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Enterprise Risk Management in Family Firms: Evidence from Austria and Germany

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Structured Abstract:

Purpose: Family firms are the most prevalent type of firm worldwide. Nevertheless, the existent enterprise risk management (ERM) literature is silent on the adoption of ERM in family firms. Family firms exhibit specifics likely to influence the adoption of ERM. Most importantly, they often feature lower levels of agency conflicts, which should make them less

prone to invest in mechanisms to control such problems. Consequently, we expect that family firms are less prone to invest in ERM. This paper aims to explore this basic expectation.

Design/methodology/approach: Our study is based on a survey of 430 firms from Austria and Germany.

Findings: We find that family firms show a lower adoption of ERM, especially in family firms where there is a family CEO.

Research limitations/implications: Our results suggest that future empirical ERM research should more closely analyze or at least control for family influence.

Originality/value: Our study is among the first to analyze ERM adoption in family firms.

Keywords: Family firms, family influence, family CEO, enterprise risk management (ERM)

1. Introduction

This paper provides an empirical investigation of the question of whether family firms differ from non-family firms in their implementation of enterprise risk management (ERM). To the best of our knowledge, this relationship has not been explored explicitly in the ERM or the family business literature.[1] This seems regrettable since family firms are known to account for the majority of firms and jobs in most countries worldwide (Bennedsen *et al.,* 2015; IFERA, 2003; Masulis *et al.,* 2011).

Besides their vast economic importance, family firms are broadly perceived as featuring specific characteristics, which distinguish them from non-family firms (Sirmon and Hitt, 2003). Three of these characteristics are especially important when analyzing the application of ERM. All three characteristics point to family firms being less prone to apply ERM than non-family firms. First, family firms are viewed as being subject to less severe agency conflicts since in such firms, family members often act as owners and managers at the same time (e.g., Ang *et al.,* 2000; Chua *et al.,* 2009). This fact implies that family firms endure lower risks emanating from the separation of ownership and control, especially if the CEO position is held by a member of the controlling family. Consequently, family firms, in particular those with family CEOs, can be expected to apply ERM to a lower degree than non-family firms. Second, a rich stream of the literature suggests that family firms are generally more risk-averse than their non-family counterparts (for a review, see Hiebl, 2013). This notion is backed up by evidence that family firms operate with lower levels of debt (González *et al.,* 2013), engage less often in risky ventures such as internationalization (George *et al.,* 2005), internationalize in a more cautious way (Mitter and Emprechtinger, 2016) and spend

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[1] We acknowledge that some related studies exist, which will be explored in more detail in Section 2.

less money on projects with unknown outcomes such as research and development efforts (e.g., Anderson *et al.,* 2012). Thus, family firms are often characterized in the literature as taking on lower levels of risk, which might lower the utility of ERM for them, again pointing to the less often application of ERM in family firms. Third, firms with higher family influence generally employ less and less sophisticated formal finance and accounting practices compared with non-family firms (e.g., Di Giuli *et al.,* 2011; Senftlechner and Hiebl, 2015). An often-cited reason for this is that family firms are not managed in a similarly professional way to non-family firms (e.g., Hiebl and Mayrleitner, 2017; Stewart and Hitt, 2012). Since ERM could be regarded as a professional way in which to manage risks (Bromiley *et al.,* 2015; McShane, 2018), it could be concluded that family firms show a lower usage of ERM in comparison with non-family firms.

Consequently, in this paper, we empirically test whether family firms indeed show lower levels of ERM adoption. In addition, we analyze whether ERM adoption is affected by the CEO being a family member, since the literature has shown that family influence on the firm may be stronger if a family member obtains the CEO position (e.g., Anderson and Reeb, 2003). In addition, Paape and Speklé (2012) and Henschel and Durst (2016) found owner-managed firms to be less likely to invest in risk management, which also points to the importance of analyzing the relationship between the family or non-family status of CEOs and ERM adoption.

Our findings support the notion that family firms have the above three characteristics, suggesting less adoption of ERM by family firms and especially by family firms with a family CEO. Consequently, our paper suggests that family influence significantly affects ERM

adoption, suggesting that future empirical studies of this topic need to more closely analyze or at least control for family influence.

The remainder of this paper is organized as follows. In the next section, we review the literature related to ERM adoption in family firms and small firms and develop two hypotheses. In Section 3, we present the methods we applied to analyze the impact of family influence on ERM adoption. Afterwards, we present our results and in the concluding section, we discuss the implications of our results and acknowledge the limitations of this study.

2. Literature and hypotheses

While no prior studies have explicitly focused on ERM in family firms, some related papers include hints on the application of ERM or risk management in family firms. For instance, Paape and Speklé (2012) found that owner-managed Dutch firms are less prone to invest in ERM. Similarly, the study by Henschel and Durst (2016) of small firms in China, Germany, and Scotland reveals that small owner-managed firms are less likely to utilize risk management methods. These findings from quantitative research are complemented by insights from qualitative studies suggesting that if owner-managed firms engage in risk management, they rather do so in an informal or tacit way (e.g., Gao *et al.,* 2013; Herbane, 2010; Poba-Nzaou *et al.,* 2014). For instance, Herbane (2010) noted that owner–managers may informally manage risks by keeping their eyes open for potential risks in day-to-day management. These findings match notions that, in general, owner-managed firms apply formal management practices to a lesser extent than firms not managed by owner–managers (e.g., Kelliher and Reinl, 2009; Kotey and Slade, 2005; Lavia Lopez and Hiebl, 2015; Lovata and Costigan, 2002; Richbell *et al.,* 2006). Most such research has argued that owner–

managers draw less on formal management methods because they do not want to be restricted in their entrepreneurial freedom by more formal practices (cf. Kelliher and Reinl, 2009; Mintzberg and Waters, 1982; Nordqvist and Melin, 2010). In addition, owner–managers may also lack relevant knowledge or education to implement formal management methods, such as risk management (e.g., Gao *et al.,* 2013; Lavia Lopez and Hiebl, 2015; Richbell *et al.,* 2006; Watt, 2007).

While some family firms are owner-managed, the family firm universe involves significant heterogeneity and also includes many firms that are family-owned, but not family-managed (e.g., Garcia-Castro and Casasola, 2011). Thus, we cannot generalize the above findings on owner-managed firms to family firms.

In turn, the study by Brustbauer (2016) focused on ERM in small firms. It shows that among such small firms, the ownership structure—that is, the distinction between family and non-family firms—features a significant correlation with four out of the 12 items used to assess ERM application. In these four items, family firms appear to be less likely to invest in certain aspects of ERM than non-family firms.[2] A related result was presented by Faghfouri *et al.* (2015) focusing on small and medium-sized German firms. While these authors did not mention ERM or risk management, they analyzed "formalized crisis procedures". Judging from the measurement of these procedures, they are similar to risk management procedures. Faghfouri *et al.* (2015) found that family firms are less likely to adopt formalized crisis procedures, particularly if such family firms do not have a supervisory board.

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[2] Unfortunately, Brustbauer (2016) does not disclose the four items on which family firms differed from non-family firms.

To summarize, these findings point to this paper's central hypothesis that family firms are less likely to adopt ERM. None of the papers has explicitly tackled this proposition, which is why we address this void here. However, in addition to the related empirical papers underpinning this hypothesis, the agency-theoretic view is important here. That is, family firms are often characterized as exhibiting lower agency conflicts since they less often separate the ownership from the control of the firm (Ang *et al.,* 2000; Chua *et al.,* 2009). The separation of ownership and control involves several substantial risks such as agents in control of the firm trying to expropriate the owners' wealth (e.g., Fama and Jensen, 1983). Due to the personal union of principals and agents often found in family firms, they should not exhibit such risks or only to a lower degree (Jensen and Meckling, 1976). Consequently, family firms have less need to introduce mechanisms designed to avoid or diminish such risks. ERM can be interpreted as such a mechanism (Bromiley *et al.,* 2015; McShane, 2018; McShane *et al.,* 2011; Stein and Wiedemann, 2016), which is why family firms should have lower utility from adopting it. We therefore propose:

H1: Family firms adopt ERM less often than non-family firms.

While *H1* focuses on the impact of firm type—that is, family versus non-family firms—a central position in both types of firms is the CEO position. Prior research has repeatedly found that CEOs are the most important decision makers when it comes to organizational choices (e.g., Hambrick, 2007; Hambrick and Mason, 1984; Plöckinger *et al.,* 2016). This is also true for choices regarding risk management and ERM in particular (Arena *et al.,* 2010; Lundqvist, 2015; Mat Ludin *et al.,* 2017; Pagach and Warr, 2011). Consequently, we can expect the CEO to have a substantial influence when it comes to the adoption of ERM.

The agency-theoretic reasoning presented above suggests that family firms generally incur lower agency costs. These agency costs should be especially low in firms featuring a CEO belonging to the controlling family since such family CEOs are typically recruited to avoid the separation of ownership and control (Anderson and Reeb, 2003; Villalonga and Amit, 2006). In addition, the abovementioned empirical findings that owner-managed firms are less prone to invest in ERM also support this agency-theoretic notion, since owner-managed firms can be regarded as similar to family firms run by family CEOs.[3] In summary, then, we can therefore expect firms having a family CEO to have especially low utility for ERM. Consequently, we predict:

H2: Firms with family CEOs less often adopt ERM than firms with non-family CEOs.

3. Methods

3.1 Sampling procedures

Most family firms worldwide are not listed, but privately held (e.g., Bennedsen *et al.,* 2015; Carney *et al.,* 2015; La Porta *et al.,* 1999). This fact implies that for most family firms, publicly available data are scarce or non-existent. Therefore, to research family businesses, the survey method seems most appropriate (e.g., Kellermanns and Eddleston, 2006) and this is the most common empirical research method in family business research (Benavides-Velasco *et al.,* 2013; Evert *et al.,* 2016). To test our two hypotheses and analyze the relationship

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[3] While owner-managed firms and family firms with family CEOs share the agency-theoretic aspect of the coincidence of ownership and control (cf. Paape and Speklé, 2012; Villalonga and Amit, 2006), they are not necessarily the same (cf. Schulze *et al.,* 2001). For instance, while a firm's CEO may also hold shares and the firm could thus be regarded as owner-managed, the CEO may not necessarily view the firm as a family firm (yet), since no generational succession has occurred or is even planned. It may also be the case that the owner–manager does not hold the majority of shares, in which case his or her family may not be able to exert as strong of control over the firm as in a typical family firm (cf. Chua *et al.,* 1999).

between family firm status and ERM adoption, we therefore opted for a survey approach, which is based upon an online questionnaire.

In our survey, we targeted chief financial officers (CFOs), since CFOs are portrayed in the literature as frequently bearing the responsibility for risk management at the board level (Dickinson, 2001; Hiebl *et al.,* 2013; Liebenberg and Hoyt, 2003). They are thus likely to be the most knowledgeable person in any given firm when it comes to ERM (Beasley *et al.,* 2015).[4] Targeting CFOs necessarily results in a single-respondent approach and potential common-method bias. In line with Podsakoff *et al.* (2003), we addressed this potential bias prior to conducting the survey by separating the measurement of dependent and independent variables in the questionnaire and by repeatedly communicating respondent anonymity in the invitation and reminder e-mails as well as the first page of the questionnaire. We also pre-tested our questionnaire with 10 CFOs from various industries and firm sizes, all of which fell into our survey's target group. These pre-tests delivered three results: (1) they reinforced our assumption that CFOs were knowledgeable people to answer questions on ERM; (2) they highlighted some questions that needed to be rephrased to increase comprehensibility for respondents; and (3) they indicated that our questions for the present study were well understood by respondents, but that the overall length of the questionnaire was somewhat deterring respondents. For this reason—wherever feasible—we relied on reduced scales for variable measurement or used single-item scales (see Sections 3.2–3.4).

Following this groundwork, in 2012, we addressed 21,765 companies in Austria and Germany via e-mail. These firms comprised all firms with at least 50 employees from Austria and the

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[4] One may argue that chief risk officers (CROs) are the most knowledgeable people on ERM and not CFOs. However, given that the literature on CROs suggests that not even all large listed firms have established such a position (Berry-Stölzle and Xu, 2018; Liebenberg and Hoyt, 2003), we expected few of the (smaller) firms we targeted to have established a CRO position. Hence, to allow these firms to participate in our study, we targeted CFOs, which even small firms typically recruit (e.g., Di Giuli *et al.,* 2011; Hiebl *et al.,* 2013).

German federal states of North Rhine-Westphalia and Lower Saxony that are not in the financial services industry. We excluded this industry from our survey since prior research shows that financial service firms have specific ERM usage (e.g., Berry-Stölzle and Xu, 2018; Hoyt and Liebenberg, 2011; Paape and Speklé, 2012) and family firms are rather seldom in this sector (e.g., Villalonga and Amit, 2006). Due to data security restrictions in Germany and Austria, we could only use global firm e-mail addresses such as "office@firm.de" to address potential survey participants. Despite various instructions in the e-mail invitations to forward the e-mail to the firm's CFO, we could therefore not be sure whether all invitation e-mails actually reached CFOs. Besides these initial invitations to participate in our survey, we later sent out a reminder to non-respondents. These invitation and reminder e-mails contained links to a web-based questionnaire. Note that each e-mail address was assigned an individual token key to enable us to identify and re-address non-respondents from the wave of invitation e-mails and ensure that every addressed respondent could answer our questionnaire only once.

A total of 1,204 recipients of our e-mail invitations opened the link to the web-based questionnaire. For these 1,204 recipients, we can be sure that the e-mail invitations were actually delivered. We received a total of 683 responses (296 from Austria, 387 from Germany). Of these responses, 253 had incomplete answers to the ERM questions and were excluded from the analyses. Hence, the empirical material presented below is based on a maximum of 430 survey responses. Using the 1,204 recipients of our e-mail invitations as the denominator, this translates into a satisfactory response rate of 35.7% (cf. Hiebl and Richter, 2018; van der Stede *et al.,* 2005). Further, the absolute number of responses seems sufficiently large for our statistical analyses as displayed below (cf. Speklé and Widener, 2017). We also checked the responses for potential non-response bias by comparing early

(first third) with late (last third) respondents (Armstrong and Overton, 1977), but did not find any indication of such bias.

3.2 Measuring ERM adoption

In line with our abovementioned feedback from the pre-tests, we tried to measure ERM adoption with as few questionnaire items as possible. We relied on two proxies to measure the adoption of ERM. The first proxy (ERM EXISTENCE) was a self-created question on whether the responding CFOs assessed their firm as having a formalized enterprise-wide risk management system.[5] Thus, this measure is a dummy variable that takes the value of 1 for firms with such a system and 0 for firms without such a system. While the measurement of this variable may seem crude, the in-depth interviews we conducted during our pre-tests suggested that respondents concordantly interpreted this question in line with our intention of measuring ERM adoption. In addition, this rather broad measurement of ERM adoption leaves room for covering various forms of ERM implementation. In particular, one of the distinguishing features of ERM is that it adopts a portfolio view of risks, whereas traditional risk management tends to be restricted to silo views of individual risks (McShane *et al.,* 2011). Family firms—in particular small family firms—may follow a portfolio approach to managing risks while not even knowing that they are doing so. Consequently, our broad first measurement of ERM adoption leaves room to cover such cases, too, which may not have formalized their ERM system very much, but nevertheless follow the underlying core tenets of ERM.

As a second proxy for ERM adoption, we relied on the existence of a dedicated CRO position—an ERM proxy repeatedly used by prior ERM studies (e.g., Beasley *et al.,* 2008;

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[5] We did not provide a definition of ERM in order to not lead respondents in a specific direction of ERM implementation.

Grace *et al.,* 2015; Liebenberg and Hoyt, 2003; Pagach and Warr, 2011). Consequently, we asked survey respondents whether they have established a CRO position or not. Also this variable (CRO EXISTENCE) is of dichotomous nature. It takes the value of 1 if a dedicated CRO position has been established and the value of 0 if such a position is absent.

3.3 Measuring family firm status and family CEO status

To define and thus measure family firms in empirical research, no agreed-upon approach has yet been established. Thus, a variety of definitions of family firms exists in the literature (Chua *et al.,* 1999; Evert *et al.,* 2016; Steiger *et al.,* 2015). One frequently used and holistic approach is self-evaluation (Steiger *et al.,* 2015), which leaves the question of whether their firm can be considered to be a family firm to the survey respondents themselves. We opted for this approach and consequently generated the dummy variable FAMILY FIRM.[6] This variable takes the value of 1 if the respective firm can be regarded as a family firm and the value of 0 if the firm can be regarded as a non-family firm.

Besides family firm status, we also asked respondents whether the CEO position is held by a family member. The resulting variable FAMILY CEO takes the value of 1 if the CEO position is held by a family member and the value of 0 if the CEO position is not held by a family member.

3.4 Control variables

We included in our analyses a number of control variables that have emerged from prior ERM research as potentially influencing ERM adoption. First, we included INDUSTRY as some

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[6] For most sample firms, we could also calculate the so-called substantial family influence (SFI) scores as suggested by Klein (2000). When replacing our FAMILY FIRM measure with the SFI scores, the same variables turn out to be significantly associated with our measures of ERM adoption. Thus, our findings seem to be robust to this alternative way in which to classify family firms.

studies show that ERM adoption varies between industries (e.g., Beasley *et al.,* 2005; Beasley *et al.,* 2008; Liebenberg and Hoyt, 2003; Paape and Speklé, 2012; Pagach and Warr, 2011). We distinguished between service industry firms, manufacturing industry firms, and firms from other industries. Given that our two aforementioned dependent variables are dichotomous, we rely on logistic regression analyses below. In preparation for these logistic regression analyses, we created three dummy variables, SERVICE, MANUFACTURING, and OTHER INDUSTRY, which take the value of 1 if the firm is part of the respective industry and the value of 0 if the firm is not part of the respective industry. In the logistic regression models below, OTHER INDUSTRY serves as the reference class for the SERVICE and MANUFACTURING variables.

Second, we controlled for firm size. Prior research has shown that larger firms are more likely to have adopted ERM (e.g., Farrell and Gallagher, 2015; Hoyt and Liebenberg, 2011; Paape and Speklé, 2012) and that small businesses generally have less developed risk management systems (Falkner and Hiebl, 2015). We distinguished between three size classes based on the number of employees (e.g., Brustbauer and Peters, 2013; Di Giuli *et al.,* 2011; Kellermanns and Eddleston, 2006). In preparation for the below logistic regression analyses, we created three corresponding dummy variables: 50–249 EMPLOYEES, 250–499 EMPLOYEES, and ≥500 EMPLOYEES. Similar to the industry variables, in the logistic regression models, the size class of 50–249 EMPLOYEES serves as the reference class for the two other size class variables.

Third, we controlled for past performance, which has also frequently been found to influence ERM adoption (see the review results by Bromiley *et al.,* 2015). Following prior survey-based research on family firms (e.g., Eddleston *et al.,* 2008; Kellermanns and Eddleston, 2006; Kim

and Gao, 2013), we relied on subjective performance assessments by survey participants, as most of our targeted firms were privately held and therefore objective performance measures were not available publicly. In turn, asking for objective performance measures (such as earnings or earnings ratios) in the questionnaire may have resulted in many missing answers since privately held family firms are known to be rather reluctant to disclose objective performance numbers (Dess and Robinson, 1984; Wilson *et al.,* 2014). In any case, prior studies show that subjective performance measures and objective performance measures are highly correlated (Dess and Robinson, 1984; Venkatraman and Ramanujam, 1986), which makes the usage of subjective performance measures less problematic. Similar to Kellermanns and Eddleston (2006), we asked survey participants how their firm had performed in the past three years compared with their competitors in terms of sales and earnings. For each of the two performance dimensions (sales, earnings), participants could indicate whether their firms achieved above-average performance, average performance, or below-average performance. From these survey questions, we created six dummy variables: SALES PERF ABOVE AVERAGE, SALES PERF AVERAGE, SALES PERF BELOW AVERAGE, EARNINGS PERF ABOVE AVERAGE, EARNINGS PERF AVERAGE, and EARNINGS PERF BELOW AVERAGE. In the logistic regression models, the SALES PERF AVERAGE variable serves as the reference class for SALES PERF ABOVE AVERAGE and SALES PERF BELOW AVERAGE, while the EARNINGS PERF AVERAGE variable serves as the reference class for EARNINGS PERF ABOVE AVERAGE and EARNINGS PERF BELOW AVERAGE.

Finally, we included a control variable specific to the two target countries (Austria, Germany) of our survey. Firms of some legal forms in these countries (those similar to stock corporations in the US, private limited companies or limited companies in the UK) are legally

required in Austria and Germany to implement a minimum risk management system. As this requirement may make such firms more likely to adopt ERM, we included a further dummy variable called REGULATORY RM REQUIREM. This variable takes the value of 1 for firms legally bound to implement a minimum risk management system and 0 for firms not legally bound to do so.

4. Results

Table 1 presents the descriptive results for our variables. As can be seen in this table, the proportions of family and non-family firms are roughly evenly split in our sample. Most of the firms in our sample (57.9%) can be regarded as small due to them having 50–249 employees. Considering our two dependent variables (ERM EXISTENCE, CRO EXISTENCE), it becomes evident that only a minority of sampled firms (38.4%) have adopted ERM, while an even smaller minority (8.9%) have a dedicated CRO.

Table 2 presents the correlations between the variables included in this study. Several significant correlations can be observed. However, only a few fall into or come close to the critical range of 0.6–0.8, which may indicate multicollinearity (Grewal *et al.,* 2004; Tabachnick and Fidell, 2007). These technically high levels of collinearity are due to variable construction. For instance, it seems logical that 50–249 EMPLOYEES and ≥500 EMPLOYEES are correlated highly negatively, since any given sample firm cannot belong to both size classes. The same is true for the technically high levels of collinearity between SALES PERF ABOVE AVERAGE and SALES PERF AVERAGE and between EARNINGS PERF ABOVE AVERAGE and EARNINGS PERF AVERAGE. Thus, information from the

correlations matrix does not seem to preclude the validity of the regression models presented below.

Our regression results are presented in Tables 3 and 4, which comprise six regression models. Table 3 encompasses three logistic regression models to explain ERM EXISTENCE. Model 1 is our baseline model and only includes the control variables as independent variables. The only control variable appearing to have a significant impact on ERM EXISTENCE is ≥500 EMPLOYEES. Thus, from this model, large firms with at least 500 employees appear to be more likely to have adopted ERM than smaller firms. Besides the control variables, Model 2 incorporates the FAMILY FIRM variable. In addition to the variable ≥500 EMPLOYEES, FAMILY FIRM also appears to significantly influence ERM EXISTENCE according to this model. As the effect size is relatively large and carries a negative algebraic sign, the model suggests that family firms are more likely than non-family firms *not* to have adopted ERM and thus lends support to *H1*. Finally, besides the mentioned variables, Model 3 adds FAMILY CEO as a potential independent variable. This model presents evidence that in addition to FAMILY FIRM, FAMILY CEO shows a significant and negative effect on ERM EXISTENCE. This result confirms *H2* and suggests that firms with a family CEO are less likely to have adopted ERM than firms with a non-family CEO.

Table 1. Descriptives

Variable	Categories	Frequency (valid)		Valid cases
		Absolute	Relative	
ERM EXISTENCE	0 = no	265	61.6%	430
	1 = yes	165	38.4%	
CRO EXISTENCE	0 = no	388	91.1%	426
	1 = yes	38	8.9%	
FAMILY FIRM	0 = non-family firm	228	53.0%	430
	1 = family firm	202	47.0%	
FAMILY CEO	0 = non-family CEO	227	57.3%	396
	1 = family CEO	169	42.7%	
SERVICE	0 = non-service industry firm	322	74.9%	430
	1 = service industry firm	108	25.1%	
MANUFACTURING	0 = non-manufacturing industry firm	196	45.6%	430
	1 = manufacturing industry firm	234	54.4%	
OTHER INDUSTRY	0 = service or manufacturing industry firm	304	70.7%	430
	1 = other industry firm	126	29.3%	
50–249 EMPLOYEES	0 = firm with more than 249 employees	181	42.1%	430
	1 = firm with 50–249 employees	249	57.9%	
250–499 EMPLOYEES	0 = firm with fewer than 250 or more than 499 employees	345	80.2%	430
	1 = firm with 250–499 employees	85	19.8%	
≥500 EMPLOYEES	0 = firm with fewer than 500 employees	334	77.7%	430
	1 = firm with 500 employees or more	96	22.3%	
SALES PERF ABOVE AVERAGE	0 = firm showing average or below-average sales performance	163	44.2%	369
	1 = firm showing above-average sales performance	206	55.8%	
SALES PERF AVERAGE	0 = firm showing above or below-average sales performance	226	61.2%	369
	1 = firm showing average sales performance	143	38.8%	
SALES PERF BELOW AVERAGE	0 = firm showing average or above-average sales performance	349	94.6%	369
	1 = firm showing below-average sales performance	20	5.4%	
EARNINGS PERF ABOVE AVERAGE	0 = firm showing average or below-average earnings performance	183	49.9%	367
	1 = firm showing above-average earnings performance	184	50.1%	
EARNINGS PERF AVERAGE	0 = firm showing above or below-average earnings performance	222	60.5%	367
	1 = firm showing average earnings performance	145	39.5%	
EARNINGS PERF BELOW AVERAGE	0 = firm showing average or above-average earnings performance	329	89.6%	367
	1 = firm showing below-average earnings performance	38	10.4%	
REGULATORY RM REQUIREM	0 = no	112	26.0%	430
	1 = yes	318	74.0%	

Table 2. Correlations

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. ERM EXISTENCE	1																
2. CRO EXISTENCE	0.402 ***	1															
3. SERVICE	-0.027 n.s.	-0.067 *	1														
4. MANUFACTURING	0.065 *	0.079 *	-0.530 ***	1													
5. OTHER INDUSTRY	-0.046 n.s.	-0.022 n.s.	-0.373 ***	-0.589 ***	1												
6. 50–249 EMPLOYEES	-0.141 ***	-0.116 ***	-0.017 n.s.	-0.109 **	0.135 ***	1											
7. 250–499 EMPLOYEES	0.029 n.s.	-0.074 *	0.022 n.s.	-0.009 n.s.	-0.012 n.s.	-0.582 ***	1										
8. ≥500 EMPLOYEES	0.140 ***	0.208 ***	-0.001 n.s.	0.137 ***	-0.149 ***	-0.629 ***	-0.266 ***	1									
9. SALES PERF ABOVE AVERAGE	-0.053 n.s.	0.027 n.s.	-0.098 **	0.067 n.s.	0.019 n.s.	-0.047 n.s.	0.015 n.s.	0.040 n.s.	1								
10. SALES PERF AVERAGE	0.033 n.s.	-0.011 n.s.	0.098 **	-0.088 **	0.005 n.s.	0.041 n.s.	-0.029 n.s.	-0.021 n.s.	-0.894 ***	1							
11. SALES PERF BELOW AVERAGE	0.046 n.s.	-0.037 n.s.	0.005 n.s.	0.043 n.s.	-0.051 n.s.	0.015 n.s.	0.028 n.s.	-0.044 n.s.	-0.269 ***	-0.190 ***	1						
12. EARNINGS PERF ABOVE AVERAGE	-0.030 n.s.	-0.019 n.s.	-0.040 n.s.	0.063 n.s.	-0.032 n.s.	-0.009 n.s.	0.012 n.s.	-0.001 n.s.	0.537 ***	-0.457 ***	-0.193 ***	1					
13. EARNINGS PERF AVERAGE	0.027 n.s.	-0.023 n.s.	0.055 n.s.	-0.091 **	0.048 n.s.	0.027 n.s.	-0.003 n.s.	-0.029 n.s.	-0.411 ***	0.452 ***	-0.072 *	-0.810 ***	1				
14. EARNINGS PERF BELOW AVERAGE	0.007 n.s.	0.068 *	-0.023 n.s.	0.043 n.s.	-0.025 n.s.	-0.030 n.s.	-0.015 n.s.	0.049 n.s.	-0.221 ***	0.024 n.s.	0.430 ***	-0.341 ***	-0.275 ***	1			
15. REGULATORY RM REQUIREM	0.032 n.s.	0.019 n.s.	-0.011 n.s.	0.160 ***	-0.165 ***	-0.087 **	0.055 n.s.	0.051 n.s.	-0.016 n.s.	0.025 n.s.	-0.019 n.s.	-0.011 n.s.	0.034 n.s.	-0.037 n.s.	1		
16. FAMILY FIRM	-0.225 ***	-0.177 ***	-0.180 ***	0.112 n.s.	0.049 n.s.	0.057 n.s.	-0.023 n.s.	-0.046 n.s.	0.035 n.s.	-0.040 n.s.	0.010 n.s.	0.036 n.s.	-0.044 n.s.	0.012 n.s.	-0.153 ***	1	
17. FAMILY CEO	-0.261 ***	-0.228 ***	-0.058 n.s.	0.061 n.s.	-0.009 n.s.	0.054 n.s.	-0.035 n.s.	-0.031 n.s.	-0.020 n.s.	-0.009 n.s.	0.061 n.s.	-0.040 n.s.	-0.013 n.s.	0.085 *	-0,152 ***	0.819 ***	1

Levels of significance (one-sided): * $p < 0.10$;   ** $p < 0.05$;   *** $p < 0.01$;   n.s. not significant

Table 3. Logistic regression models to explain ERM EXISTENCE

Independents	Reference class	Model 1: Controls			Model 2: Family Firm			Model 3: Family Firms & Family CEO		
	Dependents	ERM EXISTENCE			ERM EXISTENCE			ERM EXISTENCE		
		β coeff.	exp(β)	p value	β coeff.	exp(β)	p value	β coeff.	exp(β)	p value
SERVICE	OTHER INDUSTRY	-0.068	0.934	0.823	-0.223	0.800	0.483	-0.113	0.893	0.734
MANUFACTURING	OTHER INDUSTRY	0.087	1.091	0.742	0.199	1.220	0.471	0.231	1.260	0.438
250–499 EMPLOYEES	50–249 EMPLOYEES	0.363	1.438	0.193	0.335	1.398	0.251	0.373	1.452	0.226
≥500 EMPLOYEES	50–249 EMPLOYEES	0.823	2.277	0.002***	0.839	2.315	0.003***	0.862	2.368	0.004***
SALES PERF ABOVE AVERAGE	SALES PERF AVERAGE	-0.201	0.818	0.451	-0.224	0.799	0.421	-0.385	0.681	0.201
SALES PERF BELOW AVERAGE	SALES PERF AVERAGE	0.449	1.567	0.399	0.499	1.648	0.378	0.437	1.548	0.458
EARNINGS PERF ABOVE AVERAGE	EARNINGS PERF AVERAGE	-0.026	0.974	0.922	0.023	1.023	0.934	0.159	1.172	0.604
EARNINGS PERF BELOW AVERAGE	EARNINGS PERF AVERAGE	-0.238	0.788	0.565	-0.227	0.797	0.601	0.107	1.113	0.817
REGULATORY ERM REQUIREM	no regulatory ERM requirements	-0.026	0.974	0.918	-0.245	0.782	0.356	-0.365	0.694	0.196
FAMILY FIRM	non-family firm				-1.253	0.286	0.000***	-0.729	0.482	0.082*
FAMILY CEO	non-family CEO							-0.885	0.413	0.034**
Constant		-0.518	0.596	0.091*	0.183	1.201	0.594	0.278	1.320	0.444
Model fit										
Cox & Snell Pseudo-R^2			0.031			0.108			0.137	
Nagelkerkes Pseudo-R^2			0.042			0.145			0.185	
Valid Cases			364			364			334	

Levels of significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 4. Logistic regression models to explain CRO EXISTENCE

Independents	Dependents	Model 4: Controls			Model 5: Family Firm			Model 6: Family Firm & Family CEO		
	Reference class	CRO EXISTENCE			CRO EXISTENCE			CRO EXISTENCE		
		β coeff.	exp(β)	p value	β coeff.	exp(β)	p value	β coeff.	exp(β)	p value
SERVICE	OTHER INDUSTRY	-0.707	0.493	0.232	-0.973	0.378	0.113	-0.936	0.392	0.135
MANUFACTURING	OTHER INDUSTRY	0.043	1.043	0.922	0.209	1.233	0.645	0.086	1.089	0.861
250–499 EMPLOYEES	50–249 EMPLOYEES	-0.236	0.789	0.688	-0.295	0.745	0.622	-0.648	0.523	0.341
≥500 EMPLOYEES	50–249 EMPLOYEES	1.242	3.463	0.002***	1.309	3.703	0.002***	1.105	3.020	0.016**
SALES PERF ABOVE AVERAGE	SALES PERF AVERAGE	0.216	1.242	0.626	0.174	1.190	0.716	0.179	1.196	0.734
SALES PERF BELOW AVERAGE	SALES PERF AVERAGE	-1075	0.341	0.349	-1.466	0.231	0.226	-1.639	0.194	0.195
EARNINGS PERF ABOVE AVERAGE	EARNINGS PERF AVERAGE	-0.247	0.781	0.587	-0.181	0.834	0.709	-0.517	0.596	0.338
EARNINGS PERF BELOW AVERAGE	EARNINGS PERF AVERAGE	0.731	2.077	0.215	0.814	2.257	0.200	1.135	3.112	0.105
REGULATORY ERM REQUIREM	no regulatory ERM requirements	0.015	1.015	0.972	-0.231	0.794	0.605	-0.562	0.570	0.238
FAMILY FIRM	non-family firm				-1.903	0.149	0.000***	-1.514	0.220	0.147
FAMILY CEO	non-family CEO							-1.717	0.180	0.105
Constant		-2.566	0.077	0.000***	-1.812	0.163	0.002***	-1.195	0.303	0.040**
Model fit										
Cox & Snell Pseudo-R^2			0.049			0.099			0.129	
Nagelkerkes Pseudo-R^2			0.104			0.211			0.280	
Valid Cases			364			364			334	

Levels of significance: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

The second set of logistic regression models (Models 4–6) are presented in Table 4 and aim to explain CRO EXISTENCE. Again, in the first of these models (Model 4), only the control variables are included. Similar to Model 1, Model 4 also shows that firms with 500 employees and more are more likely to have established a CRO position than smaller firms. Model 5 reinforces *H1* and the findings from Model 2 by showing that family firms are significantly less likely to have established a CRO position than non-family firms. Finally, Model 6 incorporates the FAMILY CEO variable. From this variable, the effects of FAMILY FIRM and FAMILY CEO on CRO EXISTENCE appear negative, but carry a probability of error that exceeds our set levels of significance. Thus, while these effects are not statistically significant, *H2* receives some support since firms with a family CEO appear to be less likely to have established a CRO position.

5. Discussion and conclusions

Based on related empirical findings and agency theory, we suggested that family firms are less likely than non-family firms to have adopted ERM. In addition, we theorized that firms with a family CEO show a lower probability of having adopted ERM. Overall, our findings lend support to these expectations and indicate that family firms and firms with a family CEO show significantly lower application rates of ERM compared with non-family firms and firms with a non-family CEO. Although not statistically significant, these findings can also be found when analyzing the existence of a CRO position as the dependent variable.

From the viewpoint of agency theory, these findings lend support to the notion that family firms and firms with family CEOs exhibit lower agency costs and may thus be less prone to adopt agency control mechanisms such as ERM. Our findings also corroborate prior empirical

findings showing that owner-managed firms have a lower utilization of ERM and traditional risk management (Henschel and Durst, 2016; Paape and Speklé, 2012) and related findings indicating that family firms may be more reluctant than non-family firms to adopt formalized risk management (Brustbauer, 2016) and crisis prevention mechanisms (Faghfouri *et al.,* 2015). We extend this line of research by showing that family firms more generally show lower levels of ERM adoption.

Our findings do not necessarily indicate that family firm managers fall short against their non-family firm counterparts, as we did not find significant associations between ERM adoption and firm performance. They rather suggest that family firm performance is not harmed by not having implemented ERM. This finding applied to both small and large firms in our sample. While this signals that small family firms, especially, may not necessarily receive net benefits from the application of formal ERM methods, the significant association of firm size with our two ERM measures indicates that when family firms grow, they increasingly adopt ERM. In addition, our findings on the FAMILY CEO variable can be interpreted as showing that when family firms hire *non*-family CEOs, the adoption of ERM may follow. Consequently, family firm owners could learn from our study that when their firms grow and they increasingly hire non-family executives, they can expect that more formalized practices such as ERM are likely to follow. Such higher reliance on ERM may then also be profitable for the growing family firm, since the findings on large firms show that firms that have adopted ERM perform better (Gordon *et al.,* 2009; Grace *et al.,* 2015), are valued higher (Farrell and Gallagher, 2015), and have lower costs of capital (Berry-Stölzle and Xu, 2018). Thus, large family firms that have not implemented ERM could be missing an opportunity to create value. Consequently, from a practical perspective, a better understanding of why some large family firms are reluctant to apply ERM and how this reluctance may be overcome also seems valuable.

In this regard, it may be necessary to draw on alternative framings of risk and risk management. Many family firms and their controlling families show high levels of entrepreneurship (e.g., Naldi *et al.,* 2007; Short *et al.,* 2009; Zellweger *et al.,* 2012). For entrepreneurs, "risk" may have quite different meanings than for salaried managers, as research has demonstrated (Brockhaus, 1980; Brustbauer, 2016; Janney and Dess, 2006). For instance, Janney and Dess (2006) argued that entrepreneurs often "tiptoe" into new markets, initially allocating few cash resources to such ventures.[7] Such "tiptoeing" can create valuable knowledge about new markets, reducing the risk of succeeding and heavier investments. In contrast, firms led by salaried managers often show less "tiptoeing," as managers instead try to fully foresee the risks and results of investing in new markets (Janney and Dess, 2006). This latter pattern of behavior is often supported by sophisticated means of risk management. Consequently, we believe that it would be relevant for future research to analyze whether more sophisticated measures of ERM adoption (as suggested, for instance, by Bromiley *et al.,* 2015) can capture the specific aspects of ERM in family firms in the first place—especially in family firms that show high levels of entrepreneurship. That is, we believe it would be interesting to examine the extent to which family firms and small firms show distinct holistic approaches to risk management. Alternatively, it would be interesting to examine to what extent typical ERM approaches can be scaled to suit family firms and small firms and to investigate how such scaled ERM approaches differ from ERM applications in large firms.

For future research more generally, our findings hold two implications. First, while we have presented some potential reasoning for our main finding that family firms are less likely than non-family firms to adopt ERM, we call for a corroboration of this reasoning by more in-

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[7] While Janney and Dess (2006) describe "tiptoeing," others have framed such behavior as "effectuation" (e.g., Chandler, 2015; Sarasvathy, 2001). Decision-making based on effectuation may help explain the adoption and usage of formal risk management procedures, such as ERM, since related research has found that firms leaning towards effectuation show less adoption of formal practices of finance and accounting (Mitter and Hiebl, 2017).

depth studies of *why* family firms are more reluctant than non-family firms to adopt ERM. Second, since our findings indicate that family influence significantly impacts on ERM adoption, future studies of ERM adoption need to better incorporate family influence in their empirical analyses. Prior large-scale empirical studies of ERM adoption have largely ignored family influence. Our findings imply that future studies need at least to control for family influence and/or firms' status as a family or a non-family firm.

Of course, our study is not free from limitations. First, as indicated in the Methods section, the survey method may be considered to be a limitation due to potential biases such as common-method bias and non-response bias. While we tried to prevent these biases from materializing in our study, like any other survey study, we cannot be sure that our findings are free from them. Given our focus on family firms, however, the survey method still seems to be the most feasible way of gathering large-scale evidence on the specifics of family firms (Benavides-Velasco *et al.,* 2013; Evert *et al.,* 2016; Kellermanns and Eddleston, 2006). Second, some of our measures may seem crude. Following the feedback from our pre-tests, such measurement was necessary to create a meaningful sample size for data analysis since potential survey respondents may shy away from answering questionnaires with several multi-item measures due to significantly more time being needed. Nevertheless, to gain a deeper understanding of *how* family firms are specific in their adoption of ERM, we call for further research drawing on more sophisticated measurements of ERM adoption such as the ones summarized in Bromiley *et al.* (2015). In addition, as discussed above, future research may need to develop and test alternative framings and measurements of holistic risk management in family and entrepreneurial firms. Finally, our data stem from one specific region. Given that Germany and Austria may be considered to be very much bank-based economies (Ampenberger *et al.,* 2013) and lenders of debt capital such as banks may influence the adoption of professional

management practices such as ERM (e.g., Chirinko and Elston, 2006), our findings are not readily generalizable to other environments. Thus, our findings need replication, especially in economies that are more equity-based such as the US and the UK.

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