

INTERNATIONALITY OF VALUE CHAIN ACTIVITIES AND THE EXPORT ORIENTATION OF MICRO- AND SMALL FAMILY BUSINESSES IN WESTERN AUSTRIA

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Abstract

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Based on a sample of 461 micro- and small family businesses in Western Austria, this study aimed to analyze the degree of internationalization of individual activities in the value chain and their influence on the export probability of family firms. The results show that exporting and non-exporting micro- and small family businesses are internationalized in different value chain activities and can partly explain the export probability. The resource-based view (RBV) can only be used to a limited extent to explain the export activities of micro- and small family firms, and certain firm-specific and individual-decision-maker characteristics can significantly explain export probability. The findings suggest that a) micro- and small family firms take different paths of internationalization concerning their value chain and b) that the global value chain (GVC) approach should be integrated into theoretical concepts to obtain an improved explanatory model of the internationalization behavior of (family) businesses.

Keywords: Family Business, Internationalization, Resource-Based View, Value Chain

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1. INTRODUCTION

According to figures from the International Bank for Reconstruction and Development and The World Bank (2019), small and medium-sized enterprises (SMEs) play an important role in most of the world's economies. Approximately 90% of the companies worldwide can be classified as SMEs, which employ more than 50% of the workforce. According to statistics from the Organisation for Economic Co-operation and Development (OECD, 2019), there are approximately 31% of micro-enterprises and 18% of small enterprises worldwide, with several

economies (e.g., Greece, Italy, and Australia) where micro-enterprises are overrepresented. In Austria, approximately 87% can be classified as micro-enterprises and 11% as small enterprises, contributing 38% to the gross value added. About 90% of all businesses in Austria are family businesses (Bundesministerium für Digitalisierung und Wirtschaftsstandort, 2021, p. 15).

Research efforts increased to understand the operation of family businesses dating back to the 1980s and the 1990s. The overlap between family and business should be studied much more nuancedly (Taguiri & Davis, 1996) and cannot

simply be seen as a construct (Gersick, Davis, & McCollum, 1997, p. 5). Although many research areas in the family business field have been well researched, there remain topics where too little knowledge is available, justifying further research efforts. One of these research areas is the internationalization of family businesses, in which, following Bose (2016) and Pukall and Calabro (2014), there are still sufficient unresolved issues. Internationalization is essential for SMEs to ensure survival and long-term growth (Cerrato & Piva, 2012; Lu & Beamish, 2004). Despite this fact, many companies do not take the step of exporting services and products abroad because it is undoubtedly the riskiest strategic decision for SMEs (Chaston, 2010, p. 37) and, therefore, especially challenging (Olejnik & Swoboda, 2012).

Despite the insights from previous research indicating that larger firms are more likely to internationalize (Graves & Thomas, 2004; Larimo, 2013), family firms internationalize relatively slowly than non-family firms (Andersen, 1993; Pukall & Calabro, 2014). Older family firms are more likely to internationalize (Almodóvar, Verbeke, & Rodríguez-Ruiz, 2016; Benito-Hernández, Priede-Bergamini, & López-Cózar-Navarro, 2014), or certain characteristics of management (such as age, gender, and level of education) favor internationalization (Kyvik, Saris, Bonet, & Felício, 2013; Manolova, Brush, Edelman, & Greene, 2002). However, no single theory can explain the phenomenon of internationalization (Acedo & Florin, 2006).

Some contributions discuss the approach of global value chains (GVC), which means that value chains are increasingly separated in space and across organizational boundaries (Banga, 2014; Benito, Petersen, & Welch, 2019). This also means that value chain activities are domestic and can be set up in a cross-border context (Banga, 2014). Hessels and Terjesen (2010) show that companies that increasingly use foreign suppliers are more likely to export. This can reduce location and transaction costs because all activities in the value chain are linked by international flows (Buckley & Strange, 2015). Hernández and Pedersen (2017) argue that companies that internationalize according to the traditional path must also reconfigure or adapt the activities of the value chain. In this context, Benito et al. (2019) and Hernández and Pedersen (2017) argue that there is a deficit in the theory of internationalization because GVCs can contribute to a broader understanding of internationalization research, so there is a research gap here.

An analysis to determine the relationship between the degree of internationalization of individual activities in the value chain and the export probability of internationalization of micro- and small family businesses has not yet been analyzed in any study. Following Korhonen, Luostarinen, and Welch (1996), value chain activities with a certain degree of internationality can be defined as “inward foreign operations”. This means that firms can already be classified as internationally operating companies earlier if individual activities in the value chain show a certain degree of internationalization. This aspect was roughly defined by Curci, Yagi, and Mackoy (2013) as a value chain internationalization framework in which

relationships between the intensity of downstream (e.g., marketing, sales, and investments) and upstream (e.g., research and development, sourcing, and financing) activities are contrasted in a four-field matrix to determine four categories (1 = domestically focused, 2 = upstream-integrated, 3 = downstream-integrated and 4 = internationally engaged).

Another study by Oyson (2011) focused on small firms’ international value chain activities and found that internationalized value chain activities differ between product and service firms. He also concluded that outbound value chain activities are the first to be internationalized in small firms that export — moreover, value chain internationalization changes with access to new foreign markets. However, the actual degree of internationalization of individual activities in the value chain was not surveyed, which is the focus of this study. This can contribute to closing the research gap outlined above and expand our understanding of the internationalization of micro- and small (family) enterprises. This makes it possible to understand the extent to which activities in the plant chain are domestic or international and how they relate to export orientation.

For this reason, a new approach was attempted within the framework of this study to determine how individual’s international activities in the value chain of family businesses are and how the degree of internationalization differs between export-oriented and non-export-oriented family businesses. This is an approach that has not been applied in previous research so far, so, based on the research results elaborated, essential contributions for research in the field of internationalization could be developed. The necessary data were collected using a questionnaire sent to approximately 36,000 family businesses in western Austria. Finally, a sample of 461 micro- and small family businesses was analyzed. Using the resource-based view (RBV) and Porter’s value chain concept, new findings were identified that provide further insights into the internationalization of family businesses.

This paper aims to clarify the following research questions:

RQ1: How international are the individual activities of the entrepreneurial value chain for micro- and small family firms in Western Austria?

RQ2: To what extent can the degree of internationalization of individual activities in the value chain be used to explain the likelihood of exporting family businesses?

The remainder of this paper is organized as follows. The following Section 2 presents a literature review in which definitions and variables for measuring internationalization are presented. In addition, an overview of the models for describing and explaining the internationalization process of companies is provided. A description of the theoretical framework follows this, specifically, the resource-based view and value chain (Porter, 1985, 1991), and the development of the hypotheses. The survey methodology, the sample used, the variables, and the methodology are then described in Section 3. The results of the empirical study, a summary, and a critical reflection of the results are presented in Section 4. Finally, Section 5 concludes the study.

2. THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

2.1. Definitions and measures for internationalization

The term internationalization can have a wide variety of meanings; therefore, there is no single definition in the literature (Thompson & Martin, 2010, p. 553). This can be attributed to the fact that the internationalization process is a complex and unobservable construct (Olejnik & Swoboda, 2012). Buckley and Ghauri (1999), Goldman, Slava, Makogon, Orekhova, and Dubouskaya (2008), and Welch and Loustarinen (1999) describe internationalization as a process of increasing involvement in international operations and point out that it is necessary to become more closely linked to the dynamics of international trade. The previous definition can be expanded because these operations must occur across national borders (Smallbone, Xheneti, & Welter, 2011). This leads to value creation within the firm (Casulli, 2009, p. 22). The additional effect is that a company can reduce variances in sales revenues because internationalization can be seen as a form of diversification (Furrer, 2011, pp. 176-177).

There are also various options for measuring internationalization (and thus, definitions of internationalization are also implicitly covered). It turns out that the most frequently used definition is the ratio of foreign sales to total sales (Fernández & Nieto, 2005; Graves & Shan, 2014; Graves & Thomas, 2008). Other measures found in the literature are as follows:

- the level of internationalization commitment was measured on a 7- or 5-point-Likert-scale (Fernandez & Nieto, 2005; Graves & Thomas, 2004; Larimo, 2013);
- export propensity is modeled as a dummy variable (Benito-Hernández et al., 2014);
- foreign assets to total assets (Kaczmarek & Ruigrok, 2013; Kamakura, Ramón-Jerónimo, & Vecino Gravel, 2012);
- the extent of internationalization is modeled as the number of exporting countries (Denicolai, Hagen, & Pisoni, 2015; Hassel, Höpner, Kurdelbusch, Rehder, & Zugehör, 2003);
- the level of international experience is measured on a 5-point Likert scale (Larimo, 2013);
- entropy index of internationalization (Cerrato & Piva, 2012; Hitt, Hoskisson, & Kim, 1997);
- many countries with overseas subsidiaries (Lu & Beamish, 2001, 2004).

One criticism of the measurement variables is that they do not allow for a multivariate view of the phenomenon of “internationalization”. Hassel et al. (2003) argue that internationalization cannot be measured with a single indicator under the product life cycle theory, as different indicators would have to be used in the different stages of the internationalization process. Following this criticism, two multidimensional measures can be found in the literature. The first was developed by Arbaugh, Camp, and Cox (2008) and is calculated as the mean of three items (foreign sales to total sales, the firm’s percentage of total capital placed outside their headquarters’ country, and the percentage of employees permanently located outside their headquarters’ country). George, Wiklund, and Zahra

(2005) defined the second as arithmetic means across five different items (export share, import share, the share of advertising budget directed at international markets, the share of research and development (R&D) expenditure abroad, and the share of production completed abroad).

2.2. The need to incorporate multiple theories to explain the internationalization

Based on Acedo and Florin (2006), no single theory explains the phenomenon of internationalization. The application of the resource-based view seems appropriate for the topic of this study, following Priem and Butler (2001), because, based on their extensive literature review, it could be concluded that this paradigm is suitable as a theoretical basis for many business management problems. Peng (2001) elaborates on this more concretely. In his view, the RBV is a powerful theoretical perspective for explaining companies’ internationalization activities. Their applicability was subsequently confirmed in empirical studies by Alonso and O’Brien (2017) and Ruzo, Losada, Navarro, and Díez (2011).

Nevertheless, Arend and Lévesque (2010), Lockett, Thompson, and Morgenstern (2009), and Wan, Hoskisson, Short, and Yiu (2011) stated that the RBV should be combined with other theoretical perspectives to develop a reliable explanatory framework. Arregle et al. (2021) also argue that the complex phenomenon of family firm internationalization can be better understood when several theoretical perspectives are blended. Therefore, the RBV was combined with the value chain concept (Porter, 1985, 1991). This has not been used in previous research on the internationalization of family businesses. Porter (1991) and Webb and Gile (2001) stated that an attractive position of a company in the market could be achieved based on competitive advantages and point out that in this context, competitive advantages result from efficient activities of the value chain. This establishes a link between the RBV and the value chain concept, which, in combination, represents an integrated approach to explaining corporate success.

2.3. Internationalization under resource-based view (RBV)

According to the RBV, performance differences between companies can be explained by resource heterogeneity (Barney & Arikan, 2006; Costa, Cool, & Diericks, 2013). Heterogeneity in this context means that each firm has a unique set of tangible and intangible assets built up over time based on strategic decisions (Esteve-Pérez & Manz-Castillejo, 2008), and it is which determines different patterns of internationalization (Calia & Ferrante, 2013). Peteraf (1993) concludes that the most significant contribution of the RBV is that it can explain long-term performance differences between companies that cannot be explained based on industry affiliation.

One possible approach to use excess resources and capabilities is to pursue a diversification strategy to generate additional income (Peteraf, 1993). One way to diversify is to internationalize

(Fernández & Nieto, 2005; Kamakura et al., 2012), which, based on Barney and Arikan (2006, p. 170), is a logical extension of any corporate diversification strategy. A company will decide to internationalize if excess resources, which, according to Porter (1985), are required in the first place to cover the costs of diversification efforts, can be used more economically beyond its national borders (Fernández & Nieto, 2005; Jorge, Couto, Veloso, & Franco, 2017; Lockett & Thompson, 2001).

From these points of view, the RBV offers an excellent and well-founded explanation of a lack of resource sets (entry) barriers for companies to develop or implement internationalization (Arbaugh et al., 2008; Lockett & Thompson, 2001). In this context, Cerrato and Piva (2012) and Rask, Strandskov, and Hakonsson (2008) state that firm size is a good proxy for describing a firm's total resources. Davis (2008) states that firm age can be considered an appropriate measure of the expertise of family business because, following Cerrato and Piva (2012), this variable can be seen as a surrogate for the skills and resources of the firm.

It should be noted that implementing internationalization is riskier for small enterprises than large enterprises (Benito-Hernández et al., 2014; Ciešlik, Kaciak, & Welsh, 2012); therefore, company size has a significant influence on export decisions (Etemad & Wright, 2003). A similar result was reported by Benito-Hernández et al. (2014). Di Maria and Ganau (2016) showed in their study that medium-sized enterprises have a higher export intensity than small enterprises, confirming the assumptions of the RBV. More resources mean less risk and, therefore, encourage internationalization efforts.

Therefore, many small and medium-sized enterprises cannot implement innovation because of a lack of resources and capacity and cannot internationalize (Fernández & Nieto, 2005; Kamakura et al., 2012; Xie & Suh, 2014). Based on these theoretical considerations, the following research hypotheses can be formulated, which have also been tested in other studies (Graves & Thomas, 2004; Fernández & Nieto, 2005; Larimo, 2013).

H1a: The larger a family firm is, the higher the probability it exports or is internationalized.

H1b: The older a family firm is, the higher the probability it exports or internationalizes.

With these two hypotheses, a linear relationship between the export probability and the age or size of a company could be assumed. However, many business studies have empirically shown a nonlinear relationship between dependent and independent variables. Hilmersson and Johanson (2016) and Johanson and Kalinic (2016) argue that the internationalization process is not linear, accelerating in some phases and decelerating in others. This means that the process as a whole is complex and, therefore, should not be viewed in a one-dimensional and linear manner (Etemad & Wright, 2003).

This view is consistent with the broader view of the RBV regarding the capability lifecycle discussed by Helfat and Peteraf (2003). They argue that the development of capabilities over time underlies an evolution from the start-up phase to the development phase and finally to the maturity phase. Autio, Sapienza, and Almeida (2000)

concluded from their study that as companies age, barriers to learning develop that prevent them from developing competencies for internationalization. Indeed, some studies on internationalization have shown a non-linear relationship between the degree of internationalization or export orientation and firm performance (Lu & Beamish, 2001, 2004). Based on this, the following research hypotheses were derived:

H2a: There is a significant non-linear relationship between the probability of exporting or internationalizing and the size of the family firm.

H2b: There is a significant nonlinear relationship between the probability of exporting or internationalizing and the age of the family firm.

When analyzing family businesses, Cabrera-Suárez, De Saá-Pérez, and García-Almeida (2001) and Down (2013, pp. 90–91) take a broader view of the RBV, as this type of business has unique features that must also be regarded as resources, for example, a high degree of members' commitment and dedication, customer trust, or togetherness in the family. These aspects were also considered by Habbershon and Williams (1999), who concluded from their findings that behavioral phenomena within family businesses could be transformed into a competitive advantage. Chrisman, Chua, and Sharma (2005) conclude from their literature review that family involvement has an impact on firm performance, and Feltham, Feltham, and Barnett (2005) show that family firms are highly dependent on a single decision-maker, which is also relevant for internationalization (Denicolai et al., 2015; Etemad & Wright, 2003; Jorge et al., 2017). In addition, Arregle et al. (2021) pointed out in their literature review that the family factor has been given too little consideration in the context of internationalization research but that it must be assumed that it plays a relevant role. In this context, Kano, Tsang, and Yeung (2020) argue that the individual behavior and characteristics of decision-makers also impact the design of value chains.

Based on the knowledge-based view, which can be seen as a sub-area of the RBV (Eisenhardt & Santos, 2006, p. 140; Sousa & Hendriks, 2006), knowledge is one of the most critical production factors (Fathollahi, Momeni, Elahi, & Najafi, 2017) and this resource is fundamental to firms' decisions to internationalize (Johanson & Vahlne, 2009). Arbaugh et al. (2008) and Prashantham (2005) find that knowledge significantly influences whether a company internationalizes. This can be explained by the fact that some managers lack information or knowledge or that some companies can use the given knowledge appropriately (Hutchinson, Fleck, & Lloyd-Reason, 2009; Schoenberger, 1994). Experience and knowledge development can generally only evolve (Claver, Rienda, & Quer, 2007), so the management's age, experience, and education influence the internationalization decisions of family businesses.

H3a: The older the management of a family firm, the higher the probability it exports or internationalizes.

H3b: The more experienced the management of a family firm is, the higher the probability that it exports or is internationalized.

H3c: The better the education of the management of a family firm, the higher the probability of exports or internationalization.

Davis (2008) states that the generation of a company can be viewed as a surrogate for measuring company history, expertise, or experience. Okoroafo and Koh (2010) describe how family businesses' views of internationalization vary with generation. Specifically, they conclude that third generations have a more negative attitude toward internationalization than the first and second generations. A similar conclusion was reached by Graves and Thomas (2008), who state that commitment to internationalization depends on the vision and qualities of the successor, which means that higher generations do not necessarily have a higher commitment to internationalization compared to founders or second-generation managers. Mitter, Duller, Feldbauer-Durstmüller, and Kraus (2014) also concluded from their study that the probability of internationalization is higher under the founder generation than under subsequent generations. The first generation seems to have higher entrepreneurial commitment. Based on these findings, the following research hypotheses were formulated:

H4: The higher the generation of a family firm, the lower the probability of exports or internationalization.

2.4. Internationalisation and the (global) value chain of the company

The internationalization process consists of several phases or stages in which the company follows a certain pattern or behavior (Kuivalainen, Sundqvist, Saarenketo, & McNaughton, 2012). To move from one stage to another, the company needs to "accelerate". This can only be done if a company has resources available (Chetty & Campbell-Hunt, 2003). Langseth, O'Dwyer, and Arpa (2016) find that certain elements influence the speed of internationalization. These elements include technology, entrepreneurial actors' perceptions, foreign market knowledge, and network ties.

The value chain allows for a multidimensional view, as hypothetically, individual activities can also be "international" because they can be carried out at the domestic level and in a cross-border context (Banga, 2014). In their indicator for measuring internationalization (arithmetic mean of five different items), George et al. (2005) state that import share, the share of advertising budget directed at international markets, and the share of R&D expenditures abroad are relevant variables that should be taken into account. This approach determines the degree of overall internationalization through individual activities in the value chain. This way of thinking is similar to the explanations of Korhonen et al. (1996), who state that internationality can begin with the individual activities of the value chain (generally referred to by the authors as inward operations).

These activities within the value chain are interrelated or interdependent, which is also why competitive advantages can be realized (Kippenberger, 1997). For export-oriented companies, the activities "marketing" and "sales" in particular

are strongly linked to internationalization, as this is reflected in particular in the measure of foreign sales to total sales, which has been used in several studies to measure the internationality of companies (Fernández & Nieto, 2005; Graves & Shan, 2014). Companies that operate internationally and thus cooperate with customers in a cross-border context and want to optimize this cooperation must, therefore, reconfigure and adapt the value chain activities accordingly (Hernández & Pedersen, 2017).

Therefore, there is a link between internationality (exporting beyond one's domestic borders) and the degree of internationalization of individual activities in the value chain. Based on Knez, Jaklič, and Stare (2021), three types of value chains can be classified: a) no value chain, b) domestic value chain (only domestic production-sharing transactions), and c) global value chains subdivided into simple and complex value chains. Owing to the complexity that arises in internationality, competitive advantage can be achieved by coordinating and aligning activities using regional and global networks (Porter, 1999).

The value chain internationalization framework (Curci et al., 2013) defines four categories in a four-field matrix by comparing the intensity of downstream and upstream activities: 1 = domestically focused, 2 = upstream-integrated, 3 = downstream-integrated, and 4 = internationally engaged. Individual variables were surveyed using a 7-point Likert scale. The authors conclude that companies are more likely to engage in upstream (e.g., R&D, sourcing, and financing) than downstream (e.g., marketing, sales, and investments) international value chain activities, so most companies are found in category 2. Companies can move from one category to another; however, the results show that this is rarely the case. The framework is useful in determining the path companies take to internationalize value chain activities. Similarly, Oyson (2011) reports that small firms internationalize the outbound value chain to prepare for exports. In addition, it can be observed over time that the degree of internationalization of value chain activities also changes when entering new foreign markets.

Based on these considerations, the last research hypothesis can be formulated:

H5: Export-oriented companies show significantly higher internationalization in individual activities of the value chain.

3. METHODOLOGY, DATA, AND VARIABLES

3.1. Dependent variable

The dependent variable of the studies was modeled as a dummy variable (*EXP*) and described whether a company exports (0 = non-exporters; 1 = exporters). This variable was also used in studies by Benito-Hernández et al. (2014), Cerrato and Piva (2012), and Graves and Thomas (2004). Here, exporting is assumed to occur when a company operates (exports) beyond its national borders, in whatever form (Smallbone et al., 2011). A separate question was there in the questionnaire to check if a company exports or not.

3.2. Independent variables

Independent variables were divided into two categories. These are based on contextual factors, which include a) context factors of the firm and b) context factors of the management and company culture (Davis, 2008, pp. 130–132). This concept is similar to the contingency export-entrepreneurial framework applied by Ibeh (2003) and Kohli and Jaworski (1990), who use antecedents that define a) firm-specific characteristics and competencies and b) individual decision-maker characteristics that can explain export-entrepreneurial orientation. In this context, Kuivalainen et al. (2012) state that considering the firm and managerial levels in the overall view is highly relevant for identifying antecedents of internationalization pathways.

The inclusion of management perspectives seems relevant because of the RBV, as a firm can reach a competitive advantage based on management behavior (Habbershon & Williams, 1999). Andersson (2000) argues that taking the entrepreneur into account is helpful in understanding companies' internationalization behavior. In addition, Mitter et al. (2014) showed that family influence impacts the internationalization

activities of family businesses. A summary of the study variables is presented in Table 1.

3.2.1. Context factors describing the family firm

These variables include the size of the firm (*SIZE*), measured by the number of employees, and the age of the firm in years (*AGE*) (Akerman, 2015; Benito-Hernández et al., 2014; Cerrato & Piva, 2012; Fernández & Nieto, 2005; Harhoff, Stahl, & Woywode, 1998). The logarithm was applied to both variables to obtain better data normalization (Akerman, 2015; Chen, Hsu, & Chang, 2014). In addition, family businesses were classified into 19 industries according to the Austrian NACE 2008 classification criteria (Situm, 2019), with each industry (*IND*) modeled as a dummy variable (1 = belonging to the industry in question; 0 = otherwise) (Almodóvar et al., 2016; Benito-Hernández et al., 2014; Graves & Shan, 2014). According to Davis (2008), the industry appears relevant for the analysis of family businesses, as it reflects the challenges faced in business life. Martin (2012) described this in more detail, stating that a company's industry affiliation is a good proxy for describing rivalry in the market.

Table 1. Definition of the variables of the study

Context factors of the firm			Context factors of the management & company culture		
Variable	Definition		Variable	Definition	
<i>SIZE</i>	Size of the firm	Log(Number of employees)	<i>AGE_MGMT</i>	Age of the management	Log(Age of the management in years)
<i>AGE</i>	Age of the firm	Log(Age of the firm in years)	<i>EXP_MGMT</i>	Experience of the management	Log(Experience of the management in years)
<i>IND</i>	Industry classification	19 dummy variables (1 = belonging to the relevant industry; 0 = otherwise)	<i>GENDER</i>	Gender of the management	Dummy variable (1 = male; 0 = female)
<i>LEG_FORM</i>	Legal form	Dummy variable (1 = corporation; 0 = otherwise)	<i>EDUCATION</i>	Education of the management	7 dummy variables for various educations (1 = highest education; 0 = otherwise)
<i>VC_ACT</i>	Value chain activities	Estimation between 0–100 percent for 11 value chain activities	<i>GEN</i>	Generation of the firm	Ordinal scale (from 1 = 1st generation to 5 = 5th generation)
Firm-specific characteristics			Individual decision-maker characteristics		

Note: The table is grounded and structured based on the context factors described by Davis (2008) (a) contextual factors of the firm and b) contextual factors of the management and company culture) and the contingency export-entrepreneurial framework by Ibeh (2003) and Kohli and Jaworski (1990) (a) firm-specific characteristics and b) individual decision-maker characteristics). The table contains the variable code, description of the variable, computations, and related references.

There are higher- and lower-risk industries (Cheung & Levy, 1998; Hall & Young, 1991), and therefore it seems logical to conclude that companies from specific industries are more likely to internationalize to counter the inherently higher risk of their industry affiliation. In addition, the companies were differentiated into corporations and partnerships, whereby the relevant variable *LEG_FORM* was declared as a dummy variable (1 = corporation; 0 = partnership) (Harhoff et al., 1998). The authors show that corporations have limited liability, so managers of such companies tend to invest in riskier projects (businesses), which bring a higher return but are also associated with the corresponding higher risk (Stiglitz & Weiss, 1981).

Assuming that the decision to export is one of the riskiest decisions for SMEs (Chaston, 2010, p. 37) and that risk-taking is generally higher among corporations, it can be followed that corporations are more likely to export than non-corporations (Ngoma, Ernest, Nangoli, & Christopher, 2017). In addition to these variables, 11 other value chain

activities, both primary and secondary, were included as independent variables, valued between 0 and 100%. The respondents estimated these. The aim was to estimate the proportion of activities representing non-domestic relations (inward and outward operations).

3.2.2. Context factors describing management and company culture

For the sample described above, relevant data were collected from managers. In addition to the age of management (*AGE_MGMT*) in years (Denicolai et al., 2015; Ucbasaran, Westhead, Wright, & Flores, 2010), work experience (*EXP_MGMT*) was measured in years (Kyvik et al., 2013; Manolova et al., 2002). The natural logarithm was also used for these two variables to normalize the data (Löffler & Posch, 2007, p. 18). Management gender (*GENDER*) was modelled as a dummy variable (1 = male; 0 = female), following Manolova et al. (2002) and

Ucbasaran et al. (2010). Respondents also had the option to indicate their highest level of education. The choices were *COMP*, compulsory school; *APPR*, apprenticeship; *ALEV*, A-level; *MAST*, master's examination; *UNIV*, university degree; *SEC*, secondary school; and *OTHER*, other education. 7 dummy variables were defined to determine the highest educational level (1 = highest education; 0 = otherwise) (Denicolai et al., 2015; Kyvik et al., 2013). Furthermore, the generation (*GEN*) in which the company was already managed was queried. Generation was defined on an ordinal scale based on Denicolai et al. (2015), Fernández and Nieto (2005), and Mitter et al. (2014). The highest number of generations was five, so the scale ranged from one to five.

3.3. Data gathering and research object

A structured questionnaire was used for data gathering to test the hypotheses and answer the research question of this work because there are no official sources from which the information of interest can be obtained in combination. It is also convenient because of the possibility of statistical analysis of the answers obtained from the respondents (Curran & Blackburn, 2001, p. 74; Strübing, 2013, p. 4). The questionnaire was developed based on a literature review to ensure the accuracy and validity of the content (DePoy & Gitlin, 2011, p. 204; Greenstein & Davis 2013, p. 67). Finally, five experts in the export business were asked to make a pre-test to guarantee understandability, calibrate the measurement instrument, and capture a high content validity in context with the previously mentioned literature review (Hulland, Baumgartner, & Smith, 2018).

3.4. Sample selection and description

The sample comprises family firms in Western Austria, including Tyrol, Salzburg, and Vorarlberg. More than 36,000 companies received the questionnaire (the questionnaire is available upon request) and were invited to participate in the survey in 2018. Therefore, cross-sectional data for one year were obtained. Finally, 1,060 questionnaires were returned, and not all were completed. Based on this, the following reductions were made to the data to obtain the correct study group:

- In the first step, incomplete questionnaires were eliminated, and only those with complete data were used (Jamshidian, 2009, p. 116).

- From these, those companies were filtered out using the "F-PEC subscale" based on Astrachan, Klein, and Smyrniotis (2002, 2006), and Rau, Astrachan, and Smyrniotis (2018), which can be regarded as family businesses (variable *OWNERSHIP*). According to the definition, this is the case if a) the family holds the majority of the decision-making rights; b) the family directly or indirectly holds the majority of the decision-making rights, and at least one family representative is in charge of the company.

- Finally, the reduced sample was differentiated according to the size of the company (based on the number of employees). For this purpose, the classification of size classes based on the European Union (2003/361/EC) was used, focusing on micro-enterprises (< 10 employees) and small enterprises (10 to < 50 employees).

The final sample of this study consisted of 461 responses from family businesses assigned as micro-firms (n = 326) and small firms (n = 135). The main characteristics of the sample (company characteristics) based on the data reduction process and the variables described in further detail are summarized in Table 2. Table 3 summarizes the respondents' characteristics. Due to the stringent collection of variables to describe the size of the business and the family business status and the careful selection process, it cannot be assumed that there is a sampling bias. Therefore, it can be assumed that population validity exists because the target group (micro- and small family businesses) can be represented based on the specified criteria (Burns & Burns, 2008, p. 427; Kromrey, 1994, p. 197).

3.5. Methodology

As the dependent variable is binary-coded, probit or logit regression can be used for hypothesis testing (Marques de Sá, 2007, p. 322). In this study, logit regression was favored because its major advantage over probit regression is that its maximum likelihood estimation is relatively robust to violation of the normal distribution of data and does not require equality of the covariance matrices of the two groups under investigation (Hauser & Booth, 2001; Hayden & Porath, 2011). All regression models were extended to include marginal effects calculations based on the delta method (calculation of the mean) to assess the probability better that the dependent variable changes when an independent variable changes (Gruszczynski, 2020, p. 32).

Table 2. Summary statistics of the sample

Industry	Micro-firms						Small firms						All firms					
	AGE			EXP			AGE			EXP			AGE			EXP		
	n	Mean	Median	σ	REG	INT	n	Mean	Median	σ	REG	INT	n	Mean	Median	σ	REG	INT
A, B	6	47.500	16.000	63.623	6	0	0	-	-	-	0	0	6	47.500	16.000	63.623	6	0
C	40	46.075	37.000	34.047	24	16	21	37.810	37.000	22.827	11	10	61	43.230	37.000	30.706	35	26
D, E	4	32.750	14.500	42.374	4	0	0	-	-	-	0	0	4	32.750	14.500	42.374	4	0
F	26	29.577	23.000	21.298	22	4	16	51.375	42.500	34.300	13	3	42	37.881	28.500	28.667	35	7
G	18	27.667	16.500	23.966	12	6	12	78.000	46.000	124.943	7	5	30	47.800	26.500	82.988	19	11
H	5	31.800	24.000	23.732	5	0	8	35.875	18.000	31.348	3	5	13	34.308	18.000	27.663	8	5
I	65	30.677	27.000	21.165	20	45	42	56.595	41.500	86.775	14	28	107	40.850	29.000	57.833	34	73
J	36	19.250	15.000	9.391	27	9	7	28.857	19.000	27.021	2	5	43	20.814	17.000	13.809	29	14
K	9	21.111	15.000	17.517	7	2	0	-	-	-	0	0	9	21.111	15.000	17.517	7	2
L	6	41.000	30.000	32.711	6	0	3	32.333	30.000	6.807	2	1	9	38.111	30.000	26.441	8	1
M	30	22.833	17.000	19.348	20	10	8	27.125	25.000	11.269	6	2	38	23.737	17.000	17.905	26	12
N	14	22.071	16.000	18.164	9	5	5	31.200	27.000	17.754	3	2	19	24.474	16.000	18.038	12	7
Q	2	15.500	15.500	0.707	1	1	0	-	-	-	0	0	2	15.500	15.500	0.707	1	1
R	24	20.125	21.500	9.162	20	4	2	28.500	28.500	16.263	2	0	26	20.769	21.500	9.643	22	4
S	5	30.200	29.000	10.941	4	1	1	-	-	-	1	0	6	27.167	26.500	12.287	5	1
T	30	21.033	16.000	17.315	21	9	9	28.444	28.000	15.224	5	4	39	22.744	19.000	16.959	26	13
U	6	27.333	27.500	15.501	4	2	1	-	-	-	0	1	7	31.571	29.000	18.054	4	3
Total	326	28.411	21.000	23.921	212	114	135	46.444	37.000	64.358	69	66	461	33.692	24.000	40.968	281	180

Note: The industry classes were based on the Austrian NACE 2008 codes and contain: A = Agriculture, forestry and fishing, B = Mining and quarrying, C = Manufacturing, D = Electricity, gas, steam and air condition supply, E = Water supply, sewerage, waste management, and remediation activities, F = Construction, G = Wholesale and retail trade and repair of motor vehicles and motorcycles, H = Transporting 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 = Administrative and support service activities, Q = Human health and social work activities, R = Arts, entertainment and recreation, S = Other services activities, T = Creation of goods and provision of services for personal consumption. Branches A, B, D, and E were combined because of their low numbers in some cases. Additionally, descriptive statistics about the age of the firms in years were highlighted using the mean, median, and standard deviation (σ). To capture whether firms are mainly engaged in regional (REG) or international (INT) relations, the dummy variable EXP was evaluated (in accordance with Benito-Hernández et al., 2014).

Table 3. Summary statistics about respondents recognized as family business entrepreneurs

	GEN	Male										Female									
		EDUCATION										EDUCATION									
		n	AGE	EXP	COMP	APPR	ALEV	MAST	UNIV	SEC	OTHER	n	AGE	EXP	COMP	APPR	ALEV	MAST	UNIV	SEC	OTHER
Micro-firms	1.	150	52.787	32.307	3	22	24	37	47	11	6	56	51.964	30.393	2	4	7	2	30	10	1
	2.	51	51.706	32.451	1	3	5	19	11	9	3	23	48.043	29.522	0	4	3	4	8	3	1
	3.	24	51.167	32.000	0	3	5	7	7	2	0	5	45.400	24.800	0	1	1	1	1	1	0
	4.	5	52.600	34.000	0	2	0	1	1	1	0	4	51.750	28.500	0	0	3	0	1	0	0
	5.	6	45.667	28.500	0	0	1	4	1	0	0	2	43.500	21.500	0	0	0	0	0	2	0
Total	236	52.203	32.246	4	30	35	68	67	23	9	90	50.400	29.578	2	9	14	7	40	16	2	
Small firms	1.	35	47.457	27.400	0	5	8	11	10	1	0	7	53.286	35.286	0	4	2	0	1	0	0
	2.	38	49.421	29.579	0	5	12	10	9	2	0	8	47.750	26.875	0	0	2	3	3	0	0
	3.	25	50.720	31.240	0	2	3	8	7	4	1	5	43.000	19.600	0	0	1	1	3	0	0
	4.	4	51.000	32.000	0	0	2	0	2	0	0	6	48.333	28.833	0	1	0	1	3	1	0
	5.	5	52.000	32.400	1	0	0	2	1	1	0	2	34.500	17.500	0	0	0	0	1	0	1
Total	107	49.262	29.477	1	12	25	31	29	8	1	28	47.464	27.429	0	5	5	5	11	1	1	
Total	343	51.286	31.382	5	42	60	99	96	31	10	118	49.703	29.068	2	14	19	12	51	17	3	

Note: The table summarizes the demographics of respondents who were recognized as entrepreneurs. The respondents were categorized into different generations of micro- and small firms. In addition, they were differentiated into males and females. The means are reported for age and years of working experience, which seems appropriate as the data were normally distributed (not reported here in detail). For the highest education level, the different possibilities and their answer frequencies are displayed (COMP = compulsory school; APPR = apprenticeship; ALEV = A-levels; MAST = Master's examination; UNIV = University degree; SEC = Secondary school; OTHER = Other education).

4. RESULTS

4.1. Descriptive statistics and correlation analysis

In the first step, descriptive statistics' characteristic values were calculated and presented separately for exporting and non-exporting companies to determine possible statistically significant differences between the variables. The results are presented in Table 4. The data show that companies that are already internationally active (exporters) also have significantly higher internationality in the individual activities of the value chain, which generally supports *H5*. Nevertheless, it must be noted that even if micro- and small enterprises are not internationally active (non-exporters), as previously described in the literature, they are international in the individual activities of the value chain. This confirms Korhonen et al.'s (1996) statement that non-exporting companies can also be classified as internationally operating companies. The figures of the descriptive statistics also support the findings of Curci et al. (2013) that companies can be classified into different categories in the value chain international framework.

Despite the lack of export activities, there are downstream-integrated, upstream-integrated, and internationally engaged-micro- and small family businesses. This implies that the previous

definitions of internationalization and internationalization models can only capture the actual possibilities or activities of internationalization of companies to a limited extent. The results of the correlation analysis for the variables are shown in the Appendix (Table A.1). There are some statistically significant high correlation coefficients. A potential problem of collinearity exists between the variables *AGE_MGMT* and *EXP_MGMT* because there is a correlation of greater than 0.8 here (Burns & Burns, 2008, p. 386; Kahane, 2008, p. 122). This must be considered in further analyses because the collinearity of variables has a negative impact on the estimation accuracy of regression coefficients (Burns & Burns, 2008, p. 386; Stolzenberg, 2009, pp. 178-179).

Therefore, in the presentation of the individual regressions, only one of the two variables was included, namely, the one that provided the highest explanatory contribution. There were significant positive correlations between almost all the activities in the value chain. This indicates that the internationality of the individual activities in the value chain is interrelated. This result confirms the findings of Knez et al. (2021) that complex global value chains can exist because more activities in the value chain are linked to cross-border transactions.

Table 4. Descriptive statistics

Variable	Group	Mean	Median	σ	Sign.	Sign.	Sign.
					(KS-test)	(t-test)	(U-test)
AGE	0	1.385	1.362	0.348	0.075*	0.865	0.924
	1	1.379	1.380	0.336	0.054*		
SIZE	0	0.600	0.602	0.457	0.000***	0.111	0.093
	1	0.671	0.699	0.480	0.000***		
VC_INBOUND	0	0.102	0.000	0.225	0.000***	0.000***	0.000***
	1	0.199	0.015	0.301	0.000***		
VC_OPER	0	0.081	0.000	0.229	0.000***	0.000***	0.000***
	1	0.170	0.000	0.308	0.000***		
VC_OUTBOUND	0	0.034	0.000	0.118	0.000***	0.000***	0.000***
	1	0.167	0.000	0.282	0.000***		
VC_MARKET	0	0.071	0.000	0.191	0.000***	0.000***	0.000***
	1	0.354	0.255	0.361	0.000***		
VC_SALES	0	0.074	0.000	0.179	0.000***	0.000***	0.000***
	1	0.400	0.375	0.358	0.000***		
VC_AFTER	0	0.049	0.000	0.134	0.000***	0.000***	0.00***
	1	0.197	0.010	0.305	0.000***		
VC_PROC	0	0.178	0.000	0.281	0.000***	0.001***	0.001***
	1	0.270	0.110	0.329	0.000***		
VC_R&D	0	0.063	0.000	0.192	0.000***	0.013**	0.022**
	1	0.115	0.000	0.259	0.000***		
VC_HR	0	0.057	0.000	0.160	0.000***	0.000***	0.000***
	1	0.140	0.000	0.284	0.000***		
VC_FIN	0	0.027	0.000	0.121	0.000***	0.005***	0.000***
	1	0.068	0.000	0.196	0.000***		
VC_MGMT	0	0.028	0.000	0.131	0.000***	0.133	0.033**
	1	0.050	0.000	0.188	0.000***		
AGE_MGMT	0	1.705	1.708	0.076	0.000***	0.064*	0.232
	1	1.690	1.708	0.091	0.000***		
EXP_MGMT	0	1.472	1.477	0.149	0.000***	0.045**	0.276
	1	1.439	1.477	0.203	0.000***		
GEN	0	1.747	1.000	1.040	0.000***	0.557	0.386
	1	1.806	1.000	1.031	0.000***		

Note: The groups are divided into non-exporters (0) and exporters (1). Each group's mean, median, and standard deviation (σ) were computed for each variable. In addition, the significance of the test for normality of data based on the Kolmogorov-Smirnov test is shown. Additionally, the significance of the t-test and U-tests was visible. Following abbreviations were used to assign the single activities of the value chain: VC_INBOUND = inbound logistics; VC_OPER = operations; VC_OUTBOUND = outbound logistics; VC_MARKET = marketing; VC_SALES = sales; VC_AFTER = after-sales service; VC_PROC = procurement; VC_R&D = research & development; VC_HR = human resources; VC_FIN = financing; VC_MGMT = management. Significance: * 10 percent level; ** 5 percent level; *** 1 percent level (n = 461).

4.2. Results of regression analyses

The first step was to analyze which of the previously defined independent variables influence whether micro- and small family businesses export or not. *EXP* is used as a binary dependent variable (0 = non-exporter; 1 = exporter). Several models were calculated, and Table 4 shows the eight models that produced the best and most comprehensible results from an economic point of view. In order to be able to assess the model quality, the α - and β -error from the analysis of the contingency table, the respective area-under-curve (AUC), and the respective Gini coefficient ($= 2 * AUC - 1$) were calculated following Witzany (2017, pp. 22-26).

Contrary to the theoretical assumptions, the company size of the family business (*SIZE*) is not a significant variable in explaining export intensity for micro- and small family businesses. This finding is consistent with Ngoma et al. (2017) and Sciascia, Mazzola, Astrachan, and Piepe (2012). Approximately 34.97% of micro-enterprises and 48.89% of small enterprises in this sample are internationally active, and this can be done with fewer resources. This supports the findings of Døving and Gooderham (2008) that smaller firms can use their limited resources efficiently and thus cope with the challenges of internationalization (Bose, 2016; Poff, Heriot, & Campbell, 2008), which contrasts with the findings of Fernández and Nieto (2005) and Kamakura et al. (2012), who found that smaller firms are more likely to be unable to implement internationalization due to lack of resources and capacity.

About the age of the family business (*AGE*), only the conditional correlation of this variable with export intensity can be given. If the variables describing the individual activities of the value chain and also the contextual factors describing the family business and management are added to the regressions, then it can be seen that a) export intensity increases significantly with increasing business age (Giovanetti, Marvasi, & Sanfilippo, 2015; Sciascia et al., 2012) and b) decreases significantly after a certain age (Lu & Beamish, 2001, 2004). This can also be confirmed based on the significant coefficients of the marginal effects. Thus, a nonlinear relationship is provided, as described in the theoretical explanations. This is in line with Autio et al. (2000), who showed that obstacles to learning develop in aging companies, which inhibits their willingness to internationalize.

The decoupling of the effects between age and size of the business can be explained based on the significant but very low correlation between these two variables, which indicates that unconditional growth is not a primary goal of family businesses over time. This contradicts Jovanovic (1982), who postulated a fundamentally positive relationship between the two variables. There is also no strong dependency on membership in a particular industry. Only industry I (accommodation and food service activities), which can be described as a tourism industry, shows consistently positive significant coefficients.

The variable *LEG_FORM* shows that the more likely a company is to be a corporation, the more

likely it is to export ($\chi^2 = 3.007$; sign. = 0.083), which can also be confirmed by examining the marginal effects. No possible explanation for this can be found in the literature because this variable has not yet been considered to explain the internationalization of family businesses. Following Harhoff et al. (1998), a potential explanation is that corporations are more willing to take risks than non-corporations. If the decision to internationalize can be seen as one of the riskiest decisions for SMEs (Chaston, 2010, p. 37), it can be concluded that corporations are more likely to internationalize. This conclusion is in line with the results of Ngoma et al. (2017), who show that risk-taking correlates significantly and positively with internationalization.

The individual activities of the value chain show that outbound logistics (*VC_OUTBOUND*), sales (*VC_SALES*), and management (*VC_MGMT*) have significant coefficients. *VC_SALES* can be seen as a surrogate for the most commonly used variable for measuring the degree of internationalization of foreign sales to total sales. Therefore, its significance is not surprising. It seems interesting that if outbound logistics have a high degree of internationalization, the probability of export orientation also increases (considering the marginal effects) (Oyson, 2011). A significant negative sign was found for management activity (*VC_MGMT*), suggesting that small and micro-family enterprises with foreign management tend not to engage in export activities. Management gender showed no significant coefficients, supporting the findings of Greene, Brush, and Brown (1997).

According to Manolova et al. (2002), gender is not a need-based resource or decisive variable. The decision-makers' risk preference is relevant for the internationalization decision (Collinson & Houlden, 2005; Gallo & Pont, 1996), although, based on the present results, these do not differ significantly in the gender of the decision-maker.

Management experience (*EXP_MGMT*) plays a significant role in internationalization decisions, and it is shown that the probability of export intensity decreases with increasing experience. This result contradicts the findings of Kyvik et al. (2013), who show that the global mindset increases with management experience, which is conducive to internationalization. The influence of generation (*GEN*) on export orientation was not found, which is in line with the studies by Mitter et al. (2014) and Okorofo and Koh (2010) but contradicts the results of Calabrò, Brogi, and Torch (2016) and Fernández and Nieto (2005). The variables describing management training were not included in the regressions because they did not show significant coefficients in any model and had no influence on model quality. Thus, it can be concluded that management training does not influence the export orientation of family businesses, which is similar to that of Manolova et al. (2002). Instead, it seems that general education, experience, and general knowledge are not necessarily crucial in explaining their moderating role in internationalization.

Table 5. Results from logistic regression analyses for non-exporters and exporters: Micro- and small family firms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	Coefficient	Std. error														
AGE	-0.297	0.327	1.406	1.635	-0.410	0.394	4.967**	2.266	0.012	0.395	1.730	1.732	-0.027	0.470	5.797**	2.343
AGE ²			-0.619	0.585			-1.979**	0.822			-0.650	0.640			-2.223**	0.875
SIZE	-0.132	0.265	-0.122	0.265	-0.224	0.310	-0.171	0.316	-0.193	0.275	-0.206	0.276	-0.266	0.322	-0.269	0.329
IND_C	2.061*	1.092	1.994*	1.093	1.475	1.112	1.321	1.120	1.967*	1.094	1.913*	1.095	1.400	1.116	1.287	1.128
IND_F	0.722	1.138	0.651	1.139	0.451	1.155	0.258	1.164	0.606	1.141	0.555	1.141	0.406	1.160	0.274	1.171
IND_G	1.727	1.126	1.743	1.125	0.628	1.186	0.619	1.190	1.658	1.128	1.685	1.129	0.562	1.200	0.630	1.207
IND_H	1.741	1.216	1.675	1.217	0.944	1.349	0.826	1.353	1.609	1.222	1.568	1.222	1.013	1.350	0.961	1.360
IND_I	3.292***	1.078	3.240***	1.079	2.249**	1.095	2.121*	1.102	3.342***	1.080	3.297***	1.081	2.277**	1.098	2.156*	1.109
IND_J	1.624	1.100	1.521	1.103	0.661	1.127	0.366	1.140	1.453	1.105	1.382	1.107	0.483	1.136	0.258	1.149
IND_K	1.067	1.326	0.964	1.329	0.748	1.351	0.458	1.363	0.970	1.327	0.883	1.330	0.677	1.374	0.420	1.386
IND_L	0.062	1.506	-0.024	1.508	-0.628	1.575	-0.726	1.563	-0.066	1.515	-0.161	1.519	-0.764	1.567	-0.943	1.573
IND_M	1.562	1.108	1.458	1.112	0.905	1.128	0.636	1.138	1.413	1.112	1.342	1.114	0.765	1.134	0.578	1.142
IND_N	1.810	1.159	1.707	1.162	0.882	1.228	0.604	1.240	1.678	1.163	1.600	1.165	0.770	1.229	0.547	1.246
IND_R	0.640	1.184	0.540	1.187	-0.318	1.304	-0.581	1.317	0.507	1.189	0.445	1.190	-0.487	1.302	-0.654	1.311
IND_S	0.813	1.523	0.697	1.526	0.199	1.583	-0.109	1.590	0.679	1.533	0.598	1.535	-0.111	1.596	-0.343	1.603
IND_T	1.607	1.106	1.527	1.108	0.691	1.139	0.444	1.151	1.565	1.109	1.514	1.110	0.593	1.143	0.413	1.155
IND_U	1.961	1.309	1.868	1.311	1.088	1.393	0.874	1.399	1.896	1.307	1.823	1.309	0.892	1.408	0.763	1.413
LEG_FORM	0.748***	0.268	0.737***	0.268	0.319	0.320	0.270	0.323	0.722***	0.270	0.711***	0.271	0.232	0.327	0.163	0.331
VC_INBOUND					-0.984	0.700	-1.039	0.703					-0.833	0.702	-0.878	0.706
VC_OPER					0.631	0.613	0.611	0.620					0.640	0.621	0.603	0.628
VC_OUTBOUND					2.638**	1.199	2.719**	1.195					2.578**	1.201	2.731**	1.201
VC_MARKET					1.139*	0.687	1.277*	0.696					0.886	0.707	1.099	0.719
VC_SALES					3.432***	0.732	3.475***	0.738					3.558***	0.737	3.564***	0.741
VC_AFTER					0.783	0.930	0.854	0.945					0.927	0.936	1.086	0.963
VC_PROC					0.594	0.538	0.550	0.541					0.747	0.543	0.696	0.548
VC_R&D					-0.667	0.742	-0.621	0.747					-0.801	0.757	-0.720	0.763
VC_HR					-1.266	0.836	-1.441*	0.855					-1.219	0.868	-1.466	0.894
VC_FIN					1.566	1.372	1.628	1.394					1.488	1.365	1.416	1.375
VC_MGMT					-3.947**	1.531	-3.989**	1.541					-3.817**	1.516	-3.876**	1.519
EXP_MGMT									-1.308**	0.639	-1.372**	0.644	-1.729**	0.796	-1.934**	0.816
GENDER									0.271	0.270	0.282	0.271	-0.063	0.309	-0.063	0.312
GEN									-0.154	0.140	-0.102	0.148	-0.195	0.165	-0.038	0.178
Const.	-2.082*	1.119	-3.117**	1.483	-1.874	1.148	-5.156***	1.800	-0.419	1.429	-1.423	1.730	0.586	1.604	-2.811	2.102
Chi-square	6.381		5.879		19.895**		18.794**		4.788		2.658		13.730**		19.150**	
R ² (Nagelkerke)	0.213		0.216		0.471		0.482		0.227		0.230		0.482		0.494	
α-error (in %)	16.73		16.73		7.83		7.47		16.37		16.73		8.90		8.54	
β-error (in %)	49.44		51.67		36.11		35.56		48.33		38.33		37.22		34.44	
Accuracy (in %)	70.50		69.63		81.13		81.56		71.15		70.93		80.04		81.34	
AUC	0.733***	0.024	0.738***	0.024	0.862***	0.018	0.866***	0.018	0.745***	0.023	0.746***	0.023	0.865***	0.017	0.869***	0.017
Gini coefficient	0.467		0.477		0.724		0.732		0.489		0.492		0.730		0.738	

Note: The dependent variable EXP was binary-coded (0 = no export; 1 = export). The significance of the chi-square test and Nagelkerke's R² were calculated to determine the model quality (Burns & Burns, 2008, pp. 579-580). The classification accuracy of each model was assessed using alpha errors (a non-exporting company was classified as exporting) and beta errors (an exporting company was classified as non-exporting) (Fawcett, 2006; Metz, 1978). These variables were added AUC and Gini coefficients (Grzybowski & Younger, 1997). Significance: * 10 percent level; ** 5 percent level; *** 1 percent level (n = 461).

Models 3, 4, 7, and 8 show high R^2 values and Gini coefficients (greater than 70%) (Anderson, 2007, p. 205), indicating good quality. The results show that firm-specific characteristics (contextual factors of the firm reflecting resources) and individual decision-maker characteristics (contextual factors of management and corporate culture reflecting experience and knowledge) have a significant explanatory contribution to the variable *EXP* (Prashantham, 2005; Reid, 1981). However, it can be stated that the latter characteristics allow for an incremental improvement in model quality when added to the firm-specific characteristics. The results confirm earlier findings that the characteristics of the decision maker contribute to the explanation of internationalization (Andersen, 1993; Denicolai et al., 2015; Etemad & Wright, 2003).

4.3. Robustness check of the results

The regressions presented above were replicated for micro- and small enterprises to determine whether the results remain robust when considered separately or what further derivations can be drawn from the results. For micro-enterprises, there were no significant coefficients for age (no nonlinear effect). For small enterprises, the previous results are confirmed with the same significant signs of the coefficients and nonlinear characteristics. Instead, for micro-enterprises, the coefficients are significant for the variable *SIZE* with a negative sign, which means that following the significant marginal effects, the probability of export intensity decreases with increasing enterprise size.

This is in contrast to theoretical explanations. However, the strategic focus of micro-enterprises needs to be considered. If the basic strategy is to

grow as a company (e.g., into a small company), then the corresponding resources must be available for this task. If this is the case, then the intensification of export activities cannot occur. Even for micro- and small enterprises, affiliation with industry I remains a significant explanatory variable for internationalization. However, in contrast to the previous overall analysis, micro-enterprises showed that other industries also influence export efforts, supporting Davis' (2008) comments that there are certain industries for family businesses that create challenges and determine strategic direction.

The variable *LEG_FORM* continues to be significant for micro-enterprises (as opposed to small enterprises). Looking at the value chain, the variables *VC_SALES* and *VC_MGMT* are significant explanatory variables. In contrast to the overall consideration, outbound logistics is not relevant for micro- and small enterprises under separate considerations. In the case of small enterprises, there is also the fact that the variable *VC_HR* shows negatively significant coefficients. This means that the more international the workforce of a small enterprise is, the less likely it is to export. Small enterprises have no significant coefficients regarding the contextual factors that describe enterprise and management. For micro-enterprises, a significant negative coefficient remains for *VC_MGMT*. Overall, all the estimated models must be attributed to low quality in that the chi-square values have no significance. Nevertheless, as already noted, Models 3, 4, 7, and 8 have high R^2 values and Gini coefficients (> 70%) (Anderson, 2007, p. 205), so these are suitable for separating exporting and non-exporting companies.

Table 6. Results from logistic regression analyses for non-exporters and exporters: Micro-family firms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	Coefficient	Std. error														
AGE	-0.159	0.434	0.884	2.267	-0.051	0.518	2.262	2.884	0.062	0.509	1.580	2.465	0.513	0.629	2.839	3.133
AGE ²			-0.403	0.861			-0.870	1.073			-0.609	0.968			-0.910	1.204
SIZE	-0.817*	0.449	-0.822*	0.450	-0.895*	0.536	-0.882	0.539	-0.947**	0.458	-0.967**	0.461	-1.057*	0.561	-1.069*	0.564
IND_C	2.904***	1.087	2.904***	1.088	2.646**	1.163	2.591**	1.160	2.763**	1.089	2.765**	1.090	2.623**	1.188	2.577**	1.186
IND_F	1.518	1.168	1.485	1.170	1.970	1.253	1.874	1.251	1.337	1.175	1.305	1.176	1.861	1.298	1.795	1.296
IND_G	2.518**	1.152	2.552**	1.153	1.937	1.309	1.937	1.291	2.392**	1.156	2.457**	1.159	1.955	1.344	1.995	1.332
IND_H																
IND_I	4.198***	1.071	4.181***	1.072	3.657***	1.143	3.583***	1.140	4.275***	1.074	4.260***	1.075	3.800***	1.178	3.752***	1.174
IND_J	1.969*	1.102	1.916*	1.108	1.658	1.207	1.517	1.211	1.834*	1.111	1.790	1.113	1.500	1.246	1.402	1.248
IND_K	1.914	1.311	1.864	1.316	2.252	1.402	2.113	1.407	1.808	1.310	1.746	1.314	2.217	1.463	2.108	1.463
IND_L																
IND_M	2.393**	1.102	2.345**	1.107	2.374**	1.188	2.246*	1.190	2.283**	1.111	2.251**	1.112	2.264*	1.226	2.194*	1.224
IND_N	2.679**	1.177	2.633**	1.181	1.903	1.379	1.768	1.387	2.578**	1.179	2.526**	1.181	1.843	1.393	1.731	1.404
IND_R	1.572	1.169	1.525	1.174	1.203	1.338	1.074	1.342	1.503	1.179	1.476	1.179	1.052	1.375	0.991	1.372
IND_S	1.783	1.529	1.738	1.532	2.179	1.590	2.027	1.596	1.620	1.541	1.590	1.541	1.873	1.637	1.773	1.640
IND_T	2.217**	1.105	2.180**	1.108	2.087*	1.202	1.971	1.204	2.185**	1.111	2.160*	1.112	2.038*	1.238	1.969	1.236
IND_U	2.421**	1.350	2.379*	1.354	2.766*	1.460	2.650*	1.460	2.388*	1.355	2.347*	1.358	2.582*	1.515	2.510*	1.513
LEG_FORM	0.965***	0.362	0.964***	0.362	0.309	0.463	0.297	0.462	0.992***	0.367	0.991***	0.368	0.203	0.478	0.191	0.478
VC_INBOUND					-1.089	0.926	-1.073	0.924					-0.908	0.910	-0.890	0.912
VC_OPER					0.555	0.763	0.563	0.763					0.522	0.773	0.515	0.775
VC_OUTBOUND					2.529	1.605	2.521	1.601					2.199	1.579	2.226	1.576
VC_MARKET					1.112	0.940	1.196	0.946					0.928	0.946	1.007	0.949
VC_SALES					3.455***	0.994	3.461***	0.997					3.726***	1.011	3.697***	1.011
VC_AFTER					0.474	1.363	0.456	1.373					0.665	1.367	0.673	1.386
VC_PROC					0.284	0.662	0.255	0.664					0.524	0.674	0.514	0.677
VC_R&D					-0.549	0.843	-0.552	0.844					-0.670	0.864	-0.657	0.865
VC_HR					1.746	1.618	1.669	1.622					1.978	1.680	1.936	1.700
VC_FIN					2.217	1.964	2.244	2.013					1.811	1.874	1.708	1.907
VC_MGMT					-6.788***	2.480	-6.816***	2.527					-6.558***	2.414	-6.550***	2.451
EXP_MGMT									-1.555*	0.857	-1.578*	0.860	-2.370**	1.144	-2.451**	1.155
GENDER									0.370	0.324	0.384	0.325	0.047	0.375	0.070	0.376
GEN									-0.069	0.182	-0.014	0.201	-0.247	0.221	-0.166	0.247
Const.	-2.859**	1.183	-3.463**	1.752	-3.477**	1.354	-4.836**	2.148	-0.911	1.671	-1.825	2.212	-0.343	2.021	-1.695	2.697
Chi-square	5.806		5.896		6.842		5.400		5.852		4.783		7.090		6.741	
R ² (Nagelkerke)	0.252		0.252		0.491		0.492		0.266		0.268		0.504		0.505	
α-error (in %)	13.21		13.21		7.08		7.08		13.68		12.74		7.08		7.08	
β-error (in %)	54.39		56.14		42.98		43.86		52.63		53.51		42.11		42.11	
Accuracy (in %)	72.39		71.78		80.37		80.06		72.70		73.01		80.67		80.67	
AUC	0.758***	0.028	0.759***	0.028	0.863***	0.022	0.865***	0.022	0.763***	0.028	0.764***	0.028	0.867***	0.021	0.868***	0.021
Gini coefficient	0.460		0.464		0.787		0.816		0.488		0.490		0.780		0.814	

Note: Significance: * 10 percent level; ** 5 percent level; *** 1 percent level (n = 326).

Table 7. Results from logistic regression analyses for non-exporters and exporters: Small family firms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	Coefficient	Std. error														
AGE	-0.672	0.548	1.814	2.889	-1.395*	0.812	10.689**	5.421	-0.232	0.690	1.943	2.929	-1.444	0.955	11.624**	5.325
AGE ²			-0.824	0.955			-4.255**	1.849			-0.740	0.979			-4.715**	1.854
SIZE	-1.534	1.111	-1.562	1.111	-1.540	1.438	-1.297	1.471	-1.518	1.120	-1.560	1.123	-1.698	1.480	-1.541	1.532
IND_C	1.166	1.257	1.184	1.257	3.342	2.259	3.789	2.556	1.164	1.258	1.188	1.261	3.472	2.277	4.070	2.636
IND_F	-0.046	1.345	-0.031	1.346	2.259	2.325	2.367	2.610	-0.118	1.353	-0.083	1.356	2.507	2.379	2.792	2.724
IND_G	1.029	1.326	1.130	1.332	2.253	2.372	2.751	2.721	1.063	1.335	1.158	1.342	2.468	2.431	3.064	2.849
IND_H	1.963	1.413	2.013	1.413	3.889	2.596	4.355	2.874	1.848	1.422	1.914	1.426	4.136	2.647	4.852	2.989
IND_I	2.207*	1.244	2.265*	1.249	4.196*	2.339	4.888*	2.641	2.364*	1.254	2.408*	1.260	4.257*	2.358	4.936*	2.712
IND_J	2.135	1.460	2.140	1.460	3.418	2.359	3.596	2.640	2.024	1.481	2.041	1.483	3.445	2.345	3.751	2.678
IND_K																
IND_L	0.314	1.699	0.254	1.700	3.670	2.619	3.695	2.869	0.116	1.718	0.049	1.722	3.603	2.642	3.554	2.948
IND_M	0.070	1.436	0.034	1.437	1.497	2.665	1.487	2.989	-0.079	1.442	-0.100	1.445	1.671	2.695	1.878	3.070
IND_N	0.917	1.497	0.891	1.499	4.004*	2.429	4.177	2.693	0.693	1.510	0.704	1.513	4.208*	2.468	4.643*	2.787
IND_R																
IND_S																
IND_T	1.127	1.369	1.145	1.368	2.356	2.444	2.497	2.735	1.185	1.373	1.224	1.376	2.502	2.460	2.670	2.801
IND_U																
LEG_FORM	0.440	0.422	0.423	0.423	-0.188	0.566	-0.277	0.597	0.369	0.430	0.347	0.431	-0.189	0.586	-0.263	0.626
VC_INBOUND					-1.167	1.548	-1.330	1.607					-1.131	1.587	-1.346	1.655
VC_OPER					1.973	1.440	1.784	1.505					1.952	1.466	1.661	1.546
VC_OUTBOUND					2.023	2.128	3.135	2.290					2.046	2.135	3.501	2.336
VC_MARKET					0.225	1.184	0.424	1.278					0.231	1.267	0.787	1.404
VC_SALES					5.692***	1.552	5.954***	1.638					5.769***	1.554	6.080***	1.642
VC_AFTER					2.121	1.683	2.500	1.737					2.063	1.696	2.415	1.713
VC_PROC					1.733	1.390	1.619	1.385					1.792	1.458	1.683	1.458
VC_R&D					0.433	2.461	1.509	2.492					0.294	2.521	1.542	2.587
VC_HR					-3.946***	1.443	-4.517***	1.545					-3.890**	1.522	-4.759***	1.677
VC_FIN					-0.617	2.603	-1.503	2.527					-0.339	2.767	-1.079	2.645
VC_MGMT					-4.223*	2.404	-4.759*	2.503					-4.319*	2.423	-5.102**	2.532
EXP_MGMT									-0.809	1.042	-0.913	1.055	-0.601	1.429	-0.877	1.483
GENDER									0.347	0.525	0.341	0.527	-0.233	0.726	-0.498	0.760
GEN									-0.239	0.237	-0.204	0.242	0.011	0.310	0.204	0.332
Const.	1.266	1.928	-0.497	2.778	-0.677	2.917	-9.484*	5.164	2.017	2.494	0.611	3.081	0.440	3.687	-8.616	5.568
Chi-square	6.295		9.269		4.960		5.225		6.303		5.446		4.511		7.855	
R ² (Nagelkerke)	0.205		0.212		0.569		0.601		0.227		0.227		0.570		0.608	
α -error (in %)	31.88		30.43		15.94		14.49		30.43		30.43		17.39		13.04	
β -error (in %)	30.30		28.79		21.21		18.18		34.85		31.82		21.21		19.70	
Accuracy (in %)	68.89		70.37		81.48		83.70		67.41		68.89		80.74		83.70	
AUC	0.730***	0.044	0.732***	0.043	0.893***	0.028	0.908***	0.026	0.744***	0.042	0.745***	0.042	0.890**	0.028	0.907**	0.026
Gini coefficient	0.460		0.464		0.787		0.816		0.488		0.490		0.780		0.814	

Note: Significance: * 10 percent level; ** 5 percent level; *** 1 percent level (n = 135).

5. CONCLUSION

This study investigated the influence of selected variables describing the family business (context factors of the firm/firm-specific characteristics) and variables describing the management of a family business (context factors of the management and company culture/individual decision-maker characteristics) on the export orientation of family businesses in Western Austria. This study was extended from earlier research to determine the influence of the degree of internationalization of individual activities in the Porter value chain on the export orientation of family businesses in Western Austria. This way, a new issue that had not previously been investigated in the research field was addressed so that new research results could be determined based on this.

The results of the descriptive statistics show that non-exporting companies can be international in individual activities of the value chain, which supports the statements of Korhonen et al. (1996) that internationalization does not necessarily begin or is defined by export activity, but can also take place at the level of operations. Furthermore, the results show that interweaving context factors (Davis, 2008) and the contingency export-entrepreneurial framework (Ibeh, 2003; Kohli & Jaworski, 1990) are fundamentally relevant frameworks for explaining the export orientation of micro- and small family businesses. Nevertheless, not all the variables included in Table 1 showed significant results.

Research hypotheses *H1a* and *H2a* can be rejected for micro- and small family firms. Company size does not play a significant role in explaining export activities for these types of companies. Moreover, no nonlinear effect was observed in this context. This finding is robust for all estimates. Company size showed significant coefficients only in the case of micro-family firms, but with an unexpected negative sign. One possible reason for this could be that micro-family firms use their resources for growth (e.g., for a small family firm) and thus cannot use them for internationalization efforts. No clear results were found regarding the age of the company. The model with all companies, including small family firms, shows a significant linear and nonlinear relationship between the age of the company and the probability of exporting. In addition to the linear and non-linear coefficients and industry dummy variables, we get this result whenever the variable *LEG_FORM* is included. The variable *LEG_FORM* indicates the value chain activities without and with the individual decision-maker characteristics. These findings support Arend and Lévesque (2010), Lockett et al. (2009), and Wan et al. (2011) findings that the RBV should be combined with another theoretical perspective to develop a reliable explanatory framework. No significant coefficients could be found for micro-family firms (not in the linear and non-linear context); thus, research hypotheses *H1b* and *H2b* can be rejected for this type of company and are only valid for small family firms under certain conditions.

These results do not support the theoretical explanations of the RBV and the usefulness of this theoretical paradigm to solely explain

the internationalization efforts of micro- and small family businesses. Both variables (firm size and firm age) should be considered surrogates to describe entrepreneurial resources (Cerrato & Piva, 2012; Davis, 2008; Rask et al., 2008). Peng's (2001) statement that the RBV is a powerful theoretical perspective for explaining internationalization activities must be qualified based on the present results. The present results support the findings of Døving and Gooderham (2008) that smaller companies can use their scarce resources efficiently and cope with the challenges of internationalization (Bose, 2016; Poff et al., 2008). This does not confirm the findings of earlier studies (Arbaugh et al., 2008) that the lack or scarcity of resources is a barrier to the internationalization of micro- and small family firms. Two aspects appear as possible reasons for this finding. First, there are hidden resources in family firms, namely the "family" factor, which can be seen as another resource following the RBV (Cabrera-Suárez et al., 2001; Down, 2013, pp. 90-93) and Chrisman et al. (2005) stated that family involvement influences the performance of family firms. Second, the entry barriers to internationalization for SMEs are significantly lower due to technological progress and new networks (Welge & Borghoff, 2005, pp. 120-121), so internationalization can also be implemented with fewer resources.

The variable age of management (*AGE_MGMT*) showed a highly significant correlation with the experience of management (*EXP_MGMT*); therefore, multicollinearity problems were suspected in the logistic regression estimates. Only *EXP_MGMT* was used for further modeling. Since the variable *AGE_MGMT* was not used, research hypothesis *H3a* could not be tested. The variable *EXP_MGMT* showed significant but opposite negative signs to theoretical expectations, which means that the probability of exporting decreases with increasing management experience. This result is surprising and divergent from that of Kyvik et al. (2013). The reason for this result is that it was not explicitly internationalization experience (foreign market knowledge) that was queried, which Langseth et al. (2016) and Xie and Suh (2014) mentioned as relevant variables to explain internationalization. Therefore, research hypothesis *H3b* can be considered falsified. Management training did not show any significant coefficients; thus, research hypothesis *H3c* could not be confirmed, undermining the results of Manolova et al. (2002). The results of the hypothesis test *H3a* up to and including *H3c* are robust in all estimates.

The generation of the family business did not show significant coefficients in any regression; thus, research hypothesis *H4* can also be rejected. The probability of exporting does not depend on the generation, which is similar to the results of Mitter et al. (2014) and Okoroafo and Koh (2010) but divergent from the research results of Calabrò et al. (2016) and Fernández and Nieto (2005). Thus, it seems that higher generations of micro- and small family firms do not necessarily have a higher entrepreneurial orientation than previous generations (Graves & Thomas, 2008; Mitter et al., 2014). Based on Holt (2012), one explanation may be that successors do not want to break with the family business tradition and do not strive for internationalization after succession. This result

remains robust for all the estimates. The last research hypothesis, *H5*, can be confirmed based on the test for differences. Companies that export show a higher degree of internationalization in all activities.

To complement the last research hypothesis, the research questions of this study can also be answered. The first question was how international the individual activities of the value chain are for micro- and small family firms in Western Austria. The results of the descriptive statistics and the tests for differences show that exporting micro- and small family firms have significantly higher values of internationalization in all activities. However, it also shows that non-exporting micro- and small family firms have a certain degree of internationalization. This finding supports the view that both export-oriented and non-export-oriented micro- and small family firms can have global value chains with which they operate beyond their domestic borders (Banga, 2014; Benito et al., 2019).

This also means that micro- and small family firms do not necessarily have to export to be international. It may well be that a company that is still domestically active prepares for export activity by introducing a global value chain. This is in congruence with the value chain internationalization framework of Curci et al. (2013) and the findings of Oyson (2011), which showed that the internationalization of value chain activities could be used as internationalization per se and as an approach to describe the path of internationalization.

The second research question relates to how the degree of internationalization of individual activities in the value chain can be used to explain the export probability of family businesses. It could be shown that some international value chain activities positively correlate with the probability of exporting. Specifically, these are the variables *VC_SALES*, *VC_MARKET*, and *VC_OUTBOUND*, whereby only the former showed robust results across all the models. However, some variables have a significant negative correlation with the export probability. The variables in question are *VC_HR* and *VC_MGMT*, with the latter showing robust results across all the models. Overall, it can be concluded that a global value chain or individual international value

The results of this study provide new insights and expand the thinking on the theory of internationalization by including variables to describe the global value chain, which response to the call by Benito et al. (2019) and Hernández and Pedersen (2017) to address the associated research gap. Based on this, it can be confirmed that

considering the global value chain, micro- and small family businesses can follow different internationalization paths (Curci et al., 2013), which is not considered in the current internationalization models. The possibility of internationalizing single activities in the entrepreneurial value chain seems helpful for micro- and small family firms to support export activities. However, it is also an approach to operate internationally as a company without exporting beyond national borders.

The results of this study are not free of limitations. The first weakness is undoubtedly seen in the relatively small sample size, which can influence the general validity of the results. Additionally, it must be considered that the respondents provided self-reported data and estimations, which may contain a common method bias. This means that self-reported measures are generally overestimated (upward biased) (Conway & Lance, 2010), which can be assumed in the context of the study for the estimation of the internationalization of the individual activities of the value chain. However, from a scientific perspective, no other sources are available, and related information can be obtained. The surveys addressed this problem by only processing information provided by family business decision-makers (managers), who were most likely to provide reliable and accurate information on the requested data (Conway & Lance, 2010).

Another limitation may be seen in the cross-sectional nature of the data, capturing a review for a specific point in time (one year). Therefore, the results provide a static view and cannot capture the dynamic development of changes in the internationalization of value chain activities. Such a dynamic approach could be useful to allow an in-depth analysis of how the pattern of internationalization evolved, the variables that significantly support this process, and whether the theoretical frameworks are suitable for explaining the internationalization process of the value chain of companies.

Despite the potential weaknesses of the data, the result shows great potential. It supports the concept of internationality through the individual activities of the value chain. According to Porter (1985, 1991), to create a theoretical basis that can include some measures of internationalization (e.g., foreign sales/total sales, level of internationalization commitment) and also enable a multivariate view to capture the phenomenon of "internationalization" as already suggested by Hassel et al. (2003).

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APPENDIX

Table A.1. Correlation analysis for research variables

	AGE	SIZE	VC_INBOUND	VC_OPER	VC_OUTBOUND	VC_MARKET	VC_SALES	VC_AFTER	VC_PROC	VC_R&D	VC_HR	VC_FIN	VC_MGMT	AGE_MGMT	EXP_MGMT	GEN
AGE	1	0.232**	-0.015	-0.021	0.012	0.014	0.034	0.003	-0.032	-0.092*	0.106*	0.028	0.012	0.103*	0.110*	0.587**
SIZE		1	0.091*	0.017	0.080	0.118*	0.148**	0.146**	0.093*	-0.076	0.224**	0.065	0.096*	-0.182**	-0.137**	0.292**
VC_INBOUND			1	0.536**	0.552**	0.329**	0.371**	0.430**	0.568**	0.320**	0.250**	0.462**	0.437**	0.123**	0.115*	0.009
VC_OPER				1	0.444**	0.222**	0.253**	0.306**	0.557**	0.440**	0.188**	0.366**	0.388**	0.076	0.080	0.010
VC_OUTBOUND					1	0.444**	0.494**	0.574**	0.350**	0.369**	0.227**	0.386**	0.439**	0.012	-0.010	-0.016
VC_MARKET						1	0.731**	0.480**	0.147**	0.284**	0.491**	0.291**	0.278**	-0.050	-0.085	0.054
VC_SALES							1	0.571**	0.252**	0.292**	0.430**	0.296**	0.280**	-0.003	-0.004	0.091
VC_AFTER								1	0.274**	0.315**	0.351**	0.309**	0.334**	0.019	0.017	0.027
VC_PROC									1	0.276**	0.191**	0.245**	0.269**	0.081	0.102*	-0.004
VC_R&D										1	0.229**	0.345**	0.337**	0.022	0.015	-0.066
VC_HR											1	0.511**	0.524**	-0.034	-0.004	0.171**
VC_FIN												1	0.792**	0.033	0.036	0.094*
VC_MGMT													1	0.014	0.051	0.074
AGE_MGMT														1	0.830**	-0.131**
EXP_MGMT															1	-0.085
GEN																1

Note: The table shows the results of bivariate correlation. The analyses are necessary to detect multicollinearity between the independent variables, which may lead to reduction in prediction power of regression analysis, when such variables are included together (Ho, 2014, pp. 296-297); Significances: * 5 percent level; ** 1 percent level (n = 461).

Table A.2. Marginal effects analysis for non-exporters and exporters: Micro- and small family firms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error
AGE	-0.059	0.065	0.280	0.324	-0.060	0.058	0.721**	0.324	0.002	0.078	0.339	0.338	-0.004	0.068	0.827**	0.328
AGE ²			-0.123	0.116			-0.287**	0.117			-0.128	0.125			-0.317***	0.122
SIZE	-0.026	0.053	-0.024	0.053	-0.033	0.046	-0.025	0.046	-0.038	0.054	-0.040	0.054	-0.039	0.047	-0.038	0.047
IND_C	0.411*	0.215	0.396*	0.215	0.217	0.163	0.192	0.162	0.387*	0.213	0.375*	0.213	0.203	0.161	0.184	0.160
IND_F	0.144	0.227	0.129	0.226	0.066	0.170	0.037	0.169	0.119	0.224	0.109	0.224	0.059	0.168	0.039	0.167
IND_G	0.344	0.223	0.346	0.222	0.093	0.175	0.090	0.173	0.326	0.221	0.331	0.220	0.082	0.174	0.090	0.172
IND_H	0.347	0.241	0.333	0.241	0.139	0.199	0.120	0.196	0.316	0.239	0.308	0.239	0.147	0.196	0.137	0.194
IND_I	0.656***	0.208	0.644***	0.208	0.331**	0.159	0.308*	0.158	0.657***	0.206	0.647***	0.205	0.330**	0.157	0.308**	0.156
IND_J	0.324	0.218	0.302	0.218	0.097	0.166	0.053	0.165	0.286	0.216	0.271	0.216	0.070	0.165	0.037	0.164
IND_K	0.213	0.264	0.192	0.264	0.110	0.199	0.066	0.198	0.191	0.261	0.173	0.261	0.098	0.199	0.060	0.198
IND_L	0.012	0.300	-0.005	0.300	-0.093	0.232	-0.105	0.227	-0.013	0.298	-0.031	0.298	-0.111	0.227	-0.134	0.224
IND_M	0.311	0.220	0.290	0.220	0.133	0.166	0.092	0.165	0.278	0.218	0.263	0.218	0.111	0.164	0.083	0.163
IND_N	0.361	0.229	0.339	0.230	0.130	0.181	0.088	0.180	0.330	0.228	0.314	0.227	0.112	0.178	0.078	0.178
IND_R	0.127	0.236	0.107	0.236	-0.047	0.192	-0.084	0.191	0.100	0.234	0.087	0.233	-0.071	0.189	-0.093	0.187
IND_S	0.162	0.303	0.138	0.303	0.029	0.233	-0.016	0.231	0.133	0.301	0.117	0.301	-0.016	0.232	-0.049	0.229
IND_T	0.320	0.219	0.303	0.219	0.102	0.168	0.064	0.167	0.308	0.217	0.297	0.217	0.086	0.166	0.059	0.165
IND_U	0.391	0.259	0.371	0.259	0.160	0.205	0.127	0.203	0.373	0.256	0.358	0.256	0.129	0.204	0.109	0.202
LEG_FORM	0.149***	0.052	0.146***	0.052	0.047	0.047	0.039	0.047	0.142***	0.052	0.140***	0.052	0.034	0.047	0.023	0.047
VC_INBOUND					-0.145	0.102	-0.151	0.101					-0.121	0.101	-0.125	0.100
VC_OPER					0.093	0.090	0.089	0.090					0.093	0.090	0.086	0.089
VC_OUTBOUND					0.389**	0.174	0.395**	0.171					0.374**	0.172	0.390**	0.169
VC_MARKET					0.168*	0.100	0.185*	0.100					0.129	0.102	0.157	0.102
VC_SALES					0.506***	0.099	0.504***	0.098					0.516***	0.098	0.509***	0.097
VC_AFTER					0.115	0.137	0.124	0.137					0.134	0.135	0.155	0.137
VC_PROC					0.088	0.079	0.080	0.078					0.108	0.078	0.099	0.078
VC_R&D					-0.098	0.109	-0.090	0.108					-0.116	0.109	-0.103	0.109
VC_HR					-0.186	0.122	-0.209*	0.123					-0.177	0.125	-0.209*	0.126
VC_FIN					0.231	0.201	0.236	0.201					0.216	0.197	0.202	0.195
VC_MGMT					-0.581***	0.220	-0.579***	0.218					-0.554**	0.215	-0.553***	0.212
EXP_MGMT									-0.257**	0.124	-0.269**	0.124	-0.251**	0.114	-0.276**	0.114
GENDER									0.053	0.053	0.055	0.053	-0.009	0.045	-0.009	0.045
GEN									-0.030	0.027	-0.020	0.029	-0.028	0.024	-0.005	0.025

Note: Significance: * 10 percent level; ** 5 percent level; *** 1 percent level (n = 461).

Table A.3. Marginal effects analysis for non-exporters and exporters: Micro-family firms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error
AGE	-0.029	0.080	0.163	0.417	-0.007	0.071	0.308	0.391	0.011	0.092	0.286	0.445	0.069	0.084	0.380	0.418
AGE ²			-0.074	0.158			-0.118	0.146			-0.110	0.175			-0.122	0.161
SIZE	-0.150*	0.081	-0.151*	0.081	-0.122*	0.072	-0.120*	0.072	-0.172**	0.081	-0.175**	0.082	-0.142*	0.074	-0.143*	0.074
IND_C	0.534***	0.195	0.534***	0.196	0.361**	0.156	0.353**	0.156	0.501**	0.194	0.501**	0.193	0.352**	0.157	0.345**	0.156
IND_F	0.279	0.214	0.273	0.215	0.269	0.170	0.255	0.170	0.242	0.213	0.236	0.213	0.250	0.173	0.240	0.173
IND_G	0.463**	0.209	0.469**	0.209	0.264	0.178	0.264	0.175	0.434**	0.207	0.445**	0.207	0.262	0.179	0.267	0.177
IND_H																
IND_I	0.772***	0.184	0.769***	0.184	0.499***	0.150	0.488***	0.150	0.775***	0.182	0.771***	0.182	0.510***	0.152	0.502***	0.151
IND_J	0.362*	0.201	0.352*	0.202	0.226	0.164	0.206	0.165	0.332*	0.200	0.324	0.200	0.201	0.167	0.188	0.167
IND_K	0.352	0.240	0.343	0.241	0.307	0.190	0.288	0.191	0.328	0.237	0.316	0.237	0.297	0.195	0.282	0.195
IND_L																
IND_M	0.440**	0.200	0.431**	0.201	0.324**	0.161	0.306*	0.161	0.414**	0.199	0.408**	0.199	0.304*	0.163	0.294*	0.162
IND_N	0.493**	0.213	0.484**	0.214	0.260	0.187	0.241	0.188	0.467**	0.211	0.457**	0.211	0.247	0.186	0.232	0.187
IND_R	0.289	0.215	0.280	0.215	0.164	0.182	0.146	0.182	0.272	0.213	0.267	0.213	0.141	0.184	0.133	0.183
IND_S	0.328	0.281	0.320	0.281	0.297	0.216	0.276	0.217	0.294	0.279	0.288	0.279	0.251	0.219	0.237	0.219
IND_T	0.408**	0.201	0.401**	0.202	0.285*	0.163	0.268	0.163	0.396**	0.200	0.391*	0.200	0.273*	0.165	0.263	0.164
IND_U	0.445*	0.246	0.437*	0.247	0.377*	0.197	0.361*	0.197	0.433*	0.244	0.425*	0.244	0.346*	0.201	0.336*	0.201
LEG_FORM	0.178***	0.064	0.177***	0.064	0.042	0.063	0.040	0.063	0.180***	0.064	0.179***	0.064	0.027	0.064	0.026	0.064
VC_INBOUND					-0.149	0.125	-0.146	0.125					-0.122	0.121	-0.119	0.121
VC_OPER					0.076	0.104	0.077	0.104					0.070	0.104	0.069	0.103
VC_OUTBOUND					0.345	0.216	0.343	0.215					0.295	0.210	0.298	0.209
VC_MARKET					0.152	0.127	0.163	0.128					0.124	0.126	0.135	0.126
VC_SALES					0.472***	0.128	0.471***	0.128					0.500***	0.127	0.495***	0.127
VC_AFTER					0.065	0.186	0.062	0.187					0.089	0.183	0.090	0.185
VC_PROC					0.039	0.090	0.035	0.090					0.070	0.090	0.069	0.090
VC_R&D					-0.075	0.115	-0.075	0.115					-0.090	0.116	-0.088	0.115
VC_HR					0.238	0.220	0.227	0.220					0.265	0.224	0.259	0.226
VC_FIN					0.303	0.266	0.305	0.272					0.243	0.250	0.229	0.254
VC_MGMT					-0.926***	0.327	-0.928***	0.332					-0.880***	0.313	-0.877***	0.317
EXP_MGMT									-0.282*	0.153	-0.286*	0.153	-0.318**	0.151	-0.328**	0.152
GENDER									0.067	0.058	0.070	0.058	0.006	0.050	0.009	0.050
GEN									-0.013	0.033	-0.003	0.036	-0.033	0.029	-0.022	0.033

Note: Significance: * 10 percent level; ** 5 percent level; *** 1 percent level (n = 326).

Table A.4. Marginal effects analysis for non-exporters and exporters: Small family firms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error	dy/dx	Std. error
AGE	-0.142	0.113	0.379	0.601	-0.188*	0.105	1.367**	0.659	-0.048	0.143	0.401	0.601	-0.194	0.125	1.461**	0.626
AGE ²			-0.172	0.198			-0.544**	0.220			-0.153	0.200			-0.593***	0.212
SIZE	-0.323	0.228	-0.327	0.226	-0.208	0.191	-0.166	0.186	-0.315	0.226	-0.322	0.226	-0.228	0.195	-0.194	0.190
IND_C	0.246	0.262	0.248	0.260	0.450	0.296	0.485	0.318	0.241	0.258	0.245	0.257	0.467	0.297	0.512	0.321
IND_F	-0.010	0.283	-0.006	0.282	0.304	0.310	0.303	0.331	-0.024	0.280	-0.017	0.280	0.337	0.316	0.351	0.338
IND_G	0.217	0.277	0.236	0.276	0.304	0.316	0.352	0.344	0.220	0.274	0.239	0.274	0.332	0.323	0.385	0.353
IND_H	0.413	0.289	0.421	0.287	0.524	0.340	0.557	0.357	0.383	0.288	0.395	0.287	0.556	0.345	0.610*	0.362
IND_I	0.465*	0.250	0.474*	0.249	0.566*	0.303	0.625*	0.323	0.490**	0.247	0.497**	0.247	0.572*	0.304	0.620*	0.326
IND_J	0.449	0.298	0.448	0.296	0.461	0.310	0.460	0.330	0.419	0.299	0.421	0.298	0.463	0.307	0.472	0.329
IND_K	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IND_L	0.066	0.358	0.053	0.356	0.495	0.345	0.473	0.360	0.024	0.356	0.010	0.355	0.484	0.348	0.447	0.364
IND_M	0.015	0.302	0.007	0.301	0.202	0.358	0.190	0.381	-0.016	0.299	-0.021	0.298	0.225	0.361	0.236	0.384
IND_N	0.193	0.314	0.186	0.312	0.540*	0.317	0.534	0.335	0.144	0.312	0.145	0.311	0.566*	0.320	0.584*	0.338
IND_R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IND_S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IND_T	0.237	0.286	0.240	0.283	0.318	0.326	0.319	0.347	0.245	0.282	0.253	0.281	0.336	0.327	0.336	0.348
IND_U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LEG_FORM	0.093	0.088	0.089	0.087	-0.025	0.076	-0.035	0.076	0.076	0.088	0.072	0.088	-0.025	0.079	-0.033	0.078
VC_INBOUND					-0.157	0.207	-0.170	0.204					-0.152	0.212	-0.169	0.206
VC_OPER					0.266	0.189	0.228	0.188					0.262	0.192	0.209	0.191
VC_OUTBOUND					0.273	0.283	0.401	0.287					0.275	0.283	0.440	0.286
VC_MARKET					0.030	0.159	0.054	0.163					0.031	0.170	0.099	0.176
VC_SALES					0.767***	0.168	0.762***	0.168					0.775***	0.166	0.764***	0.163
VC_AFTER					0.286	0.222	0.320	0.216					0.277	0.224	0.304	0.209
VC_PROC					0.234	0.184	0.207	0.174					0.241	0.193	0.212	0.180
VC_R&D					0.058	0.332	0.193	0.317					0.040	0.339	0.194	0.323
VC_HR					-0.532***	0.175	-0.578***	0.174					-0.523***	0.186	-0.598***	0.186
VC_FIN					-0.083	0.351	-0.192	0.322					-0.046	0.372	-0.136	0.332
VC_MGMT					-0.569*	0.310	-0.609**	0.304					-0.580*	0.311	-0.641**	0.299
EXP_MGMT									-0.168	0.214	-0.188	0.216	-0.081	0.192	-0.110	0.185
GENDER									0.072	0.108	0.070	0.108	-0.031	0.097	-0.063	0.095
GEN									-0.049	0.048	-0.042	0.049	0.002	0.042	0.026	0.042

Note: Significance: * 10 percent level; ** 5 percent level; *** 1 percent level (n = 135).