

# THE USE OF MANAGEMENT ACCOUNTING IN WESTERN AUSTRIAN FAMILY BUSINESSES: AN EMPIRICAL ANALYSIS

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## Abstract

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Within the scope of this study, western Austrian companies were analysed for the use of management accounting (MA). From the sample of 692 family enterprises in western Austria, relevant variables were collected to explain the use of MA and the differences between enterprises with and without MA were examined using logistic regression. The most important drivers for which the probability of using MA increases are the size of the company and the presence of a third-party manager. In addition, the results show that the older the management and the more likely it is to be female, the probability of using MA decreases. The results partially confirm the theoretical assumptions of the resource-based view (RBV) and the principal-agent theory (PAT). However, both approaches cannot provide a complete explanation for the use of MA, because the entanglement of family, ownership, and possessions means that other variables are relevant, which should be tested using other theory strands. The study is the first to deal with the problems faced by western Austrian family businesses. It could be confirmed that certain variables, which also had explanatory power in earlier studies, can also explain the use of MA in this study. In addition, it could be shown that gender and management training do not play a role in explaining the use of MA.

**Keywords:** Family Business, Management Accounting, Principal-Agent Theory, Resource-Based View

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## 1. INTRODUCTION

The sustainable successful management of a company has become increasingly difficult due to rapidly changing external and internal environmental conditions. These changes mean that the future prospects of companies are subject to higher dynamics, uncertainties, and volatilities, which are the main reasons for increased risks (Deimel, Ellenberger, & Molitor, 2017). This makes it all the more important for family businesses to know

what resources are available and to use them in such a way that the company's goals can be achieved and competitive advantages can be gained (McIvor, 2005, p. 44; Castaldo, 2007, p. 28). Based on Duindam and Verstegen (2000), it is relevant to examine how companies deal with scarce resources and in this context, they argue that one should analyse the possibilities in accounting and how its implementation and design can look like in order to implement and control value added, effectiveness, and efficiency.

Specifically, Andric and Kammerlander (2017a) mentioned a functioning MA (management accounting) as a basic prerequisite, so that it is possible to improve resource management, facilitate the handover process in the context of company successions, or make rational decisions. However, in practice, it is often apparent that small and medium-sized companies in particular do not use MA for corporate management (Situm, 2015, p. 16). A study by Theuermann (2014) confirms this finding to the effect that only 49% of the Austrian SMEs surveyed have a MA department. It is, therefore, not reliably possible to measure the extent to which targets have been achieved or even whether the current share price of the company deviates from this target. This is of specific importance, however, as negative deviations from targets should be identified concretely in order to enable countermeasures to be implemented (Amann & Petzold, 2014, p. 32).

It is not only important for the company itself to have a MA system. Stakeholders also have an interest in being able to determine the financial and economic situation of a company during the financial year. The common view is that companies without MA are deemed to be riskier than companies with MA (Exler & Situm, 2014). The latter have recognised the added value and the opportunities associated with MA in terms of creating transparency and trust as well as guaranteeing the company's ability to source finance in the future (Wambach & Wunderlich, 2002; Salvato & Moores, 2010; Portisch, 2013; Zirkler & Hofmann, 2015). MA can also play a special role in the context of succession, particularly in family businesses, because the transparency it enables facilitates trust between the individual partners and can also promote the process of knowledge transfer between transferor and transferee and also reduce the complexity of the succession process (Giovannoni, Maraghini, & Riccaboni, 2011; Herriau & Touchais, 2015).

Despite the relevance of MA for family businesses as described, there are still relatively few empirical studies that have analyzed the use of MA in family businesses in the German-speaking countries, as also noted by Feldbauer-Durstmüller, Wimmer, and Duller (2007). There is also a research deficit in an international context, as shown by Salvato and Moores (2010), Prencipe, Bar-Yosef, and Dekker (2014), Helsen, Lybaert, Steijvers, Orens, and Dekker (2017), and Heinicke (2018). Previous results show that firm size (Berens, Püthe, & Siemes, 2005; Deimel, 2008; Feldbauer-Durstmüller, Duller, Mayr, Neubauer, & Ulrich, 2012; Hiebl, Feldbauer-Durstmüller, & Duller, 2013) and the use of external managers (Schachner, Speckbacher, & Wentges, 2006; Deimel, 2008; Jiraporn & DaDalt, 2009; Hiebl, 2013) are the most significant variables explaining MA use. These two variables are in line with the basic considerations of the resource-based view (RBV) and principal-agent theory (PAT). Prencipe et al. (2014) point out that there are deficits in current research on the use of accounting in family businesses, which should be included in future studies. They state that a pluralistic view should be taken when using theory, which means that several theoretical paradigms should be combined. Furthermore, they point out that the influence of the family on accounting and reporting issues should be analyzed more deeply.

Therefore, the aim of the present study was to examine the use of MA in western Austrian family businesses (thus, located in Salzburg, Tyrol, and Vorarlberg) and to determine which influencing factors (clustered into contextual factors of the firm and contextual factors of the management and company culture — Davis, 2008; Mayr, 2015) favour the introduction or use of MA. As a theoretical basis, the RBV, as well as the PAT, were used in order to allow for a corresponding hypothesis formation. These are suitable approaches for a theoretical foundation of the research field (Barney, 2001; Lockett, Thompson, & Morgenstern, 2009; Priem & Butler, 2001; Prencipe et al., 2014) and were also used as a theoretical basis in earlier studies (Schachner et al., 2006; Hiebl et al., 2013).

Descriptive statistics were compiled based on 692 returned questionnaires. The logistic regression calculation was used to test the research hypotheses and answer the following research questions:

*RQ1: How prevalent is the use or dissemination of MA in western Austrian family businesses?*

*RQ2: Which factors favour the use of MA in family businesses?*

*RQ3: Which variables in the description of family businesses influence the probability of the use of MA?*

In summary, the results of this paper extend or complement the previously outlined findings and thus underpin the fundamental relevance of RBV and PAT as theoretical foundations for explaining the behavior of families and family entrepreneurs (Barney, 2001; Feldbauer-Durstmüller et al., 2012; Hiebl et al., 2013; Prencipe et al., 2014) and thus can also be applied to the research field of MA. Moreover, the results also show that linking RBV and PAT can be considered a promising combination to theoretically justify and empirically test different topic areas of family business research (Lockett et al., 2009; Arend & Lévesque, 2010; Priem & Butler, 2011).

The remainder of the paper is structured as follows. First of all, a literature review is given, in which the variables and factors are presented that determine the application of management accounting in (family) businesses. In this context, the two theoretical foundations (RBV and PAT) are also explained and, building on this, the research hypotheses developed in this work are presented in Section 2. There is a description of the research methodology, whereby, in addition to the presentation of the data basis and the variables used, the method applied is also explained in Section 3. The research results of the study including the statistical results can be found in Section 4. Section 5 contains a discussion of the research results. At the end of the paper, there is a conclusion in Section 6.

## 2. LITERATURE REVIEW

### 2.1. Current state of research: Factors affecting the use of MA

Based on the previous remarks, it is clear that there is a need for research on the use of MA in family businesses in the international environment. The results of previous studies show that there are certain factors or variables in companies that favour the existence of MA. Based on the study by Samuelsson, Andersén, Ljungkvist, and Jansson (2016), it can be concluded that there is a negative correlation between family firms and the use of formal planning supports. It appears that management accounting is generally used less

frequently by family businesses (García Pérez de Lema & Duréndez, 2007), although there are certain explanatory variables that influence the use of management accounting. Hiebl, Duller, Feldbauer-Durstmüller, and Ulrich (2015) generally state that the influence of the family (variables describing the influence of the family such as parameters of the F-PEC power dimension) have a significant influence on the use of MA.

The size of a company plays a major role in whether or not a company has a MA system in place (Quinn, Hiebl, Moores, & Craig, 2018). This insight is closely related to the resource-based approach of business administration since larger companies have more capacities and resources and can therefore afford to introduce MA (Berens et al., 2005; Rautenstrauch & Müller, 2005; Deimel, 2008; Feldbauer-Durstmüller et al., 2012; Hiebl et al., 2013). This was also found in a comprehensive literature review by Heinicke (2018), comprising an analysis of the use of performance management systems in family businesses. The existence of a MA system is strongly dependent on whether or not a company is managed by an external manager. MA is used more often if an external manager is in place (Hiebl et al., 2013; Heinicke, 2018), which is in line with the PAT. A similar result was achieved by Brück, Ludwig, and Schwering (2018), who investigated the use of value-based management. MA can be seen as a kind of monitoring system to control the actions of the external manager (Deimel, 2008; Hiebl, 2013) and to reduce agency costs (Brück et al., 2018).

Despite a possible principal-agent relationship, family managers tend to act as stewards (Chu, 2009, 2011) rather than as agents, so that a monitoring system (e.g., with financial statement figures) is not necessarily required in such cases to exert influence and control (Quinn et al., 2018; Glaum, 2020), so that family businesses have a smaller agency problem (Dal Magro, Turra, Klann, & Lemes, 2017). Further explanatory variables are a lack of experience or know-how regarding MA and management accounting (Dyer, 1989; Deimel, 2008; Andric & Kammerlander, 2017a; Sierke, Algermissen, & Brinkhoff, 2017) and a lack of recognition of the importance or benefit of MA for corporate management purposes (Duller, Feldbauer-Durstmüller, & Hiebl, 2014; Deimel et al., 2017). The present study is based on the results of these earlier studies and further results should be developed based on the resource-based approach and the PAT.

Regarding the analysis of company size, the age of the company was also included in the hypothesis formation of this study. According to the theoretical assumptions of Jovanovic (1982) and Jovanovic and MacDonald (1994), large companies also tend to be older, with the result that both variables should therefore have a high positive correlation and influence on the introduction of MA in family businesses. The extent to which there is a non-linear effect of the size and age of the company in explaining the probability of using MA has not been considered in previous studies. This seems relevant because the complexity of management increases with the size of the company and thus the use of MA should increase from a certain company size onwards (Davis, 2008; Deimel, 2008; Miller, Minichilli, & Corbetta, 2013).

With regard to lack of experience, lack of know-how, and lack of recognition of the benefits of MA, previous studies have not established a connection to the educational level of company management.

This may, however, be a relevant variable to explain the three above-mentioned factors. Finally, there is still insufficient knowledge about the extent to which the generation of the family business (i.e., how many family generations the business has passed through) plays an influence on the existence of MA.

## 2.2. Theoretical framework and development of research hypotheses

The RBV and the PAT were used as theoretical foundations for this study. According to Barney (2001), the RBV can be applied to different research problems and since the implementation of MA is also based on resources (Feldbauer-Durstmüller et al., 2012; Hiebl et al., 2013), an application to the problem of this study is possible. This view does not appear to be entirely sufficient as the sole basis for this study, as it cannot provide a complete theoretical foundation, because a wide variety of earlier studies have produced empirical results that are sometimes inconsistent with the expected results (Lado, Boyd, Wright, & Kroll, 2006; Brahma & Charkaborty, 2011). For this reason, starting from Lockett et al. (2009), Arend and Lévesque (2010), Priem and Butler (2011), Benavides-Velasco, Quintana-García, and Guzmán-Parra (2013), and Prencipe et al. (2014), the connection to another theoretical basis — the aforementioned PAT — was made, which was also used in earlier studies on similar issues to those which are covered in this paper (Schachner et al., 2006; Hiebl et al., 2013; Andric & Kammerlander 2017b). The usefulness of agency theory for the questions of this research is also based on the comprehensive literature review by Prencipe et al. (2014), who were able to show that agency theory represents a dominant paradigm in accounting research in family firms.

### 2.2.1. The resource-based view (RBV) as an explanatory model for the use of MA accounting

Based on the RBV, small and medium-sized enterprises have limited capital, personnel and time resources, so that bottlenecks also arise for corporate management or MA tasks (Berens et al., 2005; Rautenstrauch & Müller, 2005; Deimel, 2008; Feldbauer-Durstmüller et al., 2012). This means that small and medium-sized companies have less financial resources to invest in professional MA systems (Levy, Powell, & Yetton, 2002) or to purchase MA services through external service providers compared to larger companies (Deimel et al., 2017). From this, it can be deduced that the size of the company is decisive in determining how MA is designed and which MA instruments are used (Feldbauer-Durstmüller et al., 2012).

The complexity of corporate management is increasing in large companies, making the coordination of individual activities more difficult, so that MA becomes a necessity in order to meet these challenges (Davis, 2008; Deimel, 2008; Miller et al., 2013; Voss & Brettel, 2014). Due to its size, appropriate resources are available for adjustments and adaptations (Hendry, Arthur, & Jones, 1995; Zahra 2005), which also favours the use of MA. In addition, as the age of the company increases, the experience with regard to one's own abilities increases, which requires a learning process (Correa Rodríguez, Acosta Molina, González Pérez, & Medina Hernández, 2003; Esteve-Pérez & Manez-Castillejo, 2008; Cucculelli, Mannarino, Pupo, &

Ricotta, 2014) in order to understand the benefits of MA. This is less pronounced in small and medium-sized companies (Andric & Kammerlander, 2017a; Deimel et al., 2017).

Time is needed to build up appropriate capacities and resources, so that the variable "age of the company" plays an important role in the RBV (Pfeffer & Salancik, 1978, p. 2; Shapiro, 1989; Esteve-Pérez & Manez-Castillejo, 2008; Lumpkin, McKelvie, Gras, & Nason, 2010). From a theoretical point of view, there is an important correlative relationship between the age and size of the enterprise in this context, since enterprise growth has a proportional relationship to enterprise size (Jovanovic, 1982; Thornhill & Amit, 2003). This can be explained by the fact that it takes a certain period of time for an enterprise to grow. During this period, it is possible to establish or position oneself in the market, but also to build up appropriate capacities and resources (Jovanovic & MacDonald, 1994).

*H1: The larger the company is, the higher the probability that MA will be used.*

*H2: The older the company is, the higher the probability that MA will be used.*

A non-linear connection between the use of MA and the size of the company can be assumed. One explanation for this lies in company growth, which cannot be easily controlled by managers (Glancey, 1998), so that MA is required once a company has reached a certain size. McKee and Lensberg (2002) showed in their study that a complex relationship exists between liquidity, company size, and profitability. Accordingly, profitability and company size increase linearly before decreasing again from a certain size onwards (Vannoni, 2000; Qian, Li, Li, & Qian, 2008; Nunes, Serrasqueiro, & Leitao, 2010). A critical point can be observed at which corporate performance begins to decline (Serrasqueiro & Nunes, 2008). A similar trend can be assumed for the age of the company, because certain processes have become established with increasing age which may not necessarily be efficient, leading in principle to a corresponding reduction in profitability (Glancey, 1998).

It is, therefore, necessary to make MA a mandatory practice from a certain size of the company or from a certain company age onwards, in order to better identify potential losses in efficiency and/or profitability. From a theoretical point of view, the coordination costs for management remain acceptable for smaller company size, but these costs increase as the company's size increases, with the necessity to introduce MA thereby also increasing. Appropriate resources must, therefore, be built up in order to address this problem (Haans, Pieters, & He, 2016).

*H3: There is a significant non-linear effect in the size of the company, above which the probability of using MA increases.*

*H4: There is a significant non-linear effect in the age of the company, above which the probability of using MA increases.*

### *2.2.2. The principal-agent theory (PAT) as an explanatory model for the use of MA accounting*

There are different goals and expectations between the family system and the company system for certain subject areas (Carlock & Ward, 2001, p. 5). For first-generation family companies, it is much easier to reconcile the divergences in goals, since

the managing director is usually also the owner of the company. This, therefore, also implies that in such constellations, there are no or minimal agency costs, because there is no division between management and control nor is there a concentration of ownership (Jensen & Meckling, 1976; Shleifer & Vishny, 1986; Ang, Cole, & Lin, 2000; Schulze, Lubatkin, & Dino, 2002). Therefore, a negative relationship between the use of MA and older generation companies can be assumed (Salvato & Moores, 2010).

In the case of companies with more advanced generations, in which sibling relationships also play a role, relationship conflicts are observed to increase, thereby heightening negative attitudes and resentment. These aspects usually lead to a negative impact on communication, willingness to learn and performance (Korang Adjei, Eriksson, Lindgren, & Holm, 2019). In such constellations, the participation structures change, so that there are often several shareholders, making it difficult for them to have an accurate overview of the financial and economic situation (Miller, Le Breton-Miller, Minichilli, Corbetta, & Pittino, 2014). In addition, due to the scattered ownership structure, the motivation of the managing director to work exclusively for the shareholders typically decreases, due to the family background. The probability that one's own interests take precedence over those of the family increases in these situations (Miller et al., 2013). In the case of successions over several generations, the agency costs or succession costs thus increase (Sharma, 2006; Blanco-Mazagatos, de Quevedo-Puente, & Castrillo, 2007; Molly, Laveren, & Deloof, 2010), so that a positive relationship between the use of MA and younger generation companies can be assumed (Salvato & Moores, 2010). Ang et al. (2000) and Songini and Gnan (2015) also point to agency costs in this context, which can be reduced by introducing MA systems.

*H5: The probability that MA has used increases as the number of generations of the company increases.*

In owner-managed companies, in which the management is heavily involved in day-to-day operations, the need for control via key figures is reduced because the management is aware of all relevant information (Taschner, 2012). MA systems can be used to address the problem of controlling the behaviour of non-owner-managed companies or companies with outside managers (Deimel, 2008; Hiebl, 2013; Chrisman, 2019). In companies where a third-party manager is in place, Hiebl et al. (2013) explain the use of MA as an indicator of the professionalization of the company. When external managers are active in the company, more formalised MA systems are more likely to be found (Schachner et al., 2006), because this form of management generates the highest agency costs (Ang et al., 2000). As a result of the deepened involvement of external management in day-to-day operations, an asymmetry of information arises vis-à-vis the unitholders, which favours opportunistic action (Madison, Holt, Kellermanns, & Ranft, 2016).

From this perspective, it can only be in the interest of the shareholders to implement both incentive and control systems in order to prevent myopic behaviour (Merchant & Van der Stede, 2007, p. 443; Jiraporn & DaDalt, 2009; Yang, 2010; Goretzki, 2013; Weber, 2018). With the introduction of MA, monitoring costs of shareholders can be reduced and Miller et al. (2014) showed in their

empirical study that outside managers perform best when they are free to make day-to-day operative decisions but are ultimately subject to the control of shareholders. This control is achieved by demanding significantly higher quality and transparency of reporting within the framework of finance and accounting (Bartholomeusz & Tanewski, 2006; Hope, Thomas, & Vyas, 2013), which favours the use of MA.

*H6: When using a third-party manager, the probability that MA will be used increases.*

### 3. RESEARCH METHODOLOGY

In the course of the study, slightly more than 36,000 companies in western Austria (Tyrol, Salzburg, and Vorarlberg) were sent a questionnaire. A comprehensive literature search was conducted in advance to ensure the accuracy of the questionnaire and the validity of its content (DePoy & Gitlin, 2011, p. 204; Greenstein & Davis, 2013, p. 67). In addition, pre-tests were conducted in order to calibrate the measurement instrument (Krishnaswamy, Sivakumar, & Mathirajan, 2006, p. 265). For this purpose, a group of 8 respondents were used who were sent the raw version of the questionnaire for review and critical reflection (Hulland, Baumgartner, & Smith, 2018). A total of 1,054 completed questionnaires were returned. A portion of these returns had to be discarded due to missing data. In addition, only those companies that can be considered family businesses were used for further processing.

To determine which companies were family businesses, the "F-PEC power subscale" was used in accordance with Astrachan, Klein, and Smyrnios (2002), Astrachan, Klein, and Smyrnios (2006), and Rau, Astrachan, and Smyrnios (2018). Thus, those returns were identified as being family enterprises in which a) the majority of the decision-making rights are held by the family, b) the majority of the decision-making rights are directly or indirectly held by the family and/or c) at least one representative of the family is in charge of the company. After these criteria were applied, 692 completed questionnaires remained, which were evaluated in the following analyses. In this way, proper cleaning of the sample could be achieved, because only those answers of respondents (managers) were included for the further analyses who could really give the requested information reliably and accurately (Sudman & Blair, 1999). In addition, there was no explicit selection of respondents, so that potential bias in the answers could be avoided in advance (Fu, Winship, & Mare, 2009, p. 410).

The classification of the companies by size was based on the recognized criteria of the European Commission for the definition of micro, small and medium-sized enterprises, which were also used in the study by Mitter, Duller, Feldbauer-Durstmüller, and Kraus (2014). Specifically, each company was assigned to the individual categories of companies based on the number of employees who were

questioned (Andric & Kammerlander, 2017b). Regarding classification by industry (branches of industry), the classification criterion of ÖNACE 2008 was used based on Situm (2019). All industries (Table 3) were modelled with dummy variables (0 = no affiliation to the respective industry, 1 = affiliation to the respective industry).

To measure whether MA was used in the company, a dummy variable was defined, which also represents the dependent variable of this study (CON=1 if the company uses MA and 0 = otherwise). A uniform definition of the term MA cannot be found in the literature (Amann & Petzold, 2014; Hubert, 2016, p. 1) or can only be given vaguely (Buchholz, 2013, p. 6). Pietsch and Scherm (2002) show possible theses with which one should agree on commonalities of MA in research. Here, MA is seen as an essential contributor to the coordination of management and the information supply to management. For this reason, MA (variable CON) was defined as a subsystem of corporate management with which rational decisions can be made through the supply of information, so that a company can develop successfully and sustainably (Schmid-Gundram, 2016, p. 7). Based on the figures in Table 1, it can be stated that 438 companies do not use MA, and 254 use MA. The distribution in terms of company size results in the deduction that the larger the company is, the significantly more MA is being used ( $\chi^2 = 33,691$ ; Sign. 0,000), which is in line with results from previous studies (Feldbauer-Durstmüller et al., 2012; Hiebl, 2013).

The present sample can be classified as being representative, since the selected characteristics correspond to those of the relevant population or alternatively, the sample can be said to represent a reduced section of the population (Kromrey, 1994, p. 197; Bortz & Döring, 2006, p. 397) and the survey units had the same chance of being included in the sample (Riesenhuber, 2009, p. 11; Benesch, 2013, p. 145). Based on the Austrian Federal Economic Chamber, there are 58,149 enterprises in western Austria, 88% of which can be classified as family enterprises. In relation to these 88% (51,171 enterprises), this means that the present sample represents 1.35% of this population. Based on Curran and Blackburn (2001, pp. 61-62) and Smithson (2010, p. 96), if the distribution of a sample is not similar to the distribution of the population, it can cause a size-related response bias. For this reason, they recommend a comparison of the size distribution of the firms replying to the known size distribution of the businesses of the population in order to detect a possible size-related bias. The distribution of the sample in terms of company size, as shown in Table 1, has a similar distribution to the population. Micro and small enterprises dominate in terms of number and the number of enterprises decreases as the size of the enterprise increases. Based on this, no size-related response bias can be assumed (Fu et al., 2009, p. 410; Smithson, 2010, p. 96).

**Table 1.** Distribution of the use of MA by company size

Use of MA	Micro firms	Small firms	Medium-sized firms	Large firms	Total
n (abs.)	457	191	32	12	692
n (in %)	66.040%	27.601%	4.624%	1.734%	100%
no MA	321	102	11	4	438
	73.3%	23.3%	2.5%	0.9%	100.0%
MA	136	89	21	8	254
	53.5%	35.0%	8.3%	3.1%	100.0%

Based on the concept of context factors, the variables of management and company culture were integrated into the study (Davis, 2008; Mayr, 2015), so that the characteristics of the company as well as the family itself can also be examined in terms of the possible use of MA. This approach appears to be relevant in view of the research design since the use of MA is characterized not only by organizational influences but also by the personal motives and behavior of the actors (Colignon & Covaleski, 1993; Gray, Salter, & Radebaugh, 2001, p. 48). The contextual factors used to describe the company are company size, age, and industry. These should also be seen as control variables, which were included to test the effect of different groups of companies on the dependent variable (Greenstein & Davis, 2013, pp. 17-18). Context factors describing the management and personality of the company are gender, age, education, and management experience. In addition, both the type of control over the company and its generation were recorded. A detailed presentation of all the variables used can be found in Table 2.

To test the research hypotheses, multivariate logistic regression was applied. This method was suitable for the problem defined in this work because the dependent variable (*CON*) was binary coded, thereby enabling probabilities for one of the two states to be calculated (Marques de Sá, 2007, p. 271; Burns & Burns, 2008, pp. 568-569). Several models were calculated according to the sequential method, in order to determine whether the model's quality or efficiency changes by adding further variables, so that the contribution of the variables to the explanatory power of the models can be determined (Foster, Barkus, & Yavorsky, 2006, p. 60). A major advantage of logistic regression is that the independent variables do not have to be normally distributed. Moreover, this method is relatively robust to deviations from the normal distribution, resulting in accurate model estimates being obtained even when such situations arise (Press & Wilson, 1978; Burns & Burns, 2008, p. 569).

**Table 2.** Variables of the study

<i>Variable/Context factors</i>	<i>Abbreviation</i>	<i>Name</i>	<i>Scale</i>	<i>Description</i>	<i>Reference</i>
Dependent variable	<i>CON</i>	MA	Nominal	Dummy variable to describe whether a company has MA (1 = yes; 0 = no)	-
Contextual factors of the firm	<i>SIZE</i>	Size of the firm	Metric	ln(Number of employees)	Voordeckers, van Gils, and van den Heuvel (2007), Cucculelli et al. (2014), Korang Adjei et al. (2019)
	<i>AGE_COMP</i>	Age of the firm	Metric	ln(Age of the company in years)	Voordeckers et al. (2007), Chu (2009), Cucculelli et al. (2014)
	<i>IND</i>	Industry of the firm	Nominal	Dummy variable (1 = relevant industry; 0 = not); classification of industries according to Austrian NACE 2008	Davis (2008, p. 130), Chu (2009), Bauweraerts (2018)
Contextual factors of the management and company culture	<i>GENDER</i>	Gender	Nominal	1 = male, 0 = female	Winker (2007, p. 195)
	<i>AGE_MAN</i>	Age of the management	Metric	ln(Age of the respondent in years)	Bauweraerts (2018)
	<i>EDU</i>	Highest education of the respondent	Nominal	Dummy variable (1 = given; 0 = not given) for the following training courses: A = Compulsory school; B = Apprenticeship; C = A-levels; D = Master craftsman examination; E = University of applied sciences; F = University; G = Secondary school; H = Other	Winker (2007, p. 198), Voordeckers et al. (2007), Bauweraerts (2018)
	<i>EXP</i>	Number of years in professional life	Metric	ln(Number of years of professional experience of the respondent)	Bauweraerts (2018)
	<i>CONTROL</i>	Management of the firm	Nominal	Dummy variable (1 = given; 0 = not given) for the following possibilities of management and ownership of the enterprise: CONTROL_1: family-owned and family-run; CONTROL_2: family-owned but not family-run; CONTROL_3: not family-owned but family-run	Schachner et al. (2006), Davis (2008, pp. 135-136), Chu (2011), Miller et al. (2013)
	<i>GENERATION</i>	Generation of the firm	Nominal	Dummy variable (1 = given; 0 = not given) for the following generation possibilities: GEN_1, GEN_2; GEN_3; GEN_4; GEN_5	Voordeckers et al. (2007), Miller et al. (2014)

Notes: The variable MA was defined as a dependent variable and binary coded, so that it can be analyzed in the context of a logistic regression (Kahane, 2008, p. 144; Eckstein, 2016, p. 225). For the variables SIZE, AGE\_COMP, EXPERIENCE, and AGE\_MAN, a logarithmic transformation (natural logarithm) was performed in order to normalize the distribution of the data (Montgomery & Runger, 2011, p. 337). To test H3 and H4, the variables SIZE and AGE were squared to test the non-linear effect of these independent variables on the dependent variable (Winker, 2007, pp. 199-200; Kahane, 2008, p. 100).

## 4. RESULTS

### 4.1. Descriptive statistics for the database

As a first step, descriptive statistics were calculated to get an overview of the companies in the study. The average age of the companies (related to

the median) is 33.5 years and an average of 33.551 employees work in the companies. The distribution of the individual companies in the defined sectors is shown in Table 3.

**Table 3.** Descriptive statistics on the context factors of the enterprise

Variables	n	Mean	Median	Standard deviation														
AGE (in years)	692	33.500	23.500	38.310														
AGE	692	3.155	3.160	0.853														
EMPLOYEES	692	33.551	5.000	299.496														
SIZE	692	1.717	1.610	1.397														
Industry																		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T
8	1	83	6	3	67	36	15	137	55	16	11	65	39	11	45	14	69	11

Notes: The classification of industries was based on the Austrian NACE 2008 and includes the following industries: A = Agriculture and forestry; B = Mining; C = Manufacturing; D = Energy supply; E = Water supply; F = Construction; G = Wholesale and retail trade and repair of motor vehicles and motorcycles; H = Transportation and storage; I = Accommodation and food service activities; J = Information and communication; K = Financial and insurance activities; L = Real estate activities; M = Professional, scientific and technical activities; N = Other business activities; P = Education; Q = Human health and social work; R = Arts, entertainment and recreation; S = Other service activities; T = Manufacturing of goods and services for own consumption.

In the descriptive statistics on contextual factors of management and personality, a distinction was made between female and male managers. Managers are those people who assume the role of the managing director (management control) and thus the main decision-maker (Davis, 2008, p. 141). By testing for differences, it can be determined that male managers are significantly older and have more professional experience than their female

counterparts (Fairlie & Robb, 2009). In terms of education, it can be seen that most of the respondents (n = 167) have attended university. The second most frequent training is a master craftsman's examination (n = 131) followed by the A-levels (n = 125). When analysing the generation, it is striking to note that the majority of enterprises are managed by the first and second generation of the family.

**Table 4.** Descriptive statistics on the contextual factors of management and personality

Variable	Gender	n	Mean	Median	Standard deviation	Sign.
AGE (in years)	f	252	47.107	49.000	10.634	0.000
	m	440	50.357	51.000	9.869	
AGE	f	252	3.828	3.900	0.247	0.000
	m	440	3.902	3.900	0.207	
EXPERIENCE (in years)	f	252	25.933	27.000	11.131	0.000
	m	440	30.125	30.000	10.613	
EXPERIENCE	f	252	3.113	3.300	0.622	0.000
	m	440	3.324	3.400	0.473	

Gender	Education							
	A	B	C	D	E	F	G	H
f (abs.)	2	40	48	17	33	65	40	7
m (abs.)	5	53	77	114	40	102	35	14
f + w (abs.)	7	93	125	131	73	167	75	21
f (in %)	0.794%	15.873%	19.048%	6.746%	13.095%	25.794%	15.873%	2.778%
m (in %)	1.136%	12.045%	17.500%	25.909%	9.091%	23.182%	7.955%	3.182%
f + w (in %)	1.012%	13.439%	18.064%	18.931%	10.549%	24.133%	10.838%	3.035%

Gender	Generation				
	Generation_1	Generation_2	Generation_3	Generation_4	Generation_5
f (abs.)	135	73	21	15	8
m (abs.)	233	113	64	10	20
f + w (abs.)	368	186	85	25	28
f (in %)	53.571%	28.968%	8.333%	5.952%	3.175%
m (in %)	52.955%	25.682%	14.545%	2.273%	4.545%
f + w (in %)	53.179%	26.879%	12.283%	3.613%	4.046%

Notes: The legend of the training courses can be found in Table 2. f = female; m = male. Since the distributions of the variables are not normally distributed, the non-parametric U-test was used to calculate the tests for differences (Ho, 2014, p. 518).

### 4.2. Multivariate consideration of all context factors

On the basis of Models I to IV, it is evident that when viewed individually, the context factors for describing the enterprise and the context factors for describing the management and culture of the enterprise can explain the use of MA to a certain

extent. For this reason, another three models were estimated, which are summarized in Table 5. The results show that the joint consideration of the context factors contributes more significantly to the explanation of the variation of the dependent variable. Nevertheless, a relatively high proportion remains unexplained, which suggests that other

explanatory variables are needed in order to achieve even more far-reaching results (Kahane, 2008, p. 42). The most important variable in terms of explaining the use of MA is company size, which is in line with earlier studies (Berens et al., 2005; Feldbauer-Durstmüller et al., 2012; Hiebl et al., 2013). A look at the marginal effects (Table 6) shows that the influence of company size increases the more explanatory variables are included in the regressions. The largest effect is found in Model IX, which overall supports the hypothesis that the probability of using MA increases with increasing company size. This indicates that the theoretical foundation of the RBV and its association with company size is an important basis for explaining the use of MA in companies respectively in family businesses.

A non-linear influence of SIZE and AGE on the probability of MA use could not be determined within the scope of these analyses. Model IX shows

a weak significance with negative signs for the variable  $SIZE^2$ , which indicates a non-linear effect with regard to the dependent variable. This is a weak indication that the complexity of corporate management is not linear, but is present at a certain point in the company's growth, making the use of MA appear to be necessary at an earlier point. The dummy variables for describing the industries of the individual companies were not included in the presentation, as they showed insignificant coefficients in all tested versions of the regression estimate and could not contribute to improving the model quality. It can, therefore, be concluded that the company's industry sector is not the decisive factor in determining whether MA is used or not. This finding is in divergence with the comments of Andric and Kammerlander (2017a), who point out in their study that the use of MA depends on the industry.

Table 5. Results of logistic regression analyses

Variables	Model								
	I	II	III	IV	V	VI	VII	VIII	IX
SIZE	0.405*** (0.065)	0.575*** (0.141)	0.574*** (0.141)				0.532*** (0.147)	0.549*** (0.151)	0.600*** (0.155)
SIZE <sup>2</sup>		-0.036 (0.026)	-0.037 (0.026)				-0.033 (0.027)	-0.042 (0.028)	-0.049* (0.029)
AGE_FIRM	0.044 (0.101)	0.044 (0.101)	-0.219 (0.390)				-0.092 (0.401)	-0.133 (0.405)	-0.292 (0.436)
AGE_FIRM <sup>2</sup>			0.044 (0.063)				0.025 (0.064)	0.033 (0.065)	0.074 (0.074)
GENDER				0.577*** (0.181)	0.583*** (0.185)	0.556*** (0.187)	0.485** (0.187)	0.497*** (0.190)	0.466** (0.192)
AGE_MAN				-1.880** (0.775)	-2.008** (0.801)	-1.979** (0.809)	-1.707** (0.826)	-1.767** (0.844)	-1.854** (0.851)
EXPERIENCE				0.294 (0.330)	0.424 (0.343)	0.459 (0.347)	0.485 (0.353)	0.556 (0.361)	0.590 (0.363)
MANDATORY				-0.932 (0.966)	-0.896 (0.971)	-0.878 (0.981)	-0.872 (0.987)	-0.874 (0.994)	-0.890 (0.990)
APPRENTICE				-0.566 (0.499)	-0.662 (0.510)	-0.618 (0.513)	-0.883* (0.519)	-0.970* (0.532)	-0.966* (0.537)
A-LEVELS				-0.578 (0.485)	-0.499 (0.494)	-0.477 (0.497)	-0.907* (0.505)	-0.841 (0.517)	-0.826 (0.521)
MASTEXAM				-0.662 (0.485)	-0.666 (0.496)	-0.665 (0.498)	-0.940* (0.504)	-0.954* (0.517)	-0.947* (0.521)
UNIVAPP				0.135 (0.507)	0.260 (0.517)	0.254 (0.520)	-0.132 (0.527)	-0.030 (0.540)	0.012 (0.544)
UNIV				-0.567 (0.484)	-0.463 (0.494)	-0.412 (0.497)	-0.765 (0.505)	-0.665 (0.518)	-0.663 (0.522)
OTHEREDU				-0.908* (0.519)	-0.845 (0.529)	-0.835 (0.532)	-1.054** (0.536)	-1.014* (0.548)	-0.996* (0.552)
CONTROL_1					0.316 (0.233)	0.286 (0.238)		0.353 (0.243)	0.387 (0.247)
CONTROL_2					2.437*** (0.695)	2.415*** (0.701)		2.072*** (0.720)	2.139*** (0.721)
CONTROL_3					0.961 (0.590)	0.987* (0.591)		0.938 (0.603)	0.935 (0.605)
GEN_1						-0.559 (0.413)			0.385 (0.532)
GEN_2						-0.405 (0.427)			0.138 (0.499)
GEN_3						-0.173 (0.457)			0.096 (0.500)
GEN_4						-0.581 (0.608)			-0.369 (0.636)
CONSTANT	-1.410*** (0.319)	-1.538*** (0.334)	-1.165* (0.626)	5.928*** (2.161)	5.623** (2.232)	5.863** (2.272)	4.174* (2.365)	3.848 (2.418)	3.819 (2.436)
Chi-square	4.823	3.307	5.550	15.272	6.791	13.819	12.070	10.061	11.226
Sign. Chi-square	0.776	0.914	0.697	0.054	0.559	0.087	0.148	0.261	0.189
R <sup>2</sup> (Nagelkerke)	0.094	0.098	0.099	0.064	0.096	0.103	0.139	0.159	0.164

Notes: The *n* is 692, as in the previous calculations, and the regression was performed on the dependent variable MA, which was binary coded. The Chi-square value is based on the Hosmer-Lemeshow test and shows a significance of greater than 0.05 in all cases, indicating that there is a good model fit (Burns & Burns, 2008, p. 580). The standard errors are shown in brackets below the respective coefficient. \*\*\* Sign. < 0.01; \*\* Sign. < 0.05; \* Sign. < 0.10.



It is evident that gender plays a significant role when analysing the contextual factors that describe the management and culture of the company. The higher the likelihood that the company management is male, the higher the probability that MA is used. The age of management is also significant and the regression coefficient shows a negative sign. It can thus be concluded that the older the management is, the lower the probability of using MA in the company. On the basis of the available data, a direct explanation cannot be given as to why female managers tend to use MA less frequently. Based on Benavides-Velasco et al. (2013), this is to be seen as a further research result with regards to family businesses, as there is no evidence to date regarding how gender influences financial management behaviour. Several studies have indicated that women are more risk-averse than men when it comes to making decisions. Croson and Gneezy (2009) showed in their comprehensive literature analysis that this "basic rule" does not however apply to people in management positions. Consequently, male and

female managers do not differ significantly in their risk-taking behaviour.

Similarly, Sonfield and Lussier (2004) found that male and female CEOs differed little to minimally in their management styles and behaviors (e.g., succession plans, long-term planning, or financial management tools). In the study by Adams and Funk (2012), it was even found that female managers are more risk-oriented than male managers. If one assumes that the absence of MA can generally be associated with a higher corporate risk (Exler & Situm, 2014) and that, based on the studies cited above, female managers can also take more risks than male managers, this would provide a possible explanation for the present results. Cruz and Nordqvist (2012) found that female CEOs have a lower entrepreneurial orientation than male CEOs and Lee, Jasper, and Fitzgerald (2010) showed that female managers perceive their companies as more successful than male managers. These findings could serve as an explanation for why MA is used less frequently under the leadership of a female CEO.

**Table 6.** Results of marginal effects analyses for regression results

Variables	Model								
	I	II	III	IV	V	VI	VII	VIII	IX
SIZE	0.087*** (0.013)	0.124*** (0.029)	0.0124*** (0.029)				0.111*** (0.030)	0.112*** (0.030)	0.122*** (0.030)
SIZE <sup>2</sup>		-0.008 (0.006)	-0.008 (0.006)				-0.007 (0.006)	-0.009 (0.006)	-0.010* (0.006)
AGE_FIRM	0.010 (0.022)	0.010 (0.022)	-0.047 (0.084)				-0.019 (0.083)	-0.027 (0.083)	-0.060 (0.089)
AGE_FIRM <sup>2</sup>			0.009 (0.013)				0.005 (0.013)	0.007 (0.013)	0.015 (0.015)
GENDER				0.128*** (0.039)	0.126*** (0.039)	0.119*** (0.039)	0.101*** (0.038)	0.102*** (0.038)	0.095** (0.039)
AGE_MAN				-0.416** (0.169)	-0.433** (0.170)	-0.425** (0.171)	-0.356** (0.170)	-0.362** (0.171)	-0.378** (0.171)
EXPERIENCE				0.065 (0.073)	0.091 (0.074)	0.098 (0.074)	0.101 (0.073)	0.114 (0.073)	0.120 (0.073)
MANDATORY				-0.207 (0.213)	-0.193 (0.209)	-0.188 (0.210)	-0.182 (0.205)	-0.179 (0.203)	-0.181 (0.201)
APPRENTICE				0.125 (0.110)	-0.143 (0.109)	-0.133 (0.110)	-0.184* (0.107)	-0.199* (0.108)	-0.197* (0.109)
A-LEVELS				-0.128 (0.107)	-0.108 (0.106)	-0.102 (0.106)	-0.189* (0.104)	-0.172 (0.105)	-0.168 (0.105)
MASTEXAM				-0.147 (0.107)	-0.144 (0.106)	-0.143 (0.106)	-0.196* (0.104)	-0.195* (0.105)	-0.193* (0.105)
UNIVAPP				0.030 (0.112)	0.056 (0.111)	0.055 (0.112)	-0.028 (0.110)	-0.006 (0.110)	0.002 (0.111)
UNIV				-0.125 (0.107)	-0.100 (0.106)	-0.088 (0.106)	-0.159 (0.105)	-0.136 (0.106)	-0.135 (0.106)
OTHEREDU				-0.201* (0.114)	-0.182 (0.113)	-0.179 (0.113)	-0.220** (0.111)	-0.208* (0.111)	-0.203* (0.112)
CONTROL_1					0.068 (0.050)	0.061 (0.051)		0.072 (0.049)	0.079 (0.050)
CONTROL_2					0.526*** (0.145)	0.518*** (0.146)		0.424*** (0.144)	0.436*** (0.144)
CONTROL_3					0.207 (0.126)	0.212* (0.126)		0.192 (0.123)	0.191 (0.123)
GEN_1						-0.120 (0.088)			0.079 (0.108)
GEN_2						-0.087 (0.091)			0.028 (0.102)
GEN_3						-0.037 (0.098)			0.019 (0.102)
GEN_4						-0.125 (0.130)			-0.075 (0.129)

Notes: The n is 692, as in the previous calculations, and the marginal effects had been performed on the dependent variable MA, which was binary coded. As a method for the marginal effects, the delta method was applied. The coefficients show the  $dy/dx$ . The standard errors are shown in brackets below the respective coefficient. \*\*\* Sign. < 0.01; \*\* Sign. < 0.05; \* Sign. < 0.10.

The type of training has an influence on the use of MA, which is statistically significant between the 5% and 10% levels. According to this, there is a negative relationship between the educations *APPRENTICE*, *MASTEXAM*, and *OTHEREDU* on the dependent variable. All other higher education possibilities show negative signs in principle, but not at a significant level. This result is in line with Hall and Nordqvist (2008), who showed that formal education and training are not sufficient for top management to be effective in a family business. This can be interpreted to mean that although directors have the necessary training and awareness of the benefits of MA, they do not use it to increase their effectiveness in controlling the company. A possible reason may be that there are simply too few time resources available (Berens et al., 2005; Rautenstrauch & Müller, 2005; Deimel, 2008; Feldbauer-Durstmüller et al., 2012) to deal with the issue. Another simple reason may be that family businesses generally underuse MA techniques because they are simply not given enough importance in managing the business (Duller et al., 2014; Deimel et al., 2017; García Pérez de Lema & Duréndez, 2007). In addition, the survey did not ask about the contents of the training courses, so it may well be that the subject area of MA was not taught at all or not to the required extent, so that the relevant training courses/educations are not suitable to explain the use of MA (Birdthistle, 2006; Ibrahim & Soufani, 2002).

The variable *CONTROL\_2* shows a high statistical significance and confirms the assumption that the use of a third-party manager increases the probability of using MA. This certainly suggests that professionalism increases in this type of going concern (Hall, Melin, & Nordqvist, 2006, p. 265; Hiebl et al., 2013; Heinicke, 2018) and that the external manager tends to use more formalised systems (Dyer, 1989; Schachner et al., 2006), and/or owners try to increase their possibilities to control external management by using MA (Jiraporn & DaDalt, 2009; Goretzki, 2013). Using the marginal effects, it is clear that the use of an external manager is the most important variable (followed by the age of the manager) to explain the use of MA in family businesses. This can be seen as an indicator that variables describing PAT are more relevant in explaining the use of MA in family businesses than variables that have a relationship to RBV (e.g., business size). The influence of the generation of the company on the use of MA cannot be confirmed on the basis of the available results. This supports the findings of Dal Magro et al. (2017) that family-controlled companies have fewer agency problems despite potential conflicts between different shareholders, so that MA is not used as a control mechanism.

## 5. DISCUSSION OF THE RESULTS

This study examined which factors or variables in family businesses have an influence on the use of MA. The results show that there is a significant need for micro and small enterprises in western Austria to become more engaged with the topic of MA. Similar to previous studies, it was found that the probability of having MA increases with increasing company size (Berens et al., 2005;

Feldbauer-Durstmüller et al., 2012). There is a weak significant correlation between age and company size ( $\rho = 0.309$ ; Sign.  $< 0.01$ ), which does not necessarily confirm the theoretical assumptions of Jovanovic (1982) and Jovanovic and MacDonald (1994). Accordingly, in the case of family businesses, this means that they can grow old over generations, but that they do not necessarily have to grow to be a successful business. An increase in company size seemingly brings with it an increase in management complexity, which cannot be managed by the presence and involvement of the management alone in day-to-day operations (Davis, 2008; Miller et al., 2013; Voss & Brettel, 2014). From the point of view of the RBV, smaller companies have fewer resources at their disposal, which means that MA tends to be used less frequently (Sierke et al., 2017). The age of the company cannot explain its likelihood to use MA. Thus, the first research hypothesis was confirmed and the second was deemed to be false. A non-linear effect on the variables company size and age could not be proven. Insignificant coefficients were found in almost all models (except in regression model IX). Therefore, the third and fourth research hypotheses can be regarded as being falsified.

With regard to the educational level of managers, it can be seen that managers with the apprenticeship, master craftsman's diploma, and other types of training tend significantly (10% level) not to have MA in the company. Other types of training such as the A-levels, university of applied sciences, and university studies resulted in being insignificant (but with negative signs). A higher educational level of the managing director does not lead to a higher probability of the company using MA. This result is rather surprising since in earlier studies weak business management skills and know-how were found to be relevant explanatory variables (Deimel, 2008; Sierke et al., 2017) for the use of MA, but it underlines Hall and Nordqvist's (2008) findings that higher levels of education are not necessarily associated with improved efficiency in top management. One possible explanation for this is that the fields of study were not queried more precisely.

The number of family generations that a company has passed through plays no role in explaining the use of MA. Theoretically, a higher number of generations would have been expected to increase the probability of using MA due to rising agency costs (Sharma, 2006; Blanco-Mazagatos et al., 2007; Molly et al., 2010). The extent to which family members are aware of agency costs at all cannot be determined in this study. This is a theoretical construct which, firstly, does not necessarily have to be perceived in families and, secondly, it must be considered that non-financial goals are very often decisive factors for making decisions in the development of the family business (Mitter, 2014). Based on the results, research hypothesis five must be regarded as being falsified.

The use of a third-party manager significantly increases the probability of using MA, meaning that hypothesis six could not be falsified. This finding is consistent with earlier studies and shows that external management promotes a professionalisation of corporate MA and management (Schachner et al., 2006; Hiebl et al., 2013; Samuelsson et al., 2016).

Formal monitoring and control systems are thus used to control the opportunistic actions of external managers (Weber, 2018), to reduce agency costs (Ang et al., 2000), and to simplify the complexity of control for the external manager (Davis, 2008; Miller et al., 2013; Voss & Brettel, 2014). Moreover, based on the findings of Chu (2011), it can be concluded that managers who are family members behave more like stewards than agents. Thus, the research questions of this study can also be answered. The first question related to the extent to which MA is used or spread in western Austrian family businesses. Nearly 37% of western Austrian family businesses use MA and it is shown that the use of MA increases significantly as company size increases. Therefore, it can be stated that there is still sufficient potential to implement a professionalisation of corporate monitoring and MA (Berens et al., 2005) and that MA is still considered to be of little importance (Duller et al., 2014; García Pérez de Lema & Duréndez, 2007). Based on this, the second and third research questions can also be answered, in which the factors and variables that favour the use of MA in family businesses were analyzed. The resource-based view can only be used to a limited extent to explain the use of MA in family businesses, which indicates that the RBV, as the sole theoretical basis, provides results that are only partially consistent with expectations (Brahma & Chakraborty, 2011). In this regard, the size of the company plays a major role in the context factors of the company. Even the PAT cannot fully explain the use of MA by a company. With regard to context factors, the company's management and culture, the gender, and age of the manager, the level of education and training, and the use of a third-party manager appear to be relevant explanatory variables.

Nevertheless, on the basis of the present results and the marginal effects determined, it can be clearly emphasised that a) the PAT has higher explanatory power for the use of MA in family businesses than the RBV and b) contextual factors of the management and company culture have a stronger influence on the dependent variable than do contextual factors of the firm. It, therefore, seems reasonable to consider a coupled approach of both RBV and PAT theory strands in order to define a theoretical basis, as suggested by Lockett et al. (2009), Arend and Lévesque (2010), Priem and Butler (2001), and Prencipe et al. (2014).

In addition, it can be stated that new results were identified in the course of the study, which contribute to a gain in knowledge and further development in the research field. No non-linear relation between company size and/or age of the company and the probability of using MA could be proven, as derived from the theoretical considerations (Glancey, 1998; Haans et al., 2016). This means that from an empirical point of view, there is no "optimal size" for the introduction of MA by a company. It could be shown that both older managers and female managers tend to be less inclined to have MA in the company. The knowledge and awareness of the benefits of MA can not be described or explained by the educational level of the management. According to the results, a higher level of education (e.g., university studies) is no guarantee that MA will be introduced sooner.

The influence of the number of generations of the company on the possible use of MA could not be proven, so that the introduction of MA can not be explained by potentially increased agency costs in family companies who have passed through a higher number of generations. As Chu (2009) pointed out, there are agency costs and resulting negative effects for family businesses, but these are outweighed by the positive effects of family ownership. This positive net effect could be used to explain the lack of statistical significance of the individual generations tested and why the associated research hypothesis had to be rejected.

## 6. CONCLUSION

Based on the results of this study, existing findings could be confirmed, and also new research results could be obtained. The most important variables favoring the use of MA (positive signs in the regressions) are the size of the company, the presence of an external manager, and the fact that the management is male. The results of the first two variables are consistent with the predictions of the RBV and the PAT. The result regarding gender is a new finding for which possible justifications have already been given based on previous studies. A negative influence could be found between the age of the CEO and the use of MA. A higher level of education does not guarantee a higher use of MA, which can be explained by a lack of time in management (Berens et al., 2005; Rautenstrauch & Müller, 2005) or the unrecognized added value of MA for the management of the company (García Pérez de Lema & Duréndez, 2007). No significant influence of the generation or even the industry of the company on the use of MA could be shown. The result regarding generation is not in line with the literature that with higher generation also agency costs increase and therefore formal control systems are introduced. In addition, no significant non-linear relationship between the size of the company and the use of MA could be shown.

Due to the relatively large sample and the distribution of entrepreneurial and personnel characteristics, this study can be considered representative. Nevertheless, there are limitations, namely that the data which was collected was self-reported by the entrepreneurs themselves, resulting in inaccuracies within a certain range of fluctuation. This was counteracted by including only those questionnaires in the further analyses, which were completed by decision-makers (managers), who were most likely to be able to provide reliable and accurate information on the information requested (Conway & Lance, 2010; Sudman & Blair, 1999). Notwithstanding this, however, objectively speaking, the results of this study are by all means comparable with other studies already conducted, so that this distortion does not have any substantial influence on the significance of the present results. This can also be assumed because consistent results can be derived within the framework of objectifying one's own results with results from previous studies.

The extension of this study by including further variables at the level of context factors should be seen as an opportunity for further research. For example, the complexity of the organizational structure,

the product portfolio, etc. was not determined. With regard to the variables describing the management and culture of the company, a more precise granulation of the training received by managers would certainly be necessary in order to be able to test the hypotheses put forward more accurately. In addition, further questions open up regarding

the gender of management in terms of its influence on the use of MA in the company and why certain differences between men and women arise here. All in all, it can be said that further research efforts are needed to better understand the requirements and motives for introducing MA in family businesses.

## REFERENCES

- Adams, K., & Funk, P. (2012). Beyond the glass ceiling: Does gender matter? *Management Science*, 58(2), 219–235. <https://doi.org/10.1287/mnsc.1110.1452>
- Amann, K., & Petzold, J. (2014). *Management und Controlling: Instrumente – Organisation – Ziele*. <https://doi.org/10.1007/978-3-658-00727-0>
- Andric, M., & Kammerlander, N. (2017a). Wozu Controlling? *Controlling & Management Review*, 61(2), 8–15. <https://doi.org/10.1007/s12176-016-0110-z>
- Andric, M., & Kammerlander, N. (2017b). Motive zum Verzicht auf Controlling in Familienunternehmen – Eine Mediatoranalyse. *Zeitschrift für KMU und Entrepreneurship*, 65(4), 223–251. <https://doi.org/10.3790/zfke.65.4.223>
- Ang, J. S., Cole, R. A., & Lin, J. W. (2000). Agency costs and ownership structure. *The Journal of Finance*, 55(1), 81–106. <https://doi.org/10.1111/0022-1082.00201>
- Arend, R. J., & Lévesque, M. (2010). Is the resource-based view a practical organizational theory? *Organization Science*, 21(4), 913–930. <https://doi.org/10.1287/orsc.1090.0484>
- Astrachan, J. H., Klein, S. B., & Smyrnios, K. X. (2002). The F-PEC scale of family influence: A proposal for solving the family business definition problem. *Family Business Review*, 15(1), 45–58. <https://doi.org/10.1111/j.1741-6248.2002.00045.x>
- Astrachan, J. H., Klein, S. B., & Smyrnios, K. X. (2006). The F-PEC scale of family influence: A proposal for solving the family business definition problem. In P. Z. Poutziouris, K. X. Smyrnios, & S. B. Klein (Eds.), *Handbook of research on family business* (pp. 167–179). Glos, UK: Edward Elgar.
- Barney, J. B. (2001). Resourced-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6), 643–650. <https://doi.org/10.1177/014920630102700602>
- Bartholomeusz, S., & Tanewski, G. A. (2006). The relationship between family firms and corporate governance. *Journal of Small Business Management*, 44(2), 245–267. <https://doi.org/10.1111/j.1540-627X.2006.00166.x>
- Bauweraerts, J. (2018). Entrepreneurial orientation and performance in private family firms: A configurational model. *Canadian Journal of Administrative Sciences*, 36(3), 418–431. <https://doi.org/10.1002/cjas.1513>
- Benavides-Velasco, C. A., Quintana-García, C., & Guazmán-Parra, V. (2013). Trends in family business research. *Small Business Economics*, 40(1), 41–57. <https://doi.org/10.1007/s11187-011-9362-3>
- Benesch, T. (2013). *Schlüsselkonzepte zur Statistik: Die wichtigsten Methoden, Verteilungen, Tests anschaulich erklärt*. <https://doi.org/10.1007/978-3-8274-2772-4>
- Berens, W., Püthe, T., & Siemes, A. (2005). Ausgestaltung der Controllingsysteme im Mittelstand – Ergebnisse einer Untersuchung. *Controlling & Management*, 49(3), 186–191. <https://doi.org/10.1007/BF03255010>
- Birdthistle, N. (2006). Training and learning strategies of family businesses: An Irish case. *Journal of European Industrial Training*, 30(7), 550–568. <https://doi.org/10.1108/03090590610704402>
- Blanco-Mazagatos, V., de Quevedo-Puente, E., & Castrillo, L. A. (2007). The trade-off between financial resources and agency costs in the family business: An exploratory study. *Family Business Review*, 20(3), 199–213. <https://doi.org/10.1111/j.1741-6248.2007.00095.x>
- Bortz, J., & Döring, N. (2006). *Forschungsmethoden und Evaluation für Human- und Sozialwissenschaftler*. <https://doi.org/10.1007/978-3-540-33306-7>
- Brahma, S. S., & Chakraborty, H. (2011). From industry to firm resources: Resource-based view of competitive advantage. *The IUP Journal of Business Strategy*, 8(2), 7–21. Retrieved from [https://www.academia.edu/6386957/From\\_Industry\\_to\\_Firm\\_Resources\\_Resource\\_Based\\_View\\_of\\_Competitive\\_Advantage\\_From\\_Industry\\_to\\_Firm\\_Resources\\_Resource\\_Based\\_View\\_of\\_Competitive\\_Advantage?auto=download](https://www.academia.edu/6386957/From_Industry_to_Firm_Resources_Resource_Based_View_of_Competitive_Advantage_From_Industry_to_Firm_Resources_Resource_Based_View_of_Competitive_Advantage?auto=download)
- Brück, C., Ludwig, J., & Schwering, A. (2018). The use of value-based management in family firms. *Journal of Management Control*, 28(4), 383–416. <https://doi.org/10.1007/s00187-018-0258-0>
- Buchholz, L. (2013). *Strategisches Controlling: Grundlagen – Instrumente – Konzepte*. <https://doi.org/10.1007/978-3-8349-4007-0>
- Burns, R., & Burns, R. (2008). *Business research methods and statistics using SPSS*. London, UK: Sage Publications.
- Carlock, R. S., & Ward, J. L. (2001). *Strategic planning for the family business: Parallel planning to unify the family and business*. <https://doi.org/10.1057/9780230508750>
- Castaldo, S. (2007). *Trust in market relationships*. <https://doi.org/10.4337/9781847208576>
- Chrisman, J. J. (2019). Stewardship theory: Realism, relevance, and family firm governance. *Entrepreneurship Theory and Practice*, 43(6), 1051–1066. <https://doi.org/10.1177/1042258719838472>
- Chu, W. (2009). The influence of family ownership on SME performance: Evidence from public firms in Taiwan. *Small Business Economics*, 33(3), 353–373. <https://doi.org/10.1007/s11187-009-9178-6>
- Chu, W. (2011). Family ownership and firm performance: Influence of family management, family control, and firm size. *Asia Pacific Journal of Management*, 28(4), 833–851. <https://doi.org/10.1007/s10490-009-9180-1>
- Colignon, R. A., & Covaleski, M. (1993). Accounting practices and organizational decision making. *The Sociological Quarterly*, 34(2), 299–317. <https://doi.org/10.1111/j.1533-8525.1993.tb00392.x>
- Conway, J. M., & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, 25(3), 325–334. <https://doi.org/10.1007/s10869-010-9181-6>
- Correa Rodríguez, A., Acosta Molina, M., González Pérez, A. L., & Medina Hernández, U. (2003). Size, age and activity sector on the growth of the small and medium firm size. *Small Business Economics*, 21(3), 289–307. <https://doi.org/10.1023/A:1025783505635>

30. Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, 47(2), 448–474. <https://doi.org/10.1257/jel.47.2.448>
31. Cruz, C., & Nordqvist, M. (2012). Entrepreneurial orientation in family firms: A generational perspective. *Small Business Economics*, 38(1), 33–49. <https://doi.org/10.1007/s11187-010-9265-8>
32. Cucculelli, M., Mannarino, L., Pupo, V., & Ricotta, F. (2014). Owner-management, firm age, and productivity in Italian family firms. *Journal of Small Business Management*, 52(2), 325–343. <https://doi.org/10.1111/jsbm.12103>
33. Curran, J., & Blackburn, R. A. (2001). *Researching the small enterprise*. <https://doi.org/10.4135/9781849209847>
34. Dal Magro, C. B., Turra, S., Klann, R. C., & Lemes, S. (2017). Timeliness of accounting information in family controlled and management companies in Brazil. *Latin American Business Review*, 18(2), 139–164. <https://doi.org/10.1080/10978526.2017.1318287>
35. Davis, J. A. (2008). Toward a typology of family business systems. In J. Tàpies, & J. Ward (Eds.), *Family values and value creation: The fostering of enduring values within family-owned businesses* (A Family Business Publication book series (AFBP), pp. 127–154). [https://doi.org/10.1057/9780230594227\\_7](https://doi.org/10.1057/9780230594227_7)
36. Deimel, K. (2008). Stand der strategischen Planung in kleinen und mittleren Unternehmen (KMU) in der BRD. *Zeitschrift für Planung & Unternehmenssteuerung*, 19(3), 281–298. <https://doi.org/10.1007/s00187-008-0061-4>
37. Deimel, K., Ellenberger, M., & Molitor, M. (2017). Strategische Planung in kleinen und mittleren Unternehmen in Deutschland. In A. Gadatsch, A. Krupp, & A. Wieseahn (Eds.), *Controlling und Leadership* (pp. 91–108). [https://doi.org/10.1007/978-3-658-15270-3\\_6](https://doi.org/10.1007/978-3-658-15270-3_6)
38. DePoy, E., & Gitlin, L. N. (2011). *Introduction to research: Understanding and applying multiple strategies*. St. Louis, MO: Elsevier.
39. Duindam, S., & Verstegen, B. (2000). Theory for accounting or accounting theory: An essay on the interaction between economics and accounting. *European Journal of Law and Economics*, 10(2), 125–138. <https://doi.org/10.1023/A:1018701932678>
40. Duller, C., Feldbauer-Durstmüller, B., & Hiebl, M. R. W. (2014). Funktionen des Controllings in Familienunternehmen: Die Informationsversorgungsfunktion wird weniger intensiv wahrgenommen als in Nicht-Familienunternehmen. *Controller Magazin*, 39(1), 26–29. Retrieved from <https://clck.ru/VDZ6b>
41. Dyer, G. W. (1989). Integrating professional management into a family owned business. *Family Business Review*, 2(3), 221–235. <https://doi.org/10.1111/j.1741-6248.1989.00221.x>
42. Eckstein, P. P. (2016). *Angewandte Statistik mit SPSS: Praktische Einführung für Wirtschaftswissenschaftler*. <https://doi.org/10.1007/978-3-658-10918-9>
43. Esteve-Pérez, S., & Manez-Castillejo, J. A. (2008). The resource-based theory of the firm and firm survival. *Small Business Economics*, 30(3), 231–249. <https://doi.org/10.1007/s11187-006-9011-4>
44. Exler, M. W., & Situm, M. (2014). Indikatoren zur Früherkennung von Unternehmenskrisen in der Beraterpraxis: Ansatzpunkte zur Etablierung eines internen Frühwarnsystems. *Krisen-, Sanierungs- und Insolvenzberatung*, 10(2), 53–59. <https://doi.org/10.37307/j.1868-7784.2014.02.03>
45. Fairlie, R. W., & Robb, A. M. (2009). Gender differences in business performance: Evidence from the characteristics of business owners survey. *Small Business Economics*, 33(4), 375–395. <https://doi.org/10.1007/s11187-009-9207-5>
46. Feldbauer-Durstmüller, B., Duller, C., Mayr, S., Neubauer, H., & Ulrich, P. (2012). Controlling in mittelständischen Familienunternehmen — Ein Vergleich von Deutschland und Österreich. *Controlling & Management*, 56(6), 408–413. <https://doi.org/10.1365/s12176-012-0666-1>
47. Feldbauer-Durstmüller, B., Wimmer, B., & Duller, C. (2007). Controlling in österreichischen Familienunternehmen dargestellt am Bundesland Oberösterreich. *Zeitschrift für Planung & Unternehmenssteuerung*, 18(4), 427–443. <https://doi.org/10.1007/s00187-007-0039-7>
48. Foster, J., Barkus, G., & Yavorsky, C. (2006). *Understanding and using advanced statistics: A practical guide for students*. <https://doi.org/10.4135/9780857020154>
49. Fu, V. K., Winship, C., & Mare, R. D. (2009). Sample selection bias models. In M. Hardy & A. Bryman (Eds.), *The handbook of data analysis* (pp. 409–430). London, UK: Sage Publications.
50. García Pérez de Lema, D., & Duréndez, A. (2007). Managerial behavior of small and medium-sized family businesses: An empirical study. *International Journal of Entrepreneurial Behaviour & Research*, 13(3), 151–172. <https://doi.org/10.1108/13552550710751030>
51. Giovannoni, E., Maraghini, M. P., & Riccaboni, A. (2011). Transmitting knowledge across generations: The role of management accounting practices. *Family Business Review*, 24(2), 126–150. <https://doi.org/10.1177/0894486511406722>
52. Glancey, K. (1998). Determinants of growth and profitability in small entrepreneurial firms. *International Journal of Entrepreneurial Behavior & Research*, 4(1), 18–27. <https://doi.org/10.1108/13552559810203948>
53. Glaum, M. (2020). Financial reporting in non-listed family firms: Insights from interviews with CFOs. *Schmalenbach Business Review*, 72(3), 225–270. <https://doi.org/10.1007/s41464-020-00087-x>
54. Goretzki, L. (2013). Management accounting and the construction of the legitimate manager. *Journal of Management Control*, 23(4), 319–344. <https://doi.org/10.1007/s00187-012-0163-x>
55. Gray, S. J., Salter, S. B., & Radebaugh, L. H. (2001). *Global accounting and control: A managerial emphasis*. New York, NY: John Wiley & Sons.
56. Greenstein, T. N., & Davis, S. N. (2013). *Methods of family research*. Thousand Oaks, CA: Sage Publications.
57. Haans, R. F., Pieters, C., & He, Z. L. (2016). Thinking about U: Theorizing and testing U-and inverted U-shaped relationships in strategy research. *Strategic Management Journal*, 37(7), 1177–1195. <https://doi.org/10.1002/smj.2399>
58. Hall, A., & Nordqvist, M. (2008). Professional management in family businesses: Toward an extended understanding. *Family Business Review*, 21(1), 51–69. <https://doi.org/10.1111/j.1741-6248.2007.00109.x>
59. Hall, A., Melin, L., & Nordqvist, M. (2006). Understanding strategizing in the family business context. In P. Z. Poutziouris, K. X. Smyrnios, & S. B. Klein (Eds.), *Handbook of research on family business* (pp. 253–268). Glos, UK: Edward Elgar.
60. Heinicke, A. (2018). Performance measurement systems in small and medium-sized enterprises and family firms: A systematic literature review. *Journal of Management Control*, 28(4), 457–502. <https://doi.org/10.1007/s00187-017-0254-9>

61. Helsen, Z., Lybaert, N., Steijvers, T., Orens, R., & Dekker, R. (2017). Management control systems in family firms: A review of the literature and directions for the future. *Journal of Economic Surveys*, 31(2), 410–435. <https://doi.org/10.1111/joes.12154>
62. Hendry, C., Arthur, M., & Jones, A. (1995). Adaptation and resource management in the small-medium-firm. *The Journal of Entrepreneurship*, 4(2), 165–184. <https://doi.org/10.1177/097135579500400202>
63. Herriau, C., & Touchais, L. (2015). The role of control systems in the process of change: Application to a family business succession. *Journal of Change Management*, 15(1), 19–42. <https://doi.org/10.1080/14697017.2014.922603>
64. Hiebl, M. R. W. (2013). Einfluss von Controlling-Systemen auf die Unternehmensführung mittelgroßer Familienunternehmen. *Controlling & Management Review*, 57(1), 78–84. <https://doi.org/10.1365/s12176-013-0685-6>
65. Hiebl, M. R. W., Duller, C., Feldbauer-Durstmüller, B., & Ulrich, P. (2015). Family influence and management accounting usage — Findings from Germany and Austria. *Schmalenbach Business Review*, 67(3), 368–404. <https://doi.org/10.1007/BF03396880>
66. Hiebl, M., Feldbauer-Durstmüller, B., & Duller, C. (2013). Die Organisation des Controllings in österreichischen und bayerischen Familienunternehmen. *Zeitschrift für KMU und Entrepreneurship*, 61(1/2), 83–114. <https://doi.org/10.3790/zfke.61.1-2.83>
67. Ho, R. (2014). *Handbook of univariate and multivariate data analysis and interpretation with SPSS*. <https://doi.org/10.1201/b15605>
68. Hope, O.-K., Thomas, W. B., & Vyas, D. (2013). Financial reporting quality of U.S. private and public firms. *The Accounting Review*, 88(5), 1715–1742. <https://doi.org/10.2308/accr-50494>
69. Hubert, B. (2016). Grundlagen des operativen und strategischen Controllings: Konzeptionen, Instrumente und ihre Anwendung. <https://doi.org/10.1007/978-3-658-07894-2>
70. Hulland, J., Baumgartner, H., & Smith, K. M. (2018). Marketing survey research best practices: Evidence and recommendations from a review of JAMS article. *Journal of the Academy of Marketing Science*, 46(1), 92–108. <https://doi.org/10.1007/s11747-017-0532-y>
71. Ibrahim, A. B., & Soufani, K. (2002). Entrepreneurship education and training in Canada: A critical assessment. *Education + Training*, 44(8/9), 421–430. <https://doi.org/10.1108/00400910210449268>
72. Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency cost, and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
73. Jiraporn, P., & DaDalt, P. J. (2009). Does founding family control affect earnings management? *Applied Economics Letters*, 16(2), 113–119. <https://doi.org/10.1080/17446540701720592>
74. Jovanovic, B. (1982). Selection and the evolution of industry. *Econometrica*, 50(3), 649–670. <https://doi.org/10.2307/1912606>
75. Jovanovic, B., & MacDonald, G. M. (1994). The life cycle of a competitive industry. *Journal of Political Economy*, 102(2), 322–347. <https://doi.org/10.1086/261934>
76. Kahane, L. H. (2008). *Regression basics* (2nd ed.). <https://doi.org/10.4135/9781483385662>
77. Korang Adjei, E., Eriksson, R. H., Lindgren, U., & Holm, E. (2019). Familial relationships and firm performance: The impact of entrepreneurial family relationships. *Entrepreneurship & Regional Development*, 31(5–6), 357–377. <https://doi.org/10.1080/08985626.2018.1514074>
78. Krishnaswamy, K. N., Sivakumar, A. I., & Mathirajan, M. (2006). *Management research methodology: Integration of principles, methods and techniques*. New Delhi, India: Dorling Kindersley.
79. Kromrey, H. (1994). Empirische Sozialforschung: Modelle und Methoden der Datenerhebung und Datenauswertung. <https://doi.org/10.1007/978-3-322-96184-6>
80. Lado, A. A., Boyd, N. G., Wright, P., & Kroll, M. (2006). Paradox and theorizing within the resource-based view. *Academy of Management Review*, 31(1), 115–131. <https://doi.org/10.5465/amr.2006.19379627>
81. Lee, Y. G., Jasper, C. R., & Fitzgerald, M. A. (2010). Gender differences in perceived business success and profit growth among family business managers. *Journal of Family and Economic Issues*, 31(4), 458–474. <https://doi.org/10.1007/s10834-010-9226-z>
82. Levy, M., Powell, P., & Yetton, P. (2002). The dynamics of SME information systems. *Small Business Economics*, 19(4), 341–354. <https://doi.org/10.1023/A:1019654030019>
83. Lockett, A., Thompson, S., & Morgenstern, U. (2009). The development of the resource-based view of the firm: A critical appraisal. *International Journal of Management Reviews*, 11(1), 9–28. <https://doi.org/10.1111/j.1468-2370.2008.00252.x>
84. Lumpkin, G. T., McKelvie, A., Gras, D. M., & Nason, R. S. (2010). Is strategy different for very small and new firms? *Journal of Small Business Strategy*, 21(2), 1–26. Retrieved from <https://libjournals.mtsu.edu/index.php/jsbs/article/view/144>
85. Madison, K., Holt, D. T., Kellermanns, F. W., & Ranft, A. L. (2016). Viewing family firm behavior and governance through the lens of agency and stewardship theories. *Family Business Review*, 29(1), 65–93. <https://doi.org/10.1177/0894486515594292>
86. Marques de Sá, J. P. (2007). *Applied statistics using SPSS, STATISTICA, MATLAB and R*. <https://doi.org/10.1007/978-3-540-71972-4>
87. Mayr, A. (2015). Controlling in Klein- und Kleinstunternehmen durch Steuerberater. *Zeitschrift für KMU und Entrepreneurship*, 63(3–4), 325–334. <https://doi.org/10.3790/zfke.63.3-4.325>
88. Mclvor, R. (2005). *The outsourcing process: Strategies for evaluation and management*. <https://doi.org/10.1017/CBO9780511543425>
89. McKee, T., & Lensberg, T. (2002). Genetic programming and rough sets: A hybrid approach to bankruptcy classification. *European Journal of Operational Research*, 138(2), 436–451. [https://doi.org/10.1016/S0377-2217\(01\)00130-8](https://doi.org/10.1016/S0377-2217(01)00130-8)
90. Merchant, K. A., & Van der Stede, W. A. (2007). *Management control systems: Performance measurement, evaluation and incentives*. Essex, UK: Pearson.
91. Miller, D., Le Breton-Miller, I., Minichilli, A., Corbetta, G., & Pittino, D. (2014). When do non-family CEOs outperform in family firms? Agency and behavioural agency perspective. *Journal of Management Studies*, 51(4), 547–572. <https://doi.org/10.1111/joms.12076>
92. Miller, D., Minichilli, A., & Corbetta, G. (2013). Is family leadership always beneficial? *Strategic Management Journal*, 34(5), 553–571. <https://doi.org/10.1002/smj.2024>

93. Mitter, C. (2014). Controlling in Familienunternehmen. *Zeitschrift für KMU und Entrepreneurship*, 62(4), 345-352. <https://doi.org/10.3790/zfke.62.4.345>
94. Mitter, C., Duller, C., Feldbauer-Durstmüller, B., & Kraus, S. (2014). Internationalization of family firms: The effect of ownership and governance. *Review of Managerial Science*, 8(1), 1-28. <https://doi.org/10.1007/s11846-012-0093-x>
95. Molly, V., Laveren, E., & Deloof, M. (2010). Family business succession and its impact on financial structure and performance. *Family Business Review*, 23(2), 131-147. <https://doi.org/10.1177/089448651002300203>
96. Montgomery, D. C., & Runger, G. C. (2011). *Applied statistics and probability for engineers*. Hoboken, NJ: John Wiley & Sons.
97. Nunes, P. M., Serrasqueiro, Z. S., & Leitao, J. (2010). Are there nonlinear relationships between the profitability of Portuguese service SME and its specific determinants? *The Service Industries Journal*, 30(8), 1313-1341. <https://doi.org/10.1080/02642060802398853>
98. Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations. A resource dependence perspective*. New York, NY: Harper & Row.
99. Pietsch, J. H., & Scherm, K. X. (2002). Gemeinsamkeiten und Forschungsperspektiven in der konzeptionell orientierten Controllingforschung — Acht Thesen. In J. Weber, & B. Hirsch (Eds.), *Controlling als akademische Disziplin: Eine Bestandsaufnahme* (pp. 191-204). [https://doi.org/10.1007/978-3-322-81430-2\\_13](https://doi.org/10.1007/978-3-322-81430-2_13)
100. Portisch, W. (2013). Risikoerkennung und Sanierungswürdigkeitsprüfung durch Kreditinstitute: Sanierungsentscheidungen nachvollziehbar treffen. *Krisen-, Sanierungs- und Insolvenzberatung*, 9(4), 149-154. <https://doi.org/10.37307/j.1868-7784.2013.04.03>
101. Prencipe, A., Bar-Yosef, S., & Dekker, H. C. (2014). Accounting research in family firms: Theoretical and empirical challenges. *European Accounting Review*, 23(3), 361-385. <https://doi.org/10.1080/09638180.2014.895621>
102. Press, J. S., & Wilson, S. (1978). Choosing between logistic regression and discriminant analysis. *Journal of the American Statistical Association*, 73(364), 699-705. <https://doi.org/10.1080/01621459.1978.10480080>
103. Priem, R. L., & Butler, J. E. (2001). Is the resource based “view” a useful perspective for strategic management research? *Academy of Management Review*, 26(1), 22-40. <https://doi.org/10.5465/amr.2001.4011928>
104. Qian, G., Li, L., Li, J., & Qian, Z. (2008). Regional diversification and firm performance. *Journal of International Business Studies*, 39(2), 197-214. <https://doi.org/10.1057/palgrave.jibs.8400346>
105. Quinn, M., Hiebl, M. R. W., Moores, K., & Craig, J. B. (2018). Future research on management accounting and control in family firms: Suggestions linked to architecture, governance, entrepreneurship and stewardship. *Journal of Management Control*, 28(4), 529-546. <https://doi.org/10.1007/s00187-018-0257-1>
106. Rau, S. B., Astrachan, J. H., & Smyrnios, K. X. (2018). The F-PEC revisited: From the family business definition dilemma to foundation of theory. *Family Business Review*, 31(2), 200-213. <https://doi.org/10.1177/0894486518778172>
107. Rautenstrauch, T., & Müller, C. (2005). Verständnis und Organisation des Controlling in kleinen und mittleren Unternehmen. *Zeitschrift für Planung & Unternehmenssteuerung*, 16(2), 189-209. <https://doi.org/10.1007/BF02848578>
108. Riesenhuber, F. (2009). Großzählige empirische Forschung. In S. Albers, D. Klapper, U. Konradt, A. Walter, & J. Wolf (Eds.), *Methodik der empirischen Forschung* (pp. 1-16). [https://doi.org/10.1007/978-3-322-96406-9\\_1](https://doi.org/10.1007/978-3-322-96406-9_1)
109. Salvato, C., & Moores, K. (2010). Research on accounting in family firms: Past accomplishments and future challenges. *Family Business Review*, 23(3), 193-215. <https://doi.org/10.1177/0894486510375069>
110. Samuelsson, J., Andersén, J., Ljungkvist, T., & Jansson, C. (2016). Formal accounting planning in SMEs: The influence of family ownership and entrepreneurial orientation. *Journal of Small Business and Enterprise Development*, 23(3), 691-702. <https://doi.org/10.1108/JSBED-12-2015-0167>
111. Schachner, M., Speckbacher, G., & Wentges, P. (2006). Steuerung mittelständischer Unternehmen: Größeneffekte und Einfluss der Eigentums- und Führungsstruktur. *Zeitschrift für Betriebswirtschaft*, 76(6), 589-614. <https://doi.org/10.1007/s11573-006-0029-5>
112. Schmid-Gundram, R. (2016). *Controlling-Praxis im Mittelstand: Aufbau eines MA Controllingsystems ausgehend von Lexware, DATEV oder SAP*. <https://doi.org/10.1007/978-3-658-09341-9>
113. Schulze, W. S., Lubatkin, M. H., & Dino, R. N. (2002). Altruism, agency, and the competitiveness of family firms. *Managerial and Decision Economics*, 23(4-5), 247-259. <https://doi.org/10.1002/mde.1064>
114. Serrasqueiro, Z. S., & Nunes, P. M. (2008). Performance and size: Empirical evidence from Portuguese SMEs. *Small Business Economics*, 31(2), 195-217. <https://doi.org/10.1007/s11187-007-9092-8>
115. Shapiro, C. (1989). The theory of business strategy. *RAND Journal of Economics*, 20(1), 125-137. <https://doi.org/10.2307/2555656>
116. Sharma, P. (2006). An overview of the field of family business studies: Current status and directions for future. In P. Z. Poutziouris, K. X. Smyrnios, & S. B. Klein (Eds.), *Handbook of research on family business* (pp. 25-55). Retrieved from [http://www.untag-smd.ac.id/files/Perpustakaan\\_Digital\\_1/FAMILY%20BUSINESS%20Handbook%20of%20Research%20on%20Family%20business.pdf](http://www.untag-smd.ac.id/files/Perpustakaan_Digital_1/FAMILY%20BUSINESS%20Handbook%20of%20Research%20on%20Family%20business.pdf)
117. Shleifer, A., & Vishny, R. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94(3), 461-488. <https://doi.org/10.1086/261385>
118. Sierke, B. R. A., Algermissen, J., & Brinkhoff, S. (2017). Outsourcing von Controlling als Option für den Mittelstand. *Controlling & Management Review*, 61(1), 22-33. <https://doi.org/10.1007/s12176-016-0113-9>
119. Situm, M. (2015). Die Saldenlisten als Informationsinstrument gegenüber Kreditinstituten. *Der Betriebswirt*, 56(2), 16-21. <https://doi.org/10.3790/dbw.56.2.16>
120. Situm, M. (2016). *Finanzierungsstruktur optimieren: Praxisleitfaden für Unternehmer und Berater*. Herne, Germany: NWB-Verlag.
121. Situm, M. (2019). Corporate performance and diversification from a resource-based view: A comparison between small and medium-sized Austrian firms. *Journal of Small Business Strategy*, 29(3), 78-96. Retrieved from <https://libjournals.mtsu.edu/index.php/jsbs/article/view/1100>
122. Smithson, M. (2010). *Statistics with confidence*. London, UK: Sage Publications.
123. Sonfield, M. C., & Lussier, R. N. (2004). Family business ownership and management: A gender comparison. *Journal of Small Business Strategy*, 15(2), 59-76. Retrieved <https://libjournals.mtsu.edu/index.php/jsbs/article/view/19>
124. Songini, L., & Gnan, L. (2015). Family involvement and agency cost control mechanisms in family small and medium-sized enterprises. *Journal of Small Business Management*, 53(3), 748-779. <https://doi.org/10.1111/jsbm.12085>

125. Sudman, S., & Blair, E. (1999). Sampling in the twenty-first century. *Journal of the Academy of Marketing Science*, 27(2), 269–277. <https://doi.org/10.1177/0092070399272010>
126. Taschner, A. (2012). Kennzahlennutzung in KMUs. *Der Betriebswirt*, 53(2), 19–24. <https://doi.org/10.3790/dbw.53.2.19>
127. Theuermann, C. (2014). *Controlling in österreichischen KMU: Anforderungen, zukünftige Entwicklungen und Kompetenzprofil des KMU-Controllers*. Retrieved July 7, 2019, from [https://www.campus02.at/rechnungswesen/wp-content/uploads/sites/6/2016/05/Studie\\_Controlling\\_Mittelstand\\_2013\\_2014\\_WEB\\_8742\\_DE.pdf](https://www.campus02.at/rechnungswesen/wp-content/uploads/sites/6/2016/05/Studie_Controlling_Mittelstand_2013_2014_WEB_8742_DE.pdf)
128. Thornhill, S., & Amit, R. (2003). Learning about failure: Bankruptcy, firm age, and the resource based view. *Organization Science*, 14(5), 497–509. <https://doi.org/10.1287/orsc.14.5.497.16761>
129. Vannoni, E. (2000). Diversification, the resource based view and productivity: Evidence from Italian manufacturing firms. *Empirica*, 27(1), 47–63. <https://doi.org/10.1023/A:1007008813708>
130. Voordeckers, W., van Gils, A., & van den Heuvel, J. (2007). Board composition in small and medium-sized family firms. *Journal of Small Business Management*, 45(1), 137–156. <https://doi.org/10.1111/j.1540-627X.2007.00204.x>
131. Voss, U., & Brettel, M. (2014). The effectiveness of management control in small firms: Perspectives from resource dependency theory. *Journal of Small Business Management*, 52(3), 569–587. <https://doi.org/10.1111/jsbm.12050>
132. Wambach, M., & Wunderlich, D. (2002). Die Bedeutung des Controlling für das Rating mittelständischer Unternehmen. *Zeitschrift für Controlling, Accounting & System-Anwendungen*, 46(1), 37–43. <https://doi.org/10.1007/BF03255697>
133. Weber, J. (2018). Theorie und Praxis im Controlling: Koexistenz oder Interaktion? *Controlling & Management Review*, 62(7), 38–45. <https://doi.org/10.1007/s12176-018-0056-4>
134. Winker, P. (2007). *Empirische Wirtschaftsforschung und Ökonometrie*. Berlin-Heidelberg, Germany: Springer Verlag.
135. Yang, M.-L. (2010). The impact of controlling families and family CEOs on earnings management. *Family Business Review*, 23(3), 266–279. <https://doi.org/10.1177/0894486510374231>
136. Zahra, S. A. (2005). Entrepreneurial risk taking in family firms: The wellspring of the regenerative capability. *Family Business Review*, 31(2), 216–226. <https://doi.org/10.1177/0894486518776871>
137. Zirkler, B., & Hofmann, J. (2015). Wie sich Basel III auf das Rating von KMUs auswirkt. *Controlling & Management Review*, 59(2), 60–68. <https://doi.org/10.1007/s12176-015-0529-7>