard deviations) and *Owner_led* (0.394 standard deviations). Therefore, both variables are associated with a stronger focus on the control function of management accounting and control. The effect of family firm seems to be a bit stronger. *Industry* shows a small effect (0.258 SD) in the second regression.

5.2.2. Hypothesis 2 (H2)

The second hypothesis (*H2*) concerns the effect of family firm (*H2a*) and owner-led (*H2b*) on management accounting instruments related to planning, risk, and strategic analysis. As mentioned in Section 3 and supported by the correlational analysis (Table 6), the analysis is based on a multilevel model with repeated measurement. The effect of independent variables is modelled as so-called cross-level interactions under the assumption that independent variables are only linked to level 2 (respondents) directly and we aim to analyze a possible effect of an independent variable on any of five management accounting instruments (level 1).

The results support in general *H2*: Family firms use fewer instruments linked to formal strategic planning and risk evaluation.

Table 8. Regression results for H2: Effect on management accounting instruments

H2a: Effect of Family_firm on instruments					
		Coefficient	*95% confidence interval*		
Effect of…	On dependent variable…	***In Std. dev.***	***Lower bound***	***Upper bound***	***p-value***
Family_firm	Instr_planning_budgeting	-0.328	-0.668	0.011	0.058
	Instr_riskcon	-0.154	-0.470	0.163	0.339
	Instr_strategicplanning	-0.197	0.304	-0.575	0.006
	Instr_prognosis	-0.386	-0.705	-0.067	0.018
	Instr_scenario	0.052	-0.272	0.376	0.752
Selected effects of control variables (if coefficient is > 0.2 SD or < -0.2 SD)					
Effect of…	On dependent variable…				
Strategy					
Prospector/analyzer	Instr_strategicplanning	0.289	-0.021	0.598	0.067
Industry = yes	Instr_riskcon	0.344	0.036	0.651	0.029
H2b: Effect of Owner_led on instruments					
		Coefficient	*95% confidence interval*		
Effect of…	On dependent variable…	***In Std. dev.***	***Lower bound***	***Upper bound***	***p-value***
Owner_led	Instr_planning_budgeting	-0.337	-0.753	0.079	0.112
	Instr_riskcon	-0.338	-0.721	0.045	0.083
	Instr_strategicplanning	-0.197	-0.575	0.180	0.304
	Instr_prognosis	-0.327	-0.721	0.066	0.103
	Instr_scenario	-0.126	-0.523	0.272	0.534
Selected effects of control variables (if coefficient is > 0.2 SD or < -0.2 SD)					
Effect of…	On dependent variable…				
Industry = yes	Instr_riskcon	-0.346	-0.651	-0.041	0.026

Note: Results of all cross-level interaction on request from the authors.

5.2.3. Hypothesis 3 (H3)

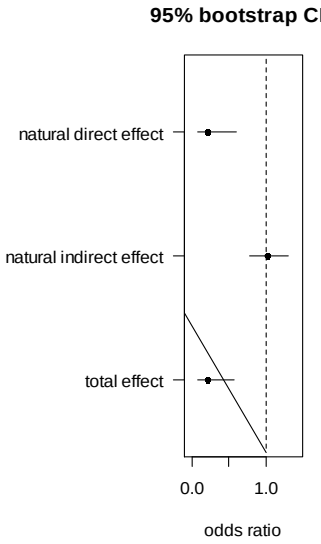
Given the effect of family firms and owner-led on the function "control" the latter functions as a mediator (see also conceptual model and Figure 1, *H1*). A mediated logistic regression with *Family_firm* as an independent variable, *zF_Control* as a mediator, and *Risk integration* as dependent variable results in the following (testing *H3a*).

Table 9. Mediated logistic regression for H3a

H3a: Logistic regression y = Integration_risk with a mediator = zF_Control							
						95% Confidence interval	
Variable	***Odds ratio***	***B***	***Std. error***	***Wald z***	***p-value***	***Lower bound***	***Upper bound***
Family_firm direct effect	0.204	-1.590	0.521	-3.050	0.002	0.080	0.618
Family_firm indirect effect	1.022	0.022	0.131	0.165	0.869	0.775	1.298
zSize	1.167	0.154	6.294	0.025	0.980	0.000	15975
Strategy	0.834	-0.182	0.502	-0.362	0.717	0.000	2.257
zEnvironmental_uncertainty	1.462	0.380	0.256	1.486	0.137	0.815	2.366
Industry	0.508	-0.677	0.537	-1.261	0.207	0.176	1.425
zAge	1.126	0.119	0.265	0.449	0.653	0.654	1.970

Family_firm 01 = direct effect, *Family_firm* 11 = indirect effect. Here, only the direct effect is of interest. Given the structure of the model and the procedure of testing, we have reasons to assume that this is a causal effect. *Family_firm* reduces the odds of integrating risk into planning significantly.

Figure 2. Direct and indirect effects for H3a

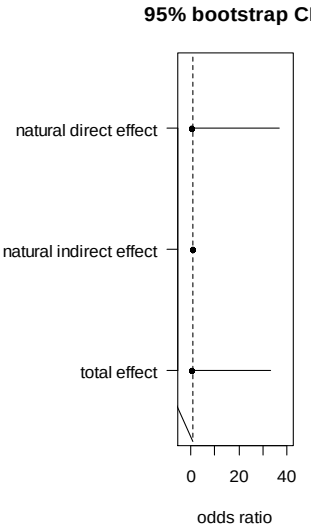


A similar test for *Owner_led* as an independent variable (*H3b*) gives the following results. In contrast to *Family_firm*, the variable *Owner_led* exerts a smaller effect on risk integration. Odds ratio = 0.6 compared to 0.2 for *Family_firm*.

Table 10. Mediated logistic regression for H3b

H3b: Logistic regression y = Integration_risk with mediator = zF_Control							
						95% Confidence interval	
Variable	***Odds ratio***	***B***	***Std. error***	***Wald z***	***p-value***	***Lower bound***	***Upper bound***
Owner_led direct effect	0.594	-0.521	1.950	-0.267	0.789	0.080	0.618
Owner_led indirect effect	0.954	-0.047	0.113	-0.416	0.677	0.775	1.298
zSize	1.297	0.260	4.757	0.055	0.956	0.000	15975
Strategy	0.875	-0.133	0.514	-0.259	0.796	0.302	2.257
zEnvironmental_uncertainty	1.467	0.383	0.247	1.549	0.121	0.815	2.367
Industry	0.478	-0.737	0.523	-1.411	0.158	0.176	1.425
zAge	1.164	0.152	0.234	0.650	0.516	0.654	1.970

Figure 3. Direct and indirect effects for H3b



5.2.4. Hypothesis 4 (H4)

As hypothesized, firm size might interfere with the effects of "familyness" as far as larger firms may lead to larger requirements for considering risk aspects in planning and budgeting.

Firm size functions as a moderator in the statistical model for *H4*.

Table 11. Interaction effects for H4

H4a: Interaction effect of Family_firm and Size with risk integration								
Log-likelihood -2LL = 144.233							*95% C.I. for EXP (B)*	
	B	***S.E.***	***Wald***	***df***	***Sig.***	***EXP (B)***	***Lower***	***Upper***
Family_firm(1)	1.825	3.846	0.225	1	0.635	6.200	0.003	11634.789
Strategy(1)	0.180	0.451	0.160	1	0.690	1.197	0.495	2.896
Industry(1)	0.670	0.464	2.088	1	0.148	1.954	0.788	4.849
Family_and_Size	-1.766	26.362	0.004	1	0.947	0.171	0.000	4.71E + 21
zSize	0.154	0.155	0.981	1	0.322	1.166	0.860	1.581
zEnvironmental_uncertainty	0.380	0.216	3.092	1	0.079	1.462	0.957	2.234
zAlter	0.119	0.223	0.283	1	0.595	1.126	0.727	1.744
Constant	-3.041	3.795	0.642	1	0.423	0.048		
H4b: Interaction effect of Owner_led and Size with risk integration								
Log-likelihood -2LL = 158.190							*95% C.I. for EXP (B)*	
	B	***S.E.***	***Wald***	***df***	***Sig.***	***EXP (B)***	***Lower***	***Upper***
Strategy(1)	0.116	0.433	0.071	1	0.790	1.122	0.481	2.622
Industry(1)	0.738	0.432	2.921	1	0.087	2.091	0.897	4.871
zSize	0.261	0.163	2.586	1	0.108	1.299	0.944	1.786
zEnvironmental_uncertainty	0.390	0.207	3.550	1	0.060	1.477	0.984	2.215
zAlter	0.131	0.205	0.412	1	0.521	1.140	0.764	1.703
Owner_led(1)	-1.779	9.413	0.036	1	0.850	0.169	0.000	1.74E + 07
Owner_led_and_Size	16.050	62.668	0.066	1	0.798	9.34E + 06	0.000	2.06E + 60
Constant	-0.137	9.401	0.000	1	0.988	0.872		

The results of regressions 4a and 4b do not support this hypothesis. An interaction effect of size and "familyness" is not apparent in the data.

6. CONCLUSION

The aim of this paper was to show possible differences in the consideration of risk aspects in management accounting, planning, and budgeting in family businesses and, in particular, to differentiate between family businesses and non-family businesses.

In comparison to the PwC (2011a) study, which assumes that 70 percent of companies map risks in planning and budgeting, this contribution shows a share of only about 16 percent.

An interesting area of conflict can be constructed from the various hypothesis tests of this study and the available literature. Various contributions, such as those by Hiebl (2012, 2014), postulate that family businesses are generally more risk-averse than non-family businesses, while the results of our study show that this may be the case for the orientation as such, but is not reflected in management accounting, planning, and budgeting: family businesses understand management accounting more as control, use instruments at the interface between risiko and strategic planning less frequently, and integrate risk aspects less frequently in planning and budgeting.

Interestingly, however, there are few differences between family businesses in the broad definition and owner-managed businesses in the narrower definition. Especially the last aspect still needs to be researched qualitatively. On the other hand, the interaction effects we postulated are not obvious.

Thus, it does indeed appear that family businesses deal with risks in planning and budgeting differently from non-family businesses. Why is this so? Actually, one would think that family businesses are more risk-averse due to their long-term orientation. At the same time, however, they do too little at the instrumental level to prepare for possible scenarios in the future. SEW postulates here that they are aware of this, but that the emotional position in the network is more important than the survival of the company. It could also be that family businesses protect themselves through other, less formal mechanisms such as trust. In this contribution not discussed, but in the study also raised subjective performance (satisfaction) and objective performance (key figures). Since there is little difference in success between companies with highly formalized and less formalized risk integration management, it is assumed that latent, unrecorded variables have an influence here. This must be investigated in qualitative follow-up studies. Due to the use of a single-item scale with five-level Likert scales or a 0/1 scale for integration, little can be said about the use of the instruments in practice, and the perceived uncertainty of the environment has only been determined approximately through the sector affiliation.

Further research should combine different theoretical frameworks and shed light on the "how" and "why" of the relationship between understanding controlling, instruments, and risk assessment. Qualitative case and field studies, in particular, could shed light on why small and medium-sized enterprises in general and family businesses, in particular, emphasise their livelihood security, but rarely reflect existing risks in concrete formal instruments.

Our contribution is subject to several limitations: on the one hand, it is a purely quantitative analysis of German companies based on one point in time and with only one respondent per company. Even if the results do not give rise to single-informant and non-response bias, the reliability and validity of surveys should always be interpreted with caution. Subsequently, both quantitative and qualitative follow-up studies will be necessary to understand exactly why the general view of family businesses differs so strongly from the instrumental design in the contribution. Perhaps family firms sometimes use trust and culture to replace formal steering mechanisms, as already generally proposed by Simons (1994) and recently argued by Einhorn, Heinicke, and Guenther (2020). Therefore, a panel should also be established to examine whether – even if family businesses really do integrate risks into their systems less frequently – this also has a negative impact on performance and the long-term existence of the company.

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