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Listed Family Firms in Europe

Relevance, Characteristics and Performance

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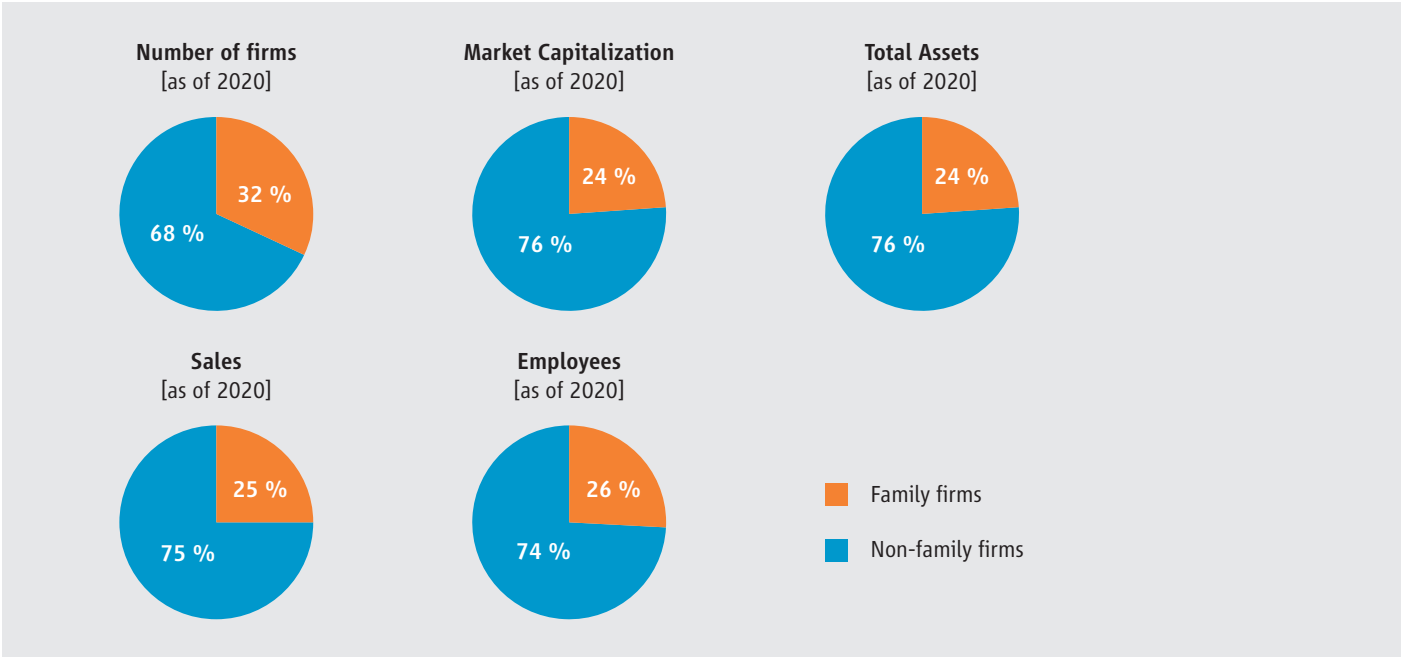
Summary of main results

This study aims to shed light on the relevance, the characteristics, and the performance of listed family firms in Europe based on a comprehensive, hand-collected data set covering listed, non-financial firms from 17 European countries. With a total sample of 6,702 individual firms analyzed over the 2007-2020 period, the study builds on the largest sample of this type and the main findings of the study regarding family firms are as follows:

Figure 1.1: At a glance: Relevance of family firms



1. (a) Family firms represent an important part of the universe of listed firms in Europe. Specifically, in 2020, family firms account for 32 percent of listed non-financial firms in the EU15 countries, Switzerland, and Norway. (b) Similarly, family firms constitute 32 percent of all observations over the full sample period, with annual numbers varying between 29 and 34 percent.

2. (a) Family firms are also important in economic terms, i. e., when measured in terms of contribution to total assets, total sales, employees, and market capitalization. (b) Indeed in 2020, family firms are responsible for about one-fourth of the total assets (23.8 percent), total sales (24.7 percent), and market capitalization (23.5 percent) owned or generated by European listed corporations. (c) Family firms are even more important in employment terms, with 26.2 percent of all employees of listed non-financial European firms working for a family business in 2020.

3. (a) Family firms are found in all industries. However, they are relatively more common in the wholesale and retail sectors as well as in services, light and heavy manufacturing. (b) There is, though, substantial heterogeneity across countries. While in France, Germany, Greece, Italy, and Portugal, family firms account for more than 40 percent of the population, in Finland, Ireland, the Netherlands, and the UK, the fraction of family firms is below 20 percent.

4. (a) The median family firm is comparatively smaller and older than the median non-family firm. (b) Also, the median family firm is, on average, somewhat less internationalized compared to the median non-family firm in terms of international assets and sales. However, on average family firms operate a higher number of business segments than comparable non-family firms. (c) Consistent with higher operating diversification, family firms display lower operating risk compared to non-family firms.

5. (a) Regarding financing, the median family firm operates at lower levels of equity and relies more heavily on interest-bearing debt. (b) However, family firms' debt maturity is shorter and their cash holdings are higher.

6. (a) Regarding sales growth family firms are at par with non-family firms. (b) However, family firms report higher employment growth compared to other firms. (c) Family firms also display lower variation in employment. (d) Consistent with higher focus on employment, family firms generate comparatively higher value added per unit of capital compared to other firms. (e) Also, family firms are found to be comparatively more profitable in terms of return on assets and return on equity than other firms.

7. (a) Regarding stock market valuation, family firms trade, on average, at a discount when compared to firms of the same size and taking into account industry, time, and country heterogeneity. (b) However, stocks of family firms earn, on average, higher returns. Family firms earn, on average, a premium of about 11 basis points per month (i. e., an absolute premium of 0.11 percent per month) over non-family firms. (c) Finally, family firms display slightly lower stock price risk, as measured by the stock's systematic risk and the standard deviation of stock returns.

The study closely follows the Expert Group of the EU Commission (see EU Commission Expert Group, 2009) and defines a listed company to be a family firm if a person or a family owns at least 25 percent of the decision-making rights mandated by their share capital. To provide a more nuanced picture of family firms, the study also looks at a specific subgroup of family firms, so-called *founding family firms*. Family firms are defined to classify as a founding family firm, where the family owning 25 percent of decision-making righty is related (by blood or marriage) to one of the founders. The main findings of the study regarding founding family firms are as follows:

8. (a) Founding family firms constitute the majority of all family firms. Over the full sample period, founding family firms represent 62 percent of all family firms and about 20 percent of all European listed companies. (b) Founding family firms are relatively rare in agriculture, mining, and real estate, but are relatively more common than non-founding family firms in some of the other industries (wholesale and retail, light and heavy manufacturing, services). Founding family firms outnumber non-founding family firms in most sample countries, particularly in France, Greece, and Italy. (c) The proportion of founding family firms decreases over time by about one-fourth. Starting from 71 percent (as a fraction of family firms) in 2007, in 2020 only 52 percent of all family firms and 17 percent of all European listed companies classify as founding family firms.

9. (a) Differentiating between founding and non-founding family firms reveals that, on the one hand, the former category contributes a higher share of employees (56 percent) and market capitalization (57 percent) than non-founding family firms in 2020. (b) On the other hand, non-founding family firms own a higher share of total assets (59 percent) and generate a higher proportion of total sales (53 percent) as a proportion of all family firms in 2020.

10. (a) The median founding family firm is larger and younger than the median non-founding family firm. (b) The median founding family firm is more international (in terms of international sales) and operate a slightly higher number of business segments compared to its non-founding family counterpart. (c) Consistent with higher operating diversification, founding family firms display lower operating risk compared to non-founding family firms.

11. (a) Both, the median founding family firm, and the median non-founding family firm operate at lower levels of equity and rely more heavily on interest-bearing debt compared to the median non-family firm. (b) While the median founding family firm and the median non-family firm are fairly similar with respect to their leverage decisions, the former uses less long-term debt, while having higher cash holdings.

12. (a) Founding family firms outperform non-founding family (and non-family) firms with respect to sales growth and employment growth. (b) However, founding family firms display higher variation in employment compared to non-founding family firms. (c) Also, founding family firms outperform non-founding family firms (and non-family firms) with respect to value added per unit of capital and profitability in terms of return on assets and return on equity. (d) These results carry over to a year-by-year comparison. The median founding family firm generates relatively stable return on assets between 8 and 11 percent per year, which are consistently higher than the returns of its non-founding family firm or its non-family counterpart. Also, the median founding family firm consistently outperforms in terms of return on equity.

13. (a) Regarding stock market valuation, the median founding family firm is at par with the median non-founding family firm, and both trade at a discount when compared to the median non-family firm. (b) However, taking into account size differences, as well as industry, time, and country heterogeneity, founding family firms are at par with non-family firms and trade at a premium compared to non-founding family firms in terms of Tobin's Q. (c) Also, stocks of founding family firms earn, on average, higher returns than their counterparts. (d) However, founding family firms display slightly higher stock price risk, as measured by the stock's systematic risk and the standard deviation of stock returns, when compared to non-founding family firms.

About the sample and the methodology used in the study:

- (a) The study covers all non-financial listed firms from 17 European countries for which sufficient data is available. (b) The countries covered are the EU15 countries, i. e., Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom, plus Switzerland and Norway. (c) Overall, the sample covers 6,702 individual firms. (d) While over time, the number of firms decreases in some countries (e. g., Germany and France), it increases in other countries (e. g., Sweden and Spain). (e) Overall, the sample size remains relatively stable over time, ranging between 3,525 and 4,126 observations per year.
- (a) The sample covers firms from all industries. However, while few firms are in Agriculture, Forestry, and Fishing, many firms operate in Light Manufacturing, Heavy Manufacturing, and Services. (b) The average firm increased in size during the sample for different measures of firm size: (deflated) total assets, (deflated) sales, and the number of employees. (c) Approximately 36 percent of firms operate within more than one industry (as measured by 2-digit SIC industry code). (c) The most important countries in terms of firm-year observations are France, Germany, Sweden, and the United Kingdom.

A. Introduction and Motivation

Family firms are arguably the most important organizational form within the private sector of market-based economies.[1] This has been documented for many countries around the world.[2] In particular, in Europe, family firms have a long tradition and are highly relevant to the economy. Indeed, according to a frequently cited report by the Bank of Korea in 2008, a significant proportion of the oldest companies in the world are from Europe, and most of these companies are family businesses.[3] Moreover, according to the European Commission, family businesses make up more than 60 percent of all companies in Europe.[4]

The notion of "family business" often comes with the perception of "businesses" of SME style (small and medium-sized enterprise). However, family firms are not just restricted to the cohort of SMEs. Indeed, family control – a defining characteristic of "family firms" – has emerged as a type of ownership structure that is also prevalent among a significant proportion of publicly listed corporations around the world.[5] Selected anecdotal evidence suggests that this pattern is particularly pronounced in continental Europe, which constitutes the motivation for this study.[6]

The objective of this study is to provide *large-scale evidence* on the *relevance*, *characteristics*, and *performance* of listed family firms in Europe. Therefore, we create a new and unique sample covering non-financial (for explanation see G.III) listed firms from 17 European countries

1 Wooldridge (2015) argues that *"[F]amilies have always been at the heart of business."* Koh (2017) cites the Family Firm Institute's global statistics suggesting that family businesses account for two thirds of all businesses and 70-90 percent of global GDP.

2 For instance, Shanker & Astrachan (1996) argue that – depending on the definition used to identify "family businesses" – up to 90 percent (and more) of US businesses are family businesses. For Germany, Stiftung Familienunternehmen (2019b) provides evidence that 90 percent of all businesses are (predominantly) family-owned. For Italy, AIDAF argues that more than 85 percent of all businesses are family businesses (see www.aidaf.it/en/aidaf-3/1650-2/, accessed March 20, 2022). Franks et al. (2012) find that some 40 – 50 percent of the largest 1,000 firms in Germany, France, and Italy are predominantly family-owned. See Bornheim (2000), IFERA (2003), Mandl (2008), and Neubauer and Lank (1998) for additional sources and evidence.

3 Relatedly, the Association les Hénokiens, an association of family businesses and bicentenary companies, reports on its webpage that it has currently 51 members including 13 Italian, 15 French, 10 Japanese, 4 German, 3 Swiss, 2 Dutch, 2 Belgian, 1 English, and 1 Austrian. See www.henokiens.com/ (accessed March 20, 2022).

4 See https://ec.europa.eu/growth/smes/supporting-entrepreneurship/family-business_en (accessed March 20, 2022). In a report commissioned by the European Commission, Mandl (2008, p. 2) argues that *"[a]cross Europe, about 70 % - 80 % of enterprises are family businesses and they account for about 40 % - 50 % of employment."*

5 Several academic studies published in the last decades document the predominance of family firms worldwide. Family-controlled corporations are widely represented in different geographical regions like North America (Gadhoum et al., 2005; Holderness, 2009), East Asia (Claessens et al., 2000) and Western Europe (Faccio & Lang, 2002). In a recent report commissioned by the OECD, De La Cruz et al. (2019) document that about 18 percent of listed equity worldwide is owned by individuals and private corporations. For Europe, this number even increases to 21 percent.

6 De Faccio and Lang (2002), La Cruz et al. (2019), Rapp and Trinchera (2017) as well as Thomsen and Pedersen (2000) document that family ownership is prevalent among European listed firms. Moreover, there are some country-level studies documenting the importance of listed family firms in Europe (e. g., Andres, 2009; Sraer and Thesmar, 2007; Stiftung Familienunternehmen, 2019a).

over the period 2007-2020.[7] Our sample covers 6,702 different firms and 53,484 firm-year observations in total. For every year, the sample reports information for more than 3,500 firms. As such, the study builds on one of the largest samples of this type.

We use this sample to provide extensive descriptive analyses.[8] Specifically, we proceed in four steps. *First*, we investigate whether a firm classifies as a "family firm" (for explanation see G.III) in a particular year. Given the study's objective to provide *large-scale evidence*, we assume that ownership is the predominant determinant of firm behavior and classify firms based on their ownership structure, i. e., we opt for an *ownership-based approach* to define and identify family firms.[9] Specifically, we identify *family firms* (for explanation see G.III) as firms in which an individual or a family owns a significant equity stake and also classify family firms as *founding family firms* when the individual or family has family ties to the founders of the firm. This approach, which is described in more detail in Section B.II, allows us to differentiate between family firms and non-family firms, as well as between founding family firms and non-founding family firms (for explanation see G.III) within the cohort of family firms.[10]

Second, we provide a descriptive analysis of the *relevance* of family firms. In this regard, we study the number of firms that fit in each category based on their ownership structure and also report the economic relevance of family firms along various dimensions such as employment and firm assets. We provide overall numbers and sample splits over time and across countries. *Third*, we describe the *characteristics* of family firms and their development over time. Specifically, we analyze industry affiliation, firm size, firm age, operating risk, internationalization, and financing decisions. This analysis is complemented by an in-depth description of selected examples of family firms. Finally, we evaluate the performance of family firms during the sample period. To this aim, we acknowledge that performance is not a one-dimensional construct and, thus, evaluate a variety of performance measures, such as firm growth, value added, employment, standard measures of operating performance, measures of firm value, and stock market performance.

The study is structured in six sections. After this introduction, Section B describes the background, sample construction, and research design. Specifically, it describes the approach to

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7 The study follows the standard approach of related studies and excludes firms operating in the financial sector. This is mainly because these firms have very different business models, are subject to different regulation, and often have to comply with very specific accounting frameworks.

8 The objective of this study is to provide descriptive results. The analysis of causal effects is beyond the scope of the study.

9 It is important to note that – despite the widespread consensus about the relevance of family firms and the long history of research on family firms – there is still no commonly accepted definition of what constitutes a "family firm". See the discussion in Section B.

10 Therefore, we provide two types of comparisons. We compare founding family firms to non-founding family firms within the cohort of family firms, and then compare all family firms to non-family firms.

identifying family firms. Section C discusses the relevance of family firms. Section D characterizes family firms and their development. Section E studies the performance of family firms. Section F concludes and discusses policy implications. Finally, an appendix provides some additional material.

B. Sample, Family Firms, and Research Design

I. Motivation and background

This section outlines the research design of the study. It details the data collection process as well as the process for constructing the sample. Specifically, it defines the approach to identifying and classifying family firms and motivates the course of the investigation. As such, it provides the basis for the following descriptive analyses.

The objective of this study is to provide *large-scale evidence* on the *relevance*, *characteristics*, and *performance* of listed family firms in Europe. Such an endeavor comes with three main challenges:

1. To study *listed family firms*, it needs a clear-cut definition of which firms classify as "family firms" and a well-defined process to identify family firms.
2. To study the *relevance* of listed family firms in Europe, the sample must cover the stock markets of a large cross-section of European countries to ensure that the analysis is representative of the region.
3. When analyzing the *characteristics* and *performance* of listed family firms, the sample must cover a reasonable time series to make sure that the results are not affected by the state of the macroeconomic (or industry) cycle.

These three challenges are closely interrelated when it comes to conducting the analysis. Specifically, while the first challenge requires an in-depth analysis of the individual sample firms, the latter two demand a large panel of observations covering many firms.[11] In sum, while these conditions are quite demanding with respect to the data needed, they are "sine qua non" conditions for any sample that will be used to provide large-scale evidence of the relevance, characteristics, and performance of listed family firms in Europe.

Such a sample, however, is not readily available. Therefore, in a joint effort, we create a novel and extensive panel of non-financial, publicly listed firms from 17 European countries that we follow over the period 2007-2020. For each sample firm, we carefully evaluate whether it may classify as a family firm. To this aim, we opt for an approach that follows the suggestion of the EU Commission Expert Group (2009). We then use this sample to investigate the questions of interest about the *relevance*, *characteristics*, and *performance* of listed family firms in Europe.

11 There are three types of samples: *Cross-sectional samples*, which include different units of observations (e. g., individuals or firms) $x(1),\ldots, x(N)$, at a time, *time-series data*, which capture observations of one specific unit at different points in time $x(t_0),\ldots,x(T)$, and *panel data*, which combine time-series data for several cross-sections of units, i. e., $x(1,t_0),\ldots,x(N,T)$.

II. Defining family firms

While there is broad consensus that family businesses represent an important part of the economy in the market-oriented democracies, there is still no commonly accepted definition of what is a "family firm".[12] Following the '3-circle' model of family business proposed by Tagiuri & Davis (1996), the literature (both, academic and policy-oriented) generally acknowledges three important elements: family, business, and ownership.

Indeed, it seems quite intuitive to consider *family control* a key defining characteristic of family firms. Moreover, with equity or share capital being associated with ownership and ownership representing control, *family ownership* constitutes a natural direct approach to characterize family firms. Along these lines, the EU Commission Expert Group (2009, p. 4) defines that *"[l]isted companies meet the definition of family enterprise if the person who established or acquired the firm (share capital) or their families or descendants possess 25 per cent of the decision-making rights mandated by their share capital."*

1. Conceptual framework applied in the study

This study follows the EU Commission Expert Group (2009) and its *ownership-based approach* to defining and identifying listed family firms. Specifically, we define *family firms* as firms where an individual or a family owns an equity stake of at least 25 percent. Thereby, we acknowledge that control of the business can be achieved through direct and indirect links. Thus, we opt for the so-called ultimate owner (UO) approach. According to this approach, what really matters is not the first layer of shareholders but rather who ultimately owns the voting rights, be it directly or indirectly through stakes in intermediate entities (e. g., through trusts, foundations, or other legal entities).[13]

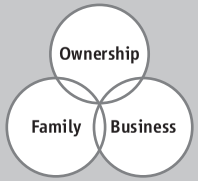
12 Sarkar et al. (2014) document close to 200 definitions of what constitutes a family firm. Mandl (2008) and EU Commission Expert Group (2009) also provide extensive discussions on the various definitions of family businesses and family firms.

13 La Porta et al. (1999) pioneer the concept of the "ultimate controlling shareholder" and argue that such shareholders often exercise power and control through mechanisms like pyramidal structures.

Figure B.1: Strategy to classify firms into family and non-family firms

Starting point

Following Tagiuri & Davis' '3-circle' model of family business, the literature (both, academic and policy oriented) generally acknowledges three important elements: family, business & ownership.*



Renato Tagiuri and John Davis

We opt for an ownership-oriented approach to classify family firms. Specifically, we define:

Family Firms vs. Non-Family Firms

A listed company is considered a family firm (in the text referred to as "FF"), if a person or a family owns 25 percent of the decision-making rights mandated by their share capital. All other firms are considered non-family firms (referred to as "Non-family firm").

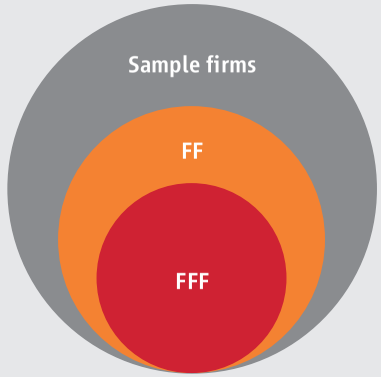
This first definition closely follows the definition proposed by the Expert Group of the EU Commission (see EU Commission Expert Group, 2009). The second definition adds the perspective of founders and their families:

Founding Family Firms vs. Non-Founding Family Firms

A listed company is considered a founding family firm (referred to as "FFF"), if a founder or its family owns 25 percent of the decision-making rights mandated by their share capital. All other family firms are considered non-founding family firms (referred to as "Non-founding FF").

Notes: The figure illustrates our approach to classify family firms and founding family firms. See Tagiuri & Davis (1986) for the '3-circle' model.
Source: Authors' analysis.

Our classification approach defines several cohorts of firms within the universe of sample firms: **Family Firm versus Non-Family Firms and within the cohort of Family Firms Founding Family Firm versus Non-Founding Family Firms.**



As such, we frequently provide two types of comparisons: We compare founding family firms to non-founding family firms within the cohort of family firms, and within the overall sample we compare family firms to non-family firms.

It is noteworthy that the definition of the EU Commission Expert Group (2009) considers two types of individuals as a starting point for their definition of listed family firms: (a) individuals who established the firm and (b) individuals who acquired the share capital of the firm. Arguably, these two types of individuals might have different motives when it comes to exercising control over the firm.[14] Accordingly, in an additional effort to capture such heterogeneity, we classify family firms into *founding family firms* and *non-founding family firms*, where founding family firms are firms in which the individual or family with ownership stakes has family ties to the company's founders.

Figure B.1 summarizes our approach to classifying family firms and founding family firms. Subsequently, we will refer to family firms as "FF", founding family firms as "FFF, and non-founding family firms as "Non-founding FFs".

Note that our classification strategy allows us to differentiate (a) between family firms and non-family firms, as well as (b) between founding family firms and non-founding family firms within the cohort of family firms. Following this idea, we frequently provide two types of comparisons: We compare founding family firms to non-founding family firms within the cohort of family firms, and then within the overall sample, we compare family firms to non-family firms.

2. Selected examples of family firms

To illustrate the variety of listed family firms in Europe, we have selected a few examples of firms for which we provide detailed information scattered throughout the report. Figure B.2 reports the names of these companies, their size class, industry and their country of origin. For each of these firms, we tabulate information about the industry in which these firm operates, their business, and their size (total assets and employees). We also provide information about the firm's founders, year of founding, the year of the firm's listing on the stock exchange, as well as information about the current family's involvement in the firm's governance (ownership, management, board of directors). All information is based on publicly available secondary information as of 2021. The information on the firm size is retrieved from Refinitiv.

14 Indeed, a recent strand of academic literature highlights significant heterogeneity within family firms. See, for instance, Chua et al. (2012) and Memili & Dibrell (2019).

Figure B.2: Selection of family firms

	Large companies [+50.000 employees]	**Medium sized companies** [10-50.000 employees]	**Small companies** [<10.000 employees]
[1] Mining and Construction			
[2] Light Manufacturing	Heineken	Pernod-Ricard	Naturhouse
[3] Heavy Manufacturing		Drägerwerk Swatch	Basler Geox
[4] Transportation & Public Utility	Coloplast	Easy Jet	
[5] Wholesale & Retail	H&M Jeronimo Martins	Colruyt	
[6] Real estate			Patricia
[7 & 8] Services	Wendel		Melia Hotels

Notes: The figure outlines the names of family firms that are, for the purpose of the report, chosen as examples of European family firms. The group of firms includes firms of different sizes, industries and headquartered in different European countries. We use the first-digit of a firm's primary Standard Industrial Classification (SIC) code to allocate firms to inddustries.
Source: Authors' own work.

III. Sample construction

The objective of this study is to provide *large-scale evidence* on listed family firms in Europe. To this aim, we start with an extensive cross-section of European countries. Specifically, we define 17 countries of interest, which are the EU15 countries (EU as of early 2004) plus Switzerland and Norway. As illustrated in Figure B.3, our sample countries are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. It is worth noting that our sample covers all main legal systems in Europe: English, German, French, and Scandinavian.[15]

Figure B.3: Sample countries

Notes: The figure illustrates the 17 sample countries, which are the EU15 countries (EU as of early 2004, i.e., Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom) plus Switzerland and Norway.
Source: Authors' analysis.

15 Academic research has provided ample evidence suggesting a significant correlation between the historical origin of a country's laws and its legal rules and regulations. Typically, this literature differentiates between five legal origins: English, German, French, Scandinavian, and Socialist. La Porta et al. (2008) review the literature and classify European countries into four legal origins (English, German, French, and Scandinavian).

Next, we define the sample period as the 2007-2020 period.[16] As a consequence, our sample spans 14 years and thus covers a reasonable time series to avoid a case where our results are biased by a specific stage of the macroeconomic (or industry) cycle. Figure B.4 illustrates the stock market performance during the sample period as captured by the Euro STOXX 50 performance Index. The figure shows that our sample period covers the global financial crisis 2007-2009, the European debt crisis 2011-12, as well as the recent pandemic.

Figure B.4: Stock market development during the sample period

Notes: The figure illustrates the development of the European stock market during the sample period as captured by the EURO STOXX 50 performance index (ISIN EU0009658152).
Source: Authors' analysis based on Refinitiv data.

Finally, we define a well-structured five-step process, illustrated in Figure B.5, to identify the sample firms and construct our final sample. *First*, we start from Refinitiv Datastream and identify all equity securities that have been traded in the respective countries. Specifically, to generate a survivorship bias-free starting point, we follow the approach described in Hanauer (2014). *Second*, once all securities have been identified, we eliminate double and cross-listings.[17] We then collect industry, accounting, and market information for the respective firms for the years 2000-2020 and market information until 06/2021.[18] Based on the industry information, we eliminate firms operating in the financial industry (SIC codes 6000-6499 and 6600-6799) and assign firms to one of eight industries according to their first-digit SIC

16 Our stock market performance analysis covers the 2007-Q2/2021 period. See the discussion in section E.

17 As such, our sample covers all EU17 firms that have a listing in one of the EU17 countries. Our sample, however, does not cover firms from EU17 countries that have opted for an exclusive listing outside the EU17 countries.

18 We collect data starting as early as 2000 to calculate risk measures. See the discussion in Sections D and E.

code.[19] For the remaining firms we follow much of the accounting, finance, and management literature and define standard proxies based on accounting and market data to study the relevance, the characteristics, and the performance of these firms. Details about these proxies are found in Appendix G.I.

Third, we collect annual ultimate ownership information using a 25 percent threshold from historic Bureau van Dijk records for the years 2007-2020 and carefully match the ownership data to the initial dataset. Based on this information, we classify firms as Family Firms (FF), in the case of an ultimate owner that is classified as "individual or family". Note that we collect ownership information from historic Bureau van Dijk records to (i) address the survivorship bias problem and (ii) classify firms as family firms on a year-by-year basis. Specifically, collecting ultimate ownership information for each firm in the sample on an annual basis allows us to dynamically classify firms as family firms.

Fourth, we complement the ownership data with hand-collected information on founding families in order to identify the Founding Family Firms (FFF): founding family firms are FFs, where the ultimate owner is (one of) the founders of the firm or a relative (by blood or marriage). We systematically collect information on the founders of the firms and their relatives from various sources. Most importantly, we retrieve information from companies' web pages. We also conduct extensive press searches using the EBSCO infrastructure and careful web searches with Google's search engine. For a more careful identification process, we translate standard terms like "founder", "founding date", "incorporation", etc. in local languages (e. g., Italian) to also capture local news and webpages. Overall, we are able to identify and track the founders of more than 95 percent of our family firms.

Finally, we eliminate firm-year observations with negative equity (overindebted firms) or inconsistent balance sheet information (we require that total assets must be larger than zero). Additionally, we (i) winsorize (for explanation see G.III) all annually measured accounting and market variables in our analysis at the 1 percent level on an annual basis and (ii) follow standard procedures when studying firms' stock market performance (e. g., Hanauer, 2014; Ince & Porter, 2006).

19 See the notes to Figure B.5 for the industries.

Figure B.5: Sample construction process

Five steps to construct the sample

- We define the countries of interest (EU15 countries + No + CH) and the sample period (2007-2020).
- We start from *Refinitiv Datastream* and identify all equity securities that have been traded in the respective countries (we generate a survivorship bias-free starting point). Thereby, we follow the approach described in Hanauer (2014).

- *Refinitiv Datastream* aims at securities. Thus, we eliminate double and cross listings to identify firms.
- We collect industry, accounting, and market information for the respective firms for the years 2000-2020 (market information until 06/2021).**
- We eliminate firms operating in the financial industry (SIC codes 6000-6499 and 6600-6799) and assign firms to one of 8 industries according to their first-digit SIC code.***

- We collect annual ultimate ownership information (25% threshold level) from historic Bureau van Dijk records for the years 2007-2020 (this addresses the survivorship bias problem).
- We carefully match the ownership data to the initial dataset.
- This allows us to identify **Family Firms**: firms with ultimate owner classified "individual or family".

- We complement the ownership data with hand collected information on founding families in order to identify founding family firms.
- This allows us to identify **Founding Family Firms**: founding-family firms are FFs, where the ultimate owner is (one of) the founders of the firm or a relative (by blood or marriage).

- We eliminate firm-year observations with negative equity ("overindebtedness") or zero balance sheet (total assets must be larger zero).
- Also, we [i] winsorize all annually measured accounting and market variables in our analysis at the 1%-level on an annual basis and [ii] follow standard procedures when studying firms' stock market performance (e.g., Hanauer, 2014; Ince & Porter, 2006).

* The countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.
** We retrieve market and accounting data available as of September 2021.
*** The industries are: [0] Agriculture, Forestry, Fishing, [1] Mining and Construction, [2] Light Manufacturing, [3] Heavy Manufacturing, [4] Transportation and Public Utility, [5] Wholesale and retail, [6] Real Estate (w/o financial institutions), [7&8] Services.

Notes: The figure illustrates our five-step sample construction process.
Source: Authors' analysis.

IV. Sample description

In an attempt to provide a comprehensive picture of European listed family firms, the study examines non-financial, publicly listed firms headquartered (and listed) in 17 European countries over a 14-year time interval covering the 2007-2020 period. Overall, the sample consists of 6,702 individual firms and 53,484 firm-year observations. Accordingly, the average sample firm remains in the sample for about 8 years. The stock market performance analysis is based on more than 750,000 firm-month observations over the 01/2004-06/2021 period.

Table B.1 reports the evolution of the sample over time. It documents that the sample size remains relatively stable over time ranging between 3,525 and 4,126 observations per year. While the number of firms decreases in some countries over time (e. g., UK, Germany, and France post 2010), it increases in other countries (e. g., Sweden and Spain).

Table B.1: Firm-year observations per country and year

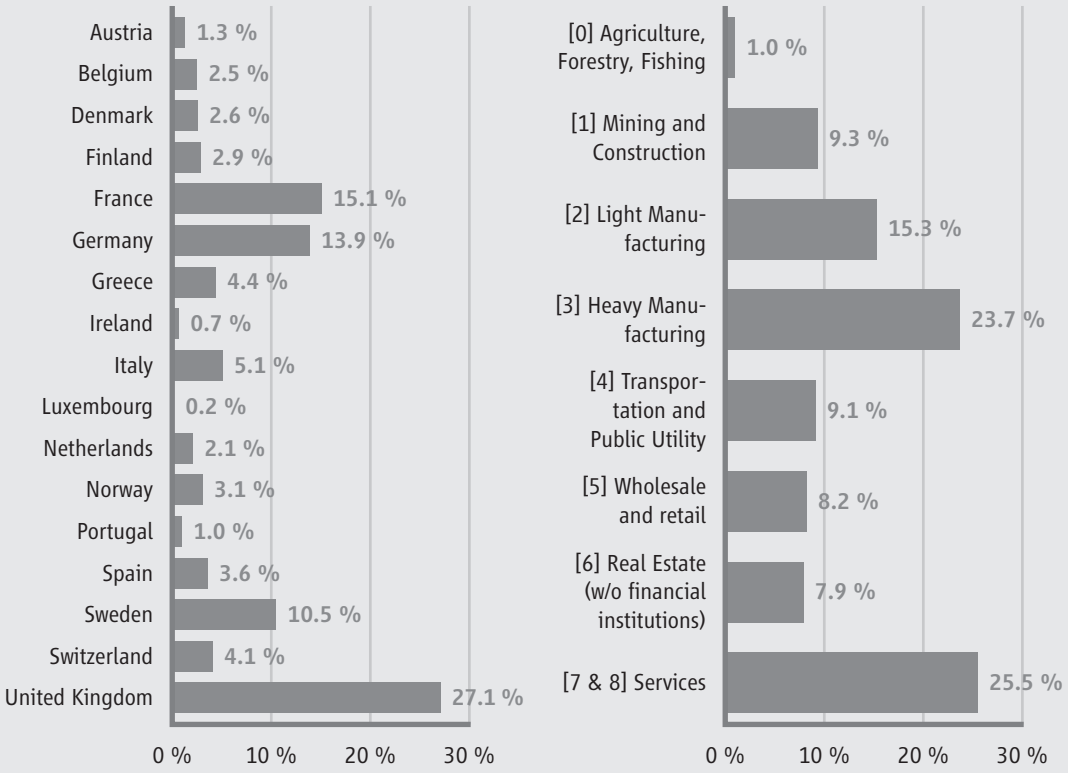
Country	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Austria	37	62	61	52	54	54	52	51	52	46	46	47	44	43	**701**
Belgium	66	111	109	103	98	95	92	90	92	93	95	94	94	92	**1,324**
Denmark	87	112	109	100	103	99	96	96	97	90	95	100	105	102	**1,391**
Finland	86	106	106	103	101	97	97	98	108	111	120	129	133	131	**1,526**
France	492	622	610	607	635	600	609	604	595	590	579	555	518	469	**8,085**
Germany	438	584	584	580	598	580	567	531	511	484	517	506	488	454	**7,422**
Greece	179	237	232	214	201	177	163	153	141	136	132	131	121	116	**2,333**
Ireland	31	31	30	29	25	23	23	24	26	24	23	23	24	23	**359**
Italy	136	198	187	184	181	178	183	191	197	195	217	229	219	234	**2,729**
Luxembourg	8	9	5	4	3	4	5	5	6	6	7	7	6	6	**81**
Netherlands	69	89	87	84	82	78	81	82	74	78	81	79	75	76	**1,115**
Norway	100	124	118	114	109	113	115	114	119	117	129	132	131	137	**1,672**
Portugal	28	42	42	41	40	39	42	42	45	41	42	35	30	25	**534**
Spain	106	120	119	113	119	111	115	116	138	159	169	174	180	180	**1,919**
Sweden	291	305	339	333	318	303	305	326	363	426	513	573	607	626	**5,628**
Switzerland	126	163	156	153	163	164	160	160	160	152	155	154	153	154	**2,173**
United Kingdom	1,245	1,211	1,165	1,081	1,040	991	990	1,017	1,010	1,006	972	962	914	888	**14,492**
Total	**3,525**	**4,126**	**4,059**	**3,895**	**3,870**	**3,706**	**3,695**	**3,700**	**3,734**	**3,754**	**3,892**	**3,930**	**3,842**	**3,756**	**53,484**

Notes: The table illustrates the evolution of the sample. Specifically, it reports the number of firm-year observations per year and country.

Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure B.6 reports the sample composition across countries and industries. Overall, the most important countries in terms of the number of firm-year observations are France, Germany, Sweden, and the United Kingdom. The largest percentages of the firm-year observations in our sample refer to Light Manufacturing, Heavy Manufacturing, and Service. In total, these three industries account for about two thirds of all observations.

Figure B.6: Sample composition per country and industry



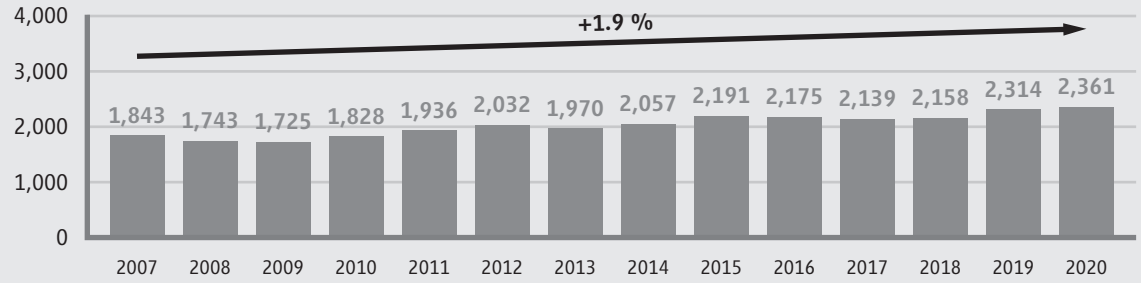
Notes: The figure illustrates the sample composition. Panel A reports the distribution of firm-year observations across countries. Panel B reports the distribution of firm-year observations across industries. We use the first-digit of the primary Standard Industrial Classification (SIC) code to allocate firms to macro-industries. SIC codes are four-digit numerical codes that have a one-to-one correspondence to industry categories. SIC codes allow to classify companies into industries based on their business activities. As our sample covers only non-financial firms, we end up with 8 macro-industries.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Finally, Figure B.7 illustrates the evolution of the mean sample firm, i. e., the hypothetical firm characterized by the mean value (for explanation see G.III) as calculated on a year-by-year basis. The mean sample firm gained in size during the sample period 2007-2020. This applies for different measures of firm size: (deflated) total assets, (deflated) sales, as well as

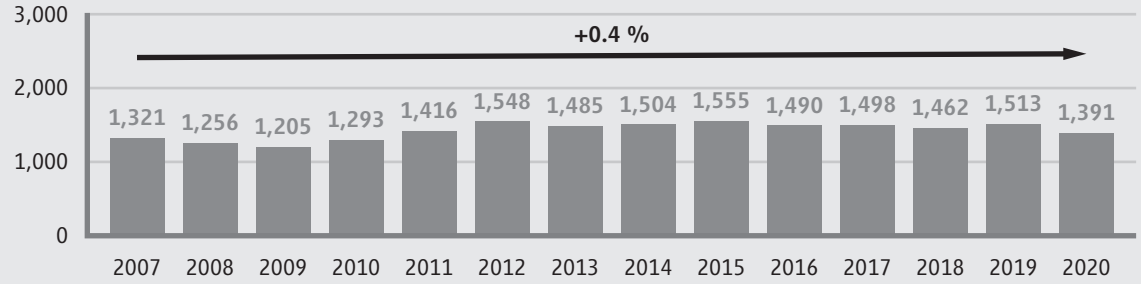
the number of employees. Also, the mean listed non-financial European firm experienced a size increase in terms of the employee to (deflated) asset ratio.

Figure B.7: Mean sample firm over time

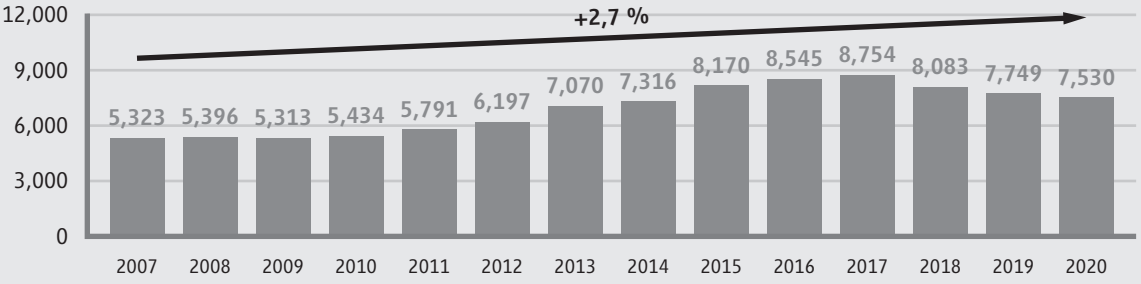
Panel A: Total Assets (mean firm, in mEUR, deflated to 2015)



Panel B: Sales (mean firm, in mEUR, deflated to 2015)



Panel C: Employees (mean firm)



Notes: The figure illustrates the evolution of the mean sample firm over time. While Panel A reports the evolution of the mean firm's total assets, Panel B and C report sales and employees. Figures for total assets and sales are reported in mEUR and - to eliminate the influence of inflation - deflated to 2015.
Source: Authors' analysis based on data from Refinitiv.

V. Research design

Given our goal to provide *large-scale evidence* on the *relevance*, *characteristics*, and *performance* of listed family firms in Europe, the study analyzes the previously described sample in three steps.

First, we start in Section C with a descriptive analysis of the relevance of family firms, founding family firms, as well as non-founding family firms within our sample. Due to the scant research in this respect, studying the relevance of listed family firms in Europe is interesting in itself and provides valuable insights.

We provide overall numbers and sample splits over time and across countries. Moreover, we use different measures to study the relevance of listed family firms in Europe. Specifically, we investigate the classification of firms into family and non-family, as well as the split of family firms into founding and non-founding family firms. But we also examine the amount of total assets, total sales, employment, and market capitalization contributed by each firm category. The latter aims to proxy for the economic relevance of family firms and to shed some first light on the question of whether family firms are "different". For instance, a discrepancy between the relevance of family firms in the total number of firms relative to their relevance in employment terms would point to potential differences in the average employment between family and non-family firms.

This also motivates the subsequent analysis, where we study the *characteristics* of (founding) family firms and outline *performance* differentials between (founding) family firms and their counterparts. Regarding firm characteristics, Section D reports results on economic fundamentals (e. g., industry affiliation, firm age and size), financing decisions (e. g., level of debt, cash holdings), and strategic decision (e. g., operating risk, industry diversification, internationalization). Regarding performance differentials, Section E evaluates the performance of family firms during the sample period. Acknowledging that performance is not a one-dimensional construct, a variety of performance measures, such as firm growth, value added, employment, standard measures of operating performance, measures of firm value, and stock market performance, are analyzed. As median values (for explanation see G.III) are less prone to the effect of outliers, we refer to median values to compare the characteristics and performance of (founding) family firms with the characteristics and performance of their counterparts. We provide comparisons on an aggregate level as well as year-by-year comparisons. Moreover, we also provide results of standard OLS regression (for explanation see G.III) analyses that take into account heterogeneities across firms. The coefficients of these OLS regressions might be interpreted as ceteris paribus (for explanation see G.III) differences in mean values.

The analysis of the characteristics and performance differentials is motivated by the fact that scholars and practitioners have long recognized that listed family firms possess some unique attributes.[20] On the positive side, Tagiuri & Davis (1996) point out the close relation between

20 See the discussions in Carney & Dieleman (2023), Leppäaho & Jack (2021), Melin et al. (2013), Memili & Dibrell (2019), and Poutziouris et al. (2006).

family, ownership, and the business, and thus the identification of the family with the business as well as the family's commitment to the business. Moreover, finance scholars have suggested that the classical agency conflict between the owners and managers (Jensen & Meckling, 1976) is less severe in family firms. The main reason is that the management team typically includes family members or otherwise managers who have a close relationship with the owner family. This facilitates a closer alignment of interest between both parties (i. e., owners and managers). Management scholars have added to this debate by investigating the traits that make entrepreneurs successful (e. g., Kerr et al., 2018) and analyzing conditions that make (founding) family firms more innovative (e. g., Wennberg, 2013).

However, the family firm is not without problems. For instance, conflicts may arise between the controlling family and minority investors.[21] The threat here is that the family promotes decisions within the organization that are detrimental to other shareholders with a smaller stake and hence lower influence in decision-making.[22] For instance, the accumulation of the family's wealth in the business may be associated with higher risk aversion, which can hamper some investment types (e. g., Anderson et al., 2012; Block, 2012). Also, family control might come along with entrenchment and nepotism, both of which may adversely affect decision making within family firms (e. g., Bennedsen et al., 2007).

A predominant view in family firm research builds on the idea that controlling families not only pursue economic outcomes, but also have non-economic objectives that condition the decision-making processes within family firms. Recently, the concept of socioemotional wealth (SEW), which was first proposed by Gómez-Mejía et al. (2007), has gained momentum in this literature as it provides a theoretical paradigm rationalizing the idea of controlling families having a multi-faceted preference function.[23] Specifically, the literature argues that – as a result of SEW considerations – family firms, and especially founding family firms, are expected to be more long-term oriented (Le Breton-Miller & Miller, 2006; Lumpkin & Brigham, 2011). The desire to create a legacy and transfer the business to the next generation will arguably reduce the risk of short-termism that is expected for firms with diffuse ownership. Arguably, such a long-term view will then facilitate the sustainability of firm performance over a longer time period. Relatedly, the identification of the family with the business, which is more likely

21 See Shleifer & Vishny (1997) or Thomsen et al. (2006).

22 The potential for expropriation of minority investors' wealth by the owning family is higher in the case of complex ownership structures in which the transfer of funds is more difficult to detect and/or when the family's control rights exceed their cash flow rights (Faccio et al., 2001). Family firms might also be at a disadvantageous position if they base the appointment of new managers on blood ties rather than merit.

23 Gómez-Mejía et al. (2007) argue that owners may derive utility from non-economic aspects of a business. Referring to this as "socioemotional wealth" (SEW), they hypothesize that this should be particularly salient in the case of family-owners. Berrone et al. (2012) propose the FIBER scale to operationalize SEW: namely, (i) family control or influence, (ii) family member identification with the business, (iii) binding social ties in the firm, (iv) emotional attachment among family members, and (v) renewal of family bonds through dynastic succession.

in the case of founding family firms, will entail higher reputational concerns. The argument here is that not only the firm reputation but also the reputation of the family is at stake.

These arguments suggest that family control comes along with a number of unique attributes, thus raising the question about the potential economic consequences of the outlined specifics of family firms. This is where the report aims to contribute. Specifically, it aims to add to our understanding of whether family firms differ in terms of economic fundamentals (e. g., size, age), financial policies (e. g., capital structure), strategic decisions (e. g., diversification), operating excellence, and market performance.[24]

24 Several studies from finance, management, and strategic management scholars suggest that family firms have specific preferences when it comes to corporate decision-making. For instance, regarding financing decisions, the literature suggests that family firms prioritize debt over equity and accumulate higher levels of cash. Regarding strategic decisions and firm performance the evidence remains mixed. It is, however, beyond the scope of our study to provide an in-depth review of the very active and steadily increasing literature.

C. The Relevance of Listed Family Firms

I. Motivation and background

This section discusses the relevance of family firms within the universe of European publicly listed corporations. It aims to shed light on the question of whether (and to what extent) family firms are prevalent among European listed companies. In addition, we distinguish between two types of family firms that have been introduced before: founding family firms and non-founding family firms.

Over the last years, family firms have stimulated an increasing interest among business professionals, policymakers, and scholars.[25] This interest is in part driven by the particularities of the management and governance of family firms, but also because family firms have traditionally constituted the most common organizational form across the world.[26] In fact, family firms are not just restricted to the cohort of small and medium-sized enterprises (SMEs). In contrast to this widely-held perception, family control has emerged as a type of ownership structure that is also prevalent among a large fraction of publicly listed corporations.[27]

With this in mind, we describe the relevance of family firms as a whole, and founding family firms in particular, in the 17 European countries covered by our sample over the 2007-2020 period. We measure the relevance of family firms along different perspectives. To begin, we focus on the proportion of family firms and founding family firms over time and across countries. We then turn to measures of economic relevance. Specifically, we evaluate the proportion of total assets, total sales, employees, and market capitalization under family control. In our analysis of family firms' economic relevance, we again differentiate between founding and non-founding family firms.

Accordingly, we proceed in three steps. *First*, we offer a general picture of the share of family firms among publicly listed corporations in Europe and of the share of founding family firms within the family firm subsample. We also discuss the evolution over time. *Second*, we analyze

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25 See, for instance, Berrone et al. (2020), Bertrand & Schoar (2006), Burkart et al. (2003), La Porta et al. (1999), or Villalonga et al. (2015), among others.

26 It is worth noting that the prevalence of family firms may differ significantly across countries. Scholars link such variations to the legal and regulatory institutions at a country level, putting particular emphasis on institutional weaknesses (e. g., La Porta et al., 1998; Luo & Chung, 2013), but also informal aspects of the institutional environment, such as the strength of family values (e. g., Bertrand & Schoar, 2006).

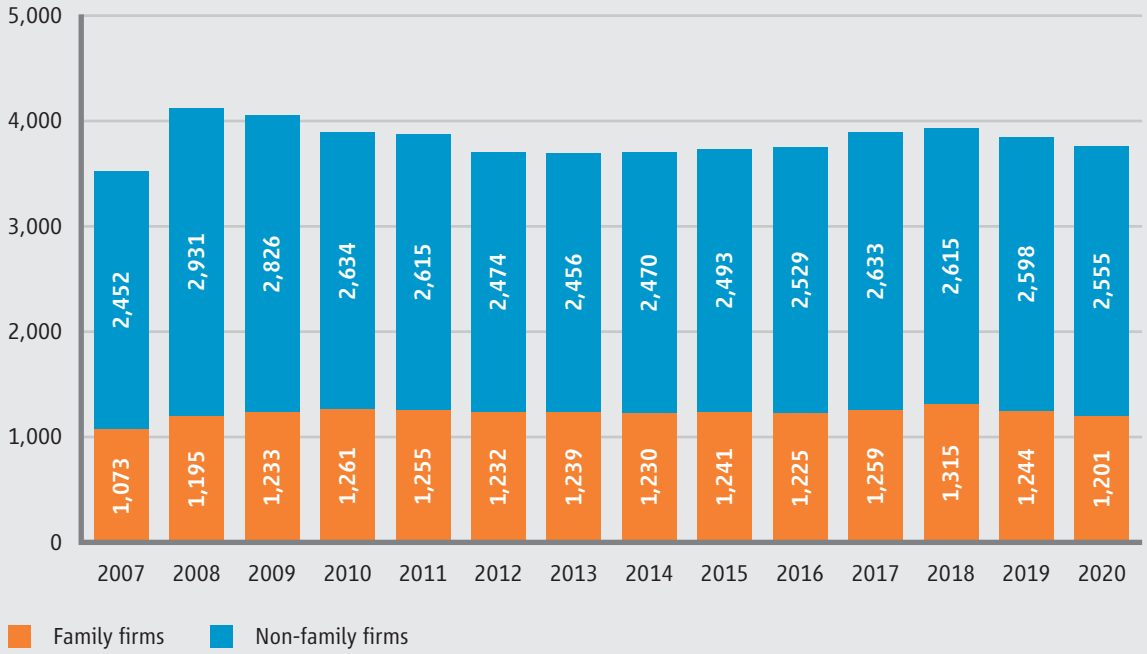
27 Several academic studies published in the last decades document the predominance of family firms worldwide (e. g., La Porta et al., 1999). Family-controlled corporations are widely represented in different geographical regions like East Asia (Claessens et al., 2000) and Western Europe (Faccio & Lang, 2002). They even constitute an important organizational form in countries with the most developed financial markets, including the United States of America (Gadhoum et al., 2005; Holderness, 2009). Prior research estimates that family firms account for about one third of the S&P 500 (Anderson & Reeb, 2003), one of the most closely followed stock market indices.

the cross-country variation regarding the prevalence of family firms and founding family firms. *Finally*, we provide insights on the economic relevance of publicly listed family firms in Europe.

II. Overall picture and evolution over time

This part of the study looks at the relevance of family firms over the entire population of non-financial publicly listed corporations in the EU15 countries, Switzerland, and Norway (i. e., 17 European countries). To this aim, most analyses and comparisons are conducted in two steps. First, we analyze and discuss the importance of family firms compared to non-family firms. Second, within the subsample of family firms, we differentiate between founding and non-founding family firms. This approach allows us to disentangle the uniqueness and the role played by family firms in which either the founder or a descendant of the founding family still owns the company. A separate analysis of this type of family firm is imperative in light of prior research that highlights the distinct logics and priorities associated with founder ownership.[28]

Figure C.1: Number of family and non-family firms over time



Notes: The figure reports the total number of European publicly listed firms covered each year of the sample period (2007-2020) differentiating between family firms (FF) and non-family firms.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

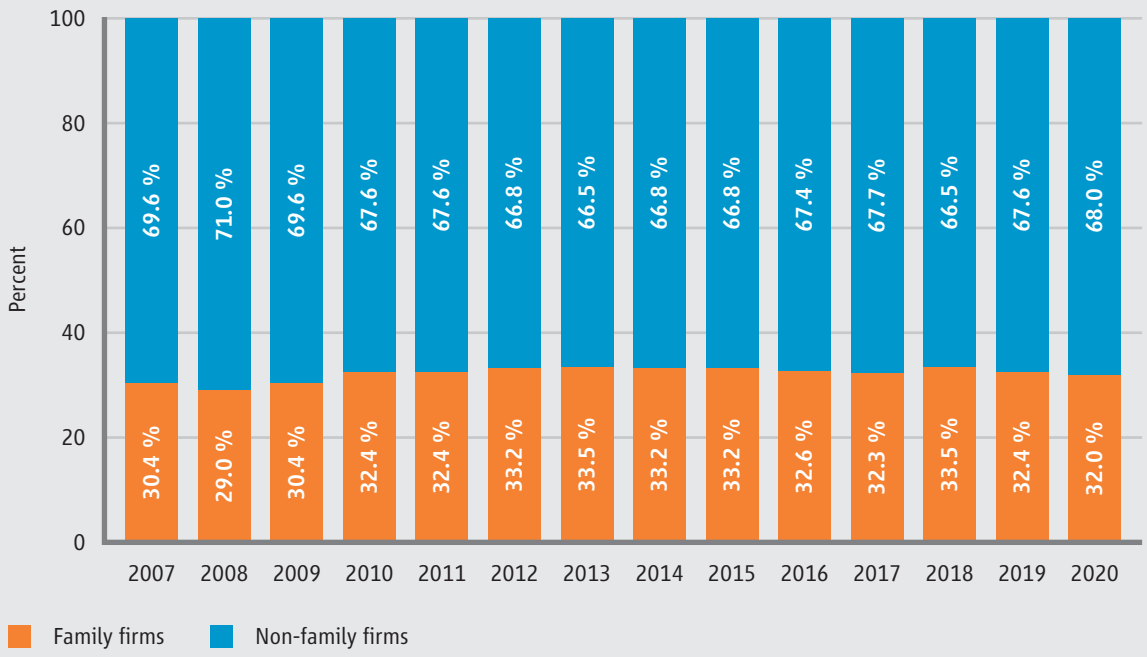
Before specifying how the sample is split in the family and non-family categories, it is critical to understand that the analysis is based on a total sample of 6,702 individual firms and 53,484

28 See, for example, Adams et al. (2009), and Miller et al. (2011).

firm-year observations over the 2007-2020 period. Figure C.1 documents that the number of companies varies across years. Indeed, our sample is the largest in the year 2008 (4,126 single corporations) and the smallest in the year 2007 (3,525 firms). The yearly average number of corporations is 3,820. The slight decrease in the number of corporations after 2008 could be attributable, among other reasons, to the sovereign debt crisis that affected some European countries more strongly, like Greece, Italy, and Spain. The turbulent market conditions during that period of time are likely to have resulted in delisting and merger processes, thus leading to a lower number of individual companies listed on European stock exchanges. Interestingly, the number of family firms has remained relatively stable over time at around 1,200 companies under family control, ranging between 1,073 family firms in 2007 and 1,315 family-controlled corporations in 2018.

Over the whole sample period of 2007-2020, family firms represent about 32 percent of all firm-year observations. However, there is some variation over time, as captured in Figure C.2. While the fraction of family firms dropped to 29 percent between 2007 and 2008, in the midst of the global financial crisis and the sovereign debt crisis in Europe, this percentage has then gradually increased over time, peaking in 2013 and 2018 with 33.5 percent of family firms in the sample.

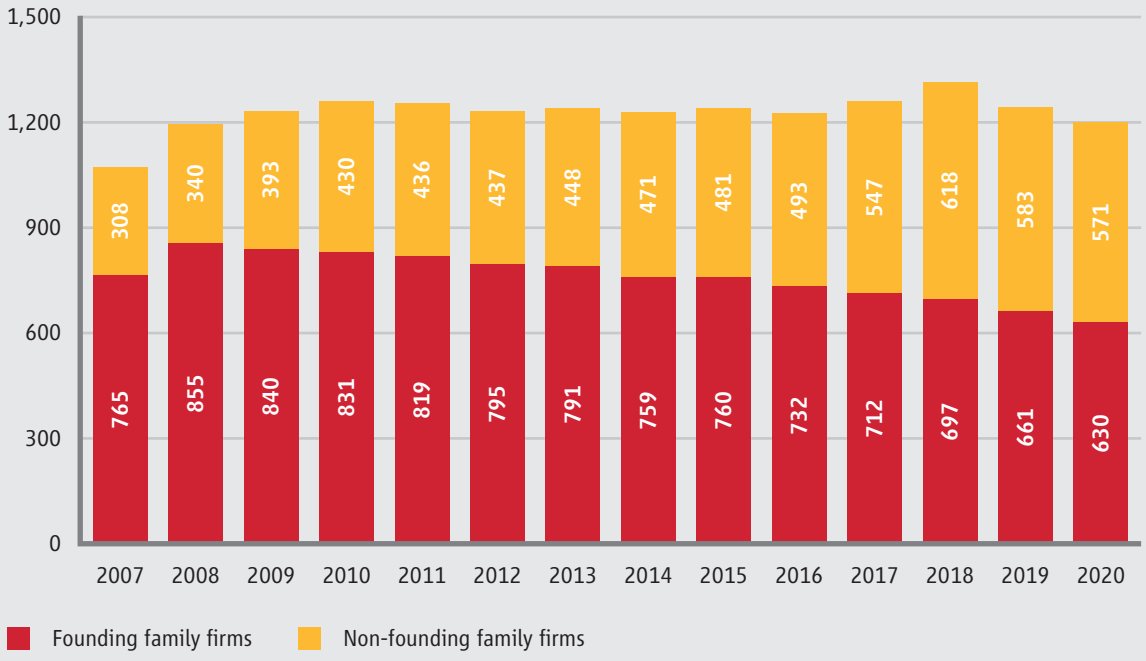
Figure C.2: Percentage of family and non-family firms over time



Notes: The figure reports the percentage of family firms (FF) and non-family firms over the total number of European publicly listed firms covered each year of the sample period (2007-2020).
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

The finding that a family is in control of about one third of all (publicly) listed corporations in Europe is comparable to the results reported by Anderson & Reeb (2003) for the U.S. case. These authors document that, in the period from 1992 through 1999, approximately 35 percent of the firms included in the S&P 500 index were under family control. The fraction of family firms that we document for Europe is also similar to the 30 percent of family-controlled firms reported by La Porta et al. (1999), who examine a sample of large corporations from 27 wealthy countries. Focusing exclusively on the Western European context (13 countries), Faccio & Lang (2002) find that about 44 percent of firms are family controlled. The higher proportion reported in this work can be explained by at least two factors: (i) these authors classify as family firms all corporations in which the ultimate owner is an unlisted company and (ii) they use a lower control threshold of 20 percent (versus our 25 percent cut-off point) in their analysis of the chains of control.

Figure C.3: Number of founding and non-founding family firms over time



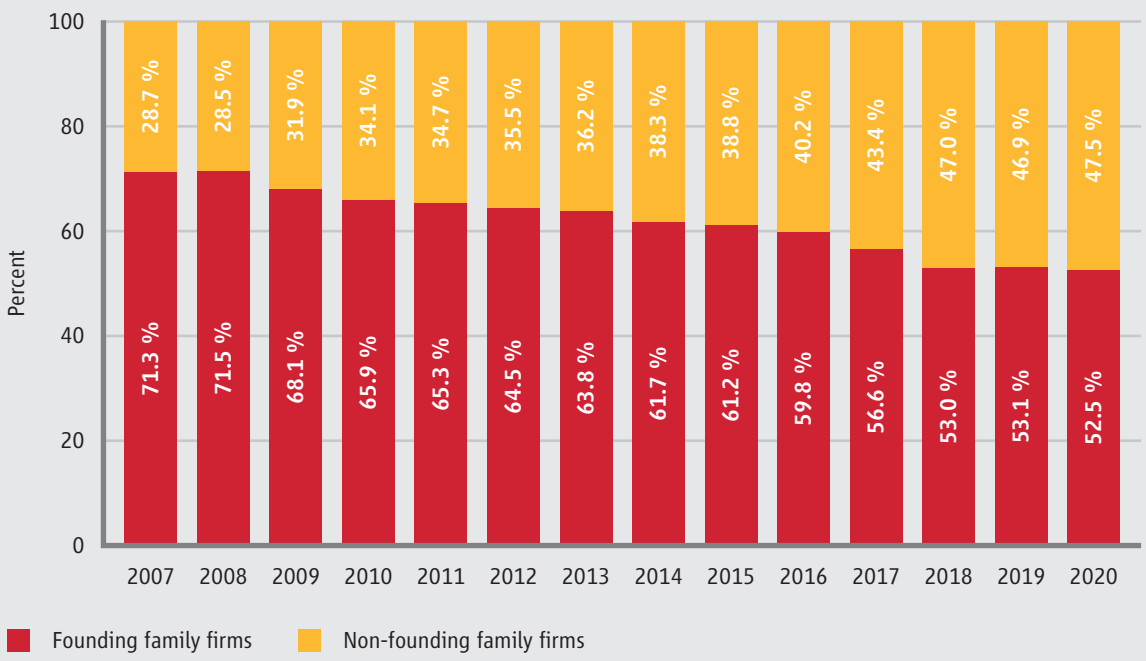
Notes: The figure reports the number of European publicly listed family firms (FF) covered each year of the sample period (2007-2020) differentiating between founding family firms (FFF) and non-founding family firms (Non-founding FF).
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure C.3 differentiates, within the group of family firms, between founding and non-founding family firms, and documents that the majority of family firms in the sample are companies controlled by either the founder or descendants of the founding family. Of the yearly average of 1,200 family firms, about 760 are still owned by the family who founded the business. However, we find that the number of founding family firms has decreased over time, from the maximum value of 855 in 2008 to the minimum of 630 at the end of the sample period.

Meanwhile, the trend experienced by the non-founding family firm subsample is exactly the opposite, with a gradual increase over time, reaching the peak in 2018 with 618 non-founding family firms. Despite these trends, in all years covered in the sample, founding family firms outnumber non-founding family firms.

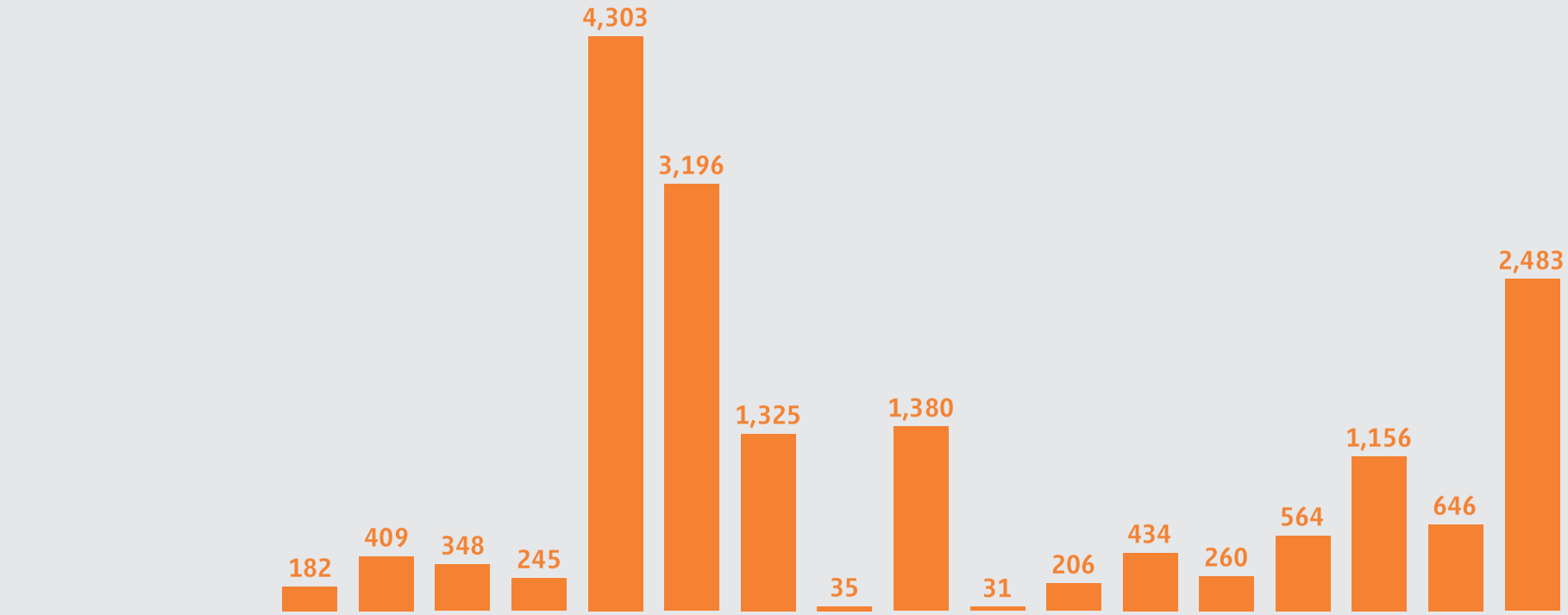
On average, considering the entire sample period, founding family firms represent about 20 percent of all European listed firms and approximately 62 percent of the family firm subgroup. It should be noted that, although the percentage of family firms has remained relatively stable over time, as shown in Figure C.2, the pattern is different when we compare founding and non-founding family firms. The fraction of founding family firms exhibits a downward trend, going from about 71 percent in 2007 and 2008 to approximately 53 percent in the final years of the sample (2018, 2019, and 2020), as Figure C.4 highlights. Meanwhile, the percentage of non-founding family firms (over the family firm total) has evolved in the opposite direction, increasing from 29 percent in 2007 to more than 47 percent in 2020.

Figure C.4: Percentage of founding and non-founding family firms over time



Notes: The figure reports the percentage of founding family firms (FFF) and non-founding family firms (Non-founding FF) over the number of European publicly listed family firms (FF) covered each year of the sample period (2007-2020).
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure C.5: Number of family and non-family firms per country



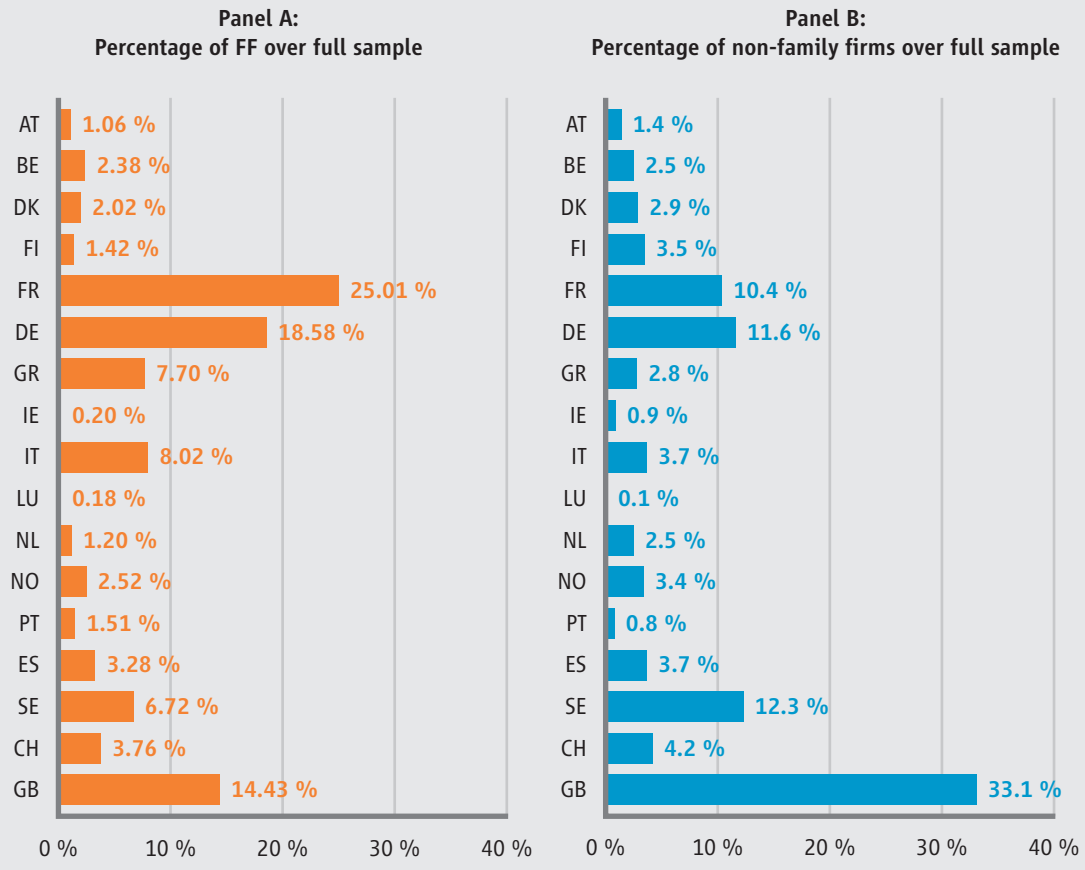
	AT	BE	DK	FI	FR	DE	GR	IE	IT	LU	NL	NO	PT	ES	SE	CH	GB
Total	701	1,324	1,391	1,526	8,085	7,422	2,333	359	2,729	81	1,115	1,672	534	1,919	5,628	2,173	14,492
Non-family firms	519	915	1,043	1,281	3,782	4,226	1,008	324	1,349	50	909	1,238	274	1,355	4,472	1,527	12,009
Family firms	182	409	348	245	4,303	3,196	1,325	35	1,380	31	206	434	260	564	1,156	646	2,483

Notes: The figure shows the number of family firms (FF) per country. The attached table reports the total number of firms per country differentiating between non-family firms and family firms (FF). The country codes are as follows: AT = Austria, BE = Belgium, DK = Denmark, FI = Finland, FR = France, DE = Germany, GR = Greece, IE = Ireland, IT = Italy, LU = Luxembourg, NL = Netherlands, NO = Norway, PT = Portugal, ES = Spain, SE = Sweden, CH = Switzerland, and GB = United Kingdom.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

III. Geographic distribution

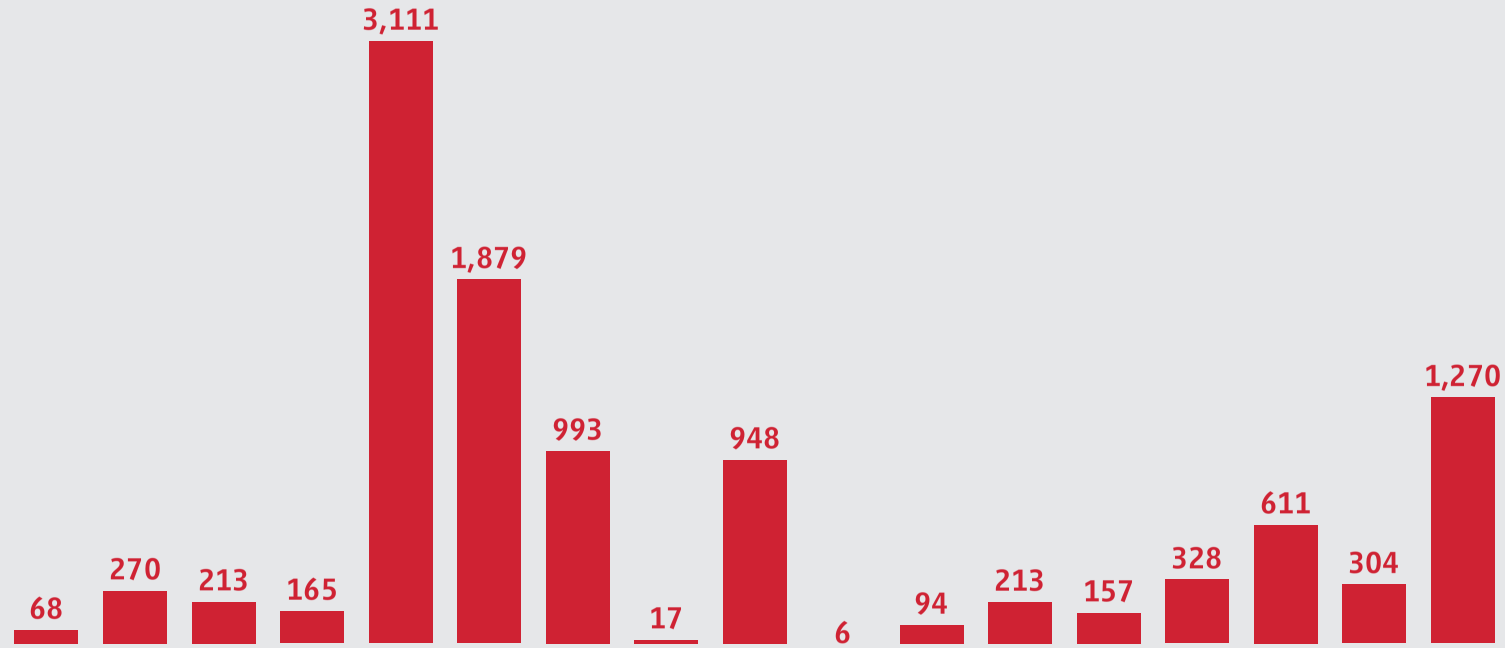
Figure C.5 reports the distribution of firm-year observations across countries. It documents that the largest economies (i. e., the UK, Germany, and France) represent a larger share of firm-year observations in the sample (see the "Total" row at the bottom of Figure C.5). Meanwhile, smaller countries (like Luxembourg and Ireland) have fewer firm-year observations. The fact that almost 15,000 observations (out of the total sample of 53,484 observations) correspond to British corporations is partly driven by the fact that London constitutes one of the main financial centers and stock exchanges in Europe. It is equally interesting to note that most firm-year observations in the UK correspond to non-family firms (see the "Non-family firms" row at the bottom of Figure C.5), whereas in countries like Germany and France the split between the family and non-family categories is very balanced (see the "Non-family firms" and "FF" rows at the bottom of Figure C.5).

Figure C.6: Percentage of family and non-family firms per country



Notes: Panel A reports the percentage of family firms (FF) per country over the total number of European publicly listed family firms (FF) covered in the sample. Panel B reports the percentage of non-family firms per country over the total number of European publicly listed non-family firms covered in the sample. The country codes are as follows: AT = Austria, BE = Belgium, DK = Denmark, FI = Finland, FR = France, DE = Germany, GR = Greece, IE = Ireland, IT = Italy, LU = Luxembourg, NL = Netherlands, NO = Norway, PT = Portugal, ES = Spain, SE = Sweden, CH = Switzerland, and GB = United Kingdom.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure C.7: Number of founding and non-founding family firms per country



	AT	BE	DK	FI	FR	DE	GR	IE	IT	LU	NL	NO	PT	ES	SE	CH	GB
Family firms	182	409	348	245	4,303	3,196	1,325	35	1,380	31	206	434	260	564	1,156	646	2,483
Non-founding family firms	114	139	135	80	1,192	1,317	332	18	432	25	112	221	103	236	545	342	1,213
Founding family firms	68	270	213	165	3,111	1,879	993	17	948	6	94	213	157	328	611	304	1,270

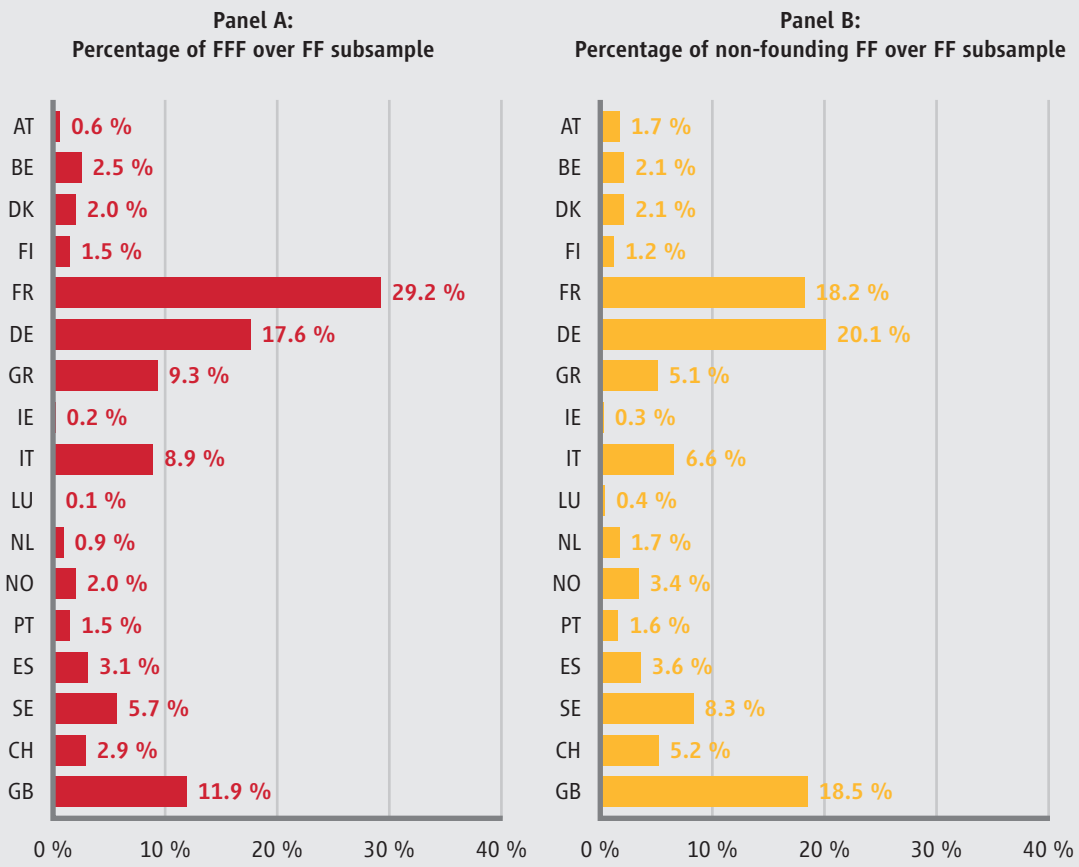
Notes: The figure shows the number of founding family firms (FFF) per country. The attached table reports the total number of family firms (FF) per country differentiating between non-founding family firms (Non-founding FF) and founding family firms (FFF). The country codes are as follows: AT = Austria, BE = Belgium, DK = Denmark, FI = Finland, FR = France, DE = Germany, GR = Greece, IE = Ireland, IT = Italy, LU = Luxembourg, NL = Netherlands, NO = Norway, PT = Portugal, ES = Spain, SE = Sweden, CH = Switzerland, and GB = United Kingdom.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

In fact, if we examine how the family and non-family firm subsamples are divided based on the country of origin, we observe that about one third of all non-family firm-year observations are from the UK, contrasting with the family firm observations where only 14 percent are British firms. This is documented in Figure C.6. The two other countries after the UK with the largest fraction of non-family firm-year observations are Sweden and Germany. Meanwhile, French family firms represent one quarter of the family firm subsample. The top three countries by percentage of family firm-year observations (over the whole family firm subgroup) are France (25 percent), Germany (18.6 percent), and the UK (14.4 percent). These three countries along with Italy are the four European economies examined by Franks et al. (2012) in more detail in their study of the life cycle of family ownership. The numbers shown on Figure C.6 also highlight the important role of family firms in some countries in southern Europe, like Italy and Greece. The family firms from these countries constitute about 8 percent of European family firms (each), whereas the proportion of non-family firms (over all European non-family firm observations) is below 4 percent in both countries.

Next, we divide the family firm subsample into founding and non-founding family firm-year observations. Figure C.7 shows that, with few exceptions, founding family firms outnumber non-founding family firms in most countries (see the "Non-founding FF" and "FFF" rows at the bottom of Figure C.5). This is clearly the case in countries such as France, Germany, Italy, and Greece. However, in other economies like the UK and Switzerland, which are characterized by active capital markets, the number of founding and non-founding family firm-year observations is very similar.

Figure C.8 presents the classification of the founding and non-founding family firm subsamples according to their nationality and indicates that almost 30 percent of founding family firms are French. The second country with the highest share of founding family firm-year observations is Germany (with 17.6 percent). This distribution is not surprising, given that Germany and France are the largest economies in continental Europe. When we look at the non-founding family firm subsample, we observe that their country of incorporation is primarily Germany (20.1 percent of all non-founding family firm-year observations), the UK (18.5 percent), and France (18.2 percent). In general terms, the smaller economies contribute a similar fraction of firm-year observations to the founding and non-founding family firm subsamples.

Figure C.8: Percentage of founding and non-founding family firms per country



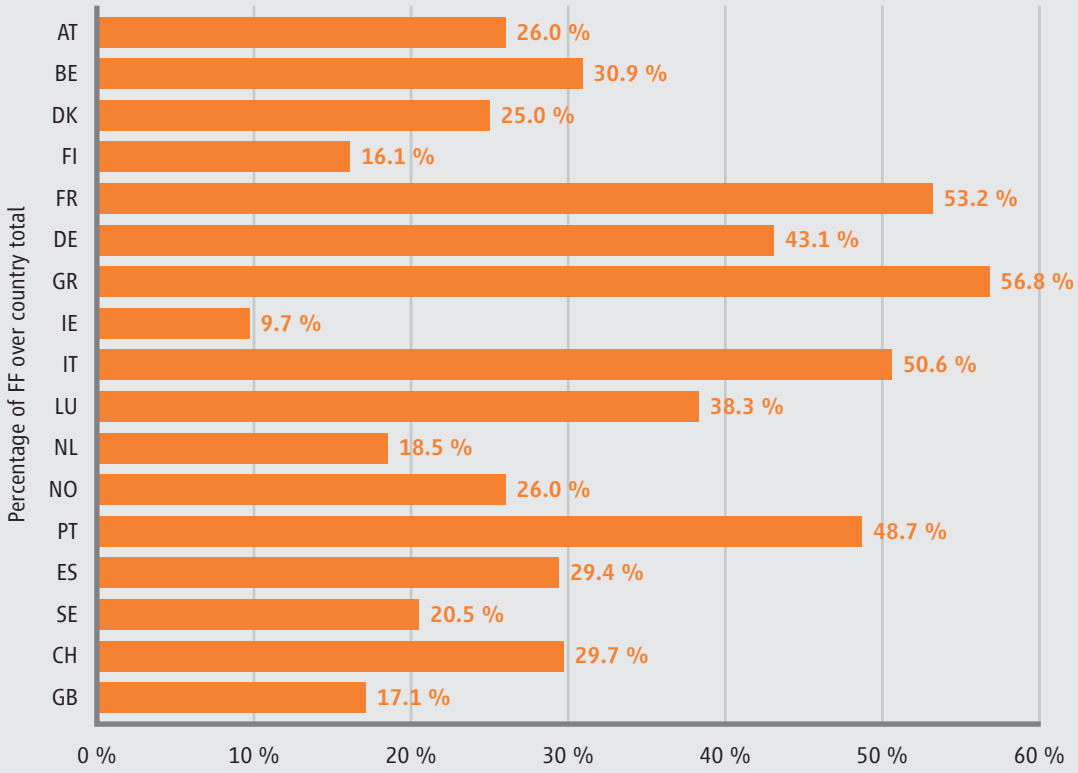
Notes: Panel A reports the percentage of founding family firms (FFF) per country over the total number of European publicly listed founding family firms (FFF) covered in the sample. Panel B reports the percentage of non-founding family firms (Non-founding FF) per country over the total number of European publicly listed non-founding family firms (Non-founding FF) covered in the sample. The country codes are as follows: AT = Austria, BE = Belgium, DK = Denmark, FI = Finland, FR = France, DE = Germany, GR = Greece, IE = Ireland, IT = Italy, LU = Luxembourg, NL = Netherlands, NO = Norway, PT = Portugal, ES = Spain, SE = Sweden, CH = Switzerland, and GB = United Kingdom. Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

The different weight of family firms across countries is captured in Figure C.9. In countries like Greece, France, and Italy, family firms exceed 50 percent of all firm-year observations. On the opposite side, we find Ireland, Finland, and the UK. In these economies, family firms represent less than 18 percent of all listed corporations. Consequently, there is substantial heterogeneity in the relevance of family firms across countries, with a clear divide between the north and the south. Family firms seem to play a more important role in southern European countries, while they are less prevalent in northern of Europe.

One likely explanation for the variation in the percentage of family firms across Europe is the different institutional frameworks of countries. In this sense, La Porta et al. (1999) show that, in countries with stronger investor protection (e. g., the United Kingdom), the fraction of family firms is lower than in contexts where the law does not protect minority investors'

right so strongly (e. g., Greece). Franks et al. (2012) also conclude that family ownership evolves into dispersed ownership in the countries with strong investor protection, developed financial markets, and active markets for corporate control. This rationale is consistent with our finding that family firms are more prevalent (as a fraction of the country total) in economies like France and Italy. Another reason why family firms play a more important role in some European countries is the higher legitimacy of family businesses and the stronger family values in those countries.[29]

Figure C.9: Weight of family firms per country



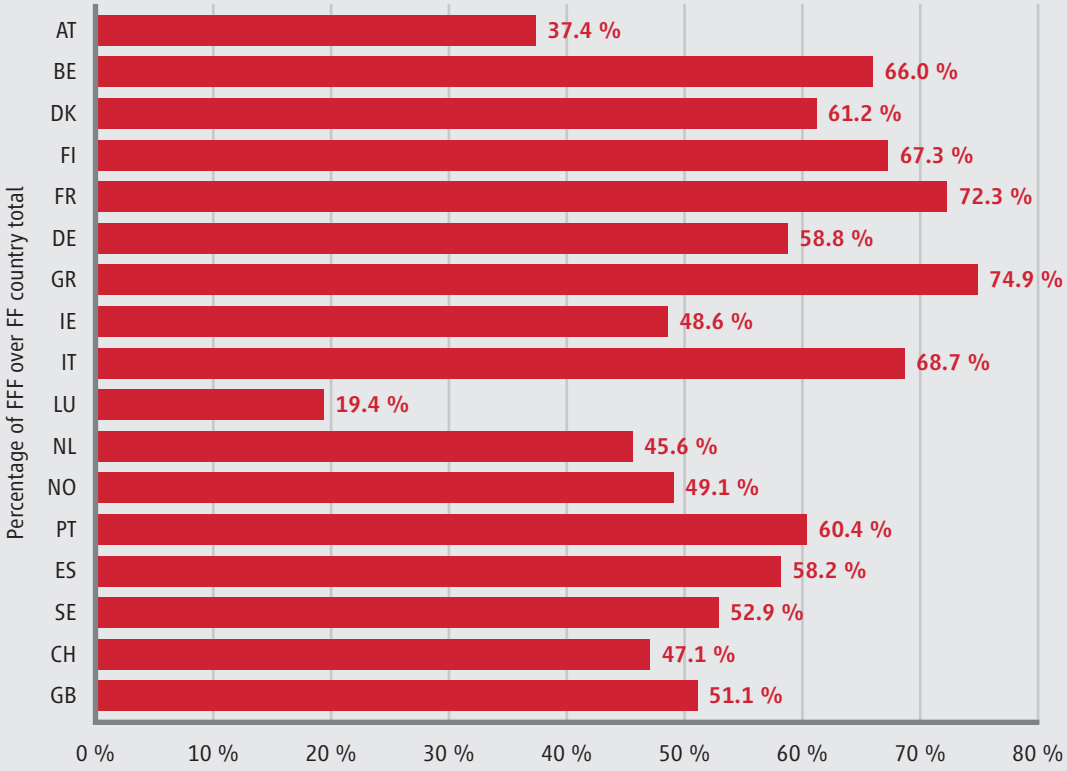
Notes: The figure reports the percentage of family firms (FF) per country over the total number of firms in the corresponding country. The country codes are as follows: AT = Austria, BE = Belgium, DK = Denmark, FI = Finland, FR = France, DE = Germany, GR = Greece, IE = Ireland, IT = Italy, LU = Luxembourg, NL = Netherlands, NO = Norway, PT = Portugal, ES = Spain, SE = Sweden, CH = Switzerland, and GB = United Kingdom.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

To complement Figure C.7, we calculate and report in Figure C.10 the fraction of family firm-year observations that correspond to founding family firms per country. As previously noted, founding family firms either clearly outnumber non-founding family firms (see, for instance, Greece, France, or Italy) or they constitute approximately half of the family firms of the respective country (this is indeed the case in the UK, Norway, and Ireland). A clear exception

29 See, for example, Berrone et al. (2020) and Bertrand & Schoar (2006).

to this pattern is Luxembourg, where only 19.4 percent of all family firms are owned by the founding family.

Figure C.10: Weight of founding family firms per country



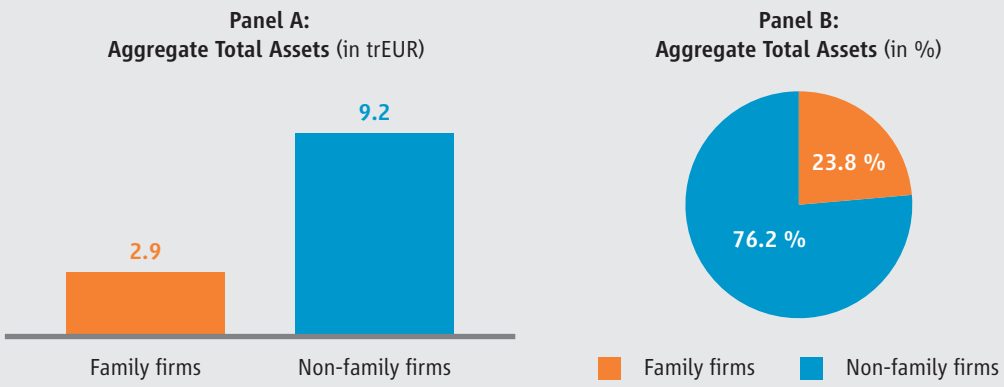
Notes: The figure reports the percentage of founding family firms (FFF) per country over the total number of family firms (FF) in the corresponding country. The country codes are as follows: AT = Austria, BE = Belgium, DK = Denmark, FI = Finland, FR = France, DE = Germany, GR = Greece, IE = Ireland, IT = Italy, LU = Luxembourg, NL = Netherlands, NO = Norway, PT = Portugal, ES = Spain, SE = Sweden, CH = Switzerland, and GB = United Kingdom.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

IV. Economic relevance

Our analysis thus far shows that family firms represent a notable fraction of all European listed corporations. In this section, we corroborate this evidence by examining the weight of family firms in the European economy in terms of selected firm characteristics, such as the volume of total assets, total sales, employees, and market capitalization as of 2020.

We first look at the volume of total assets under the management of family (non-family firms). Figure C.11 shows that in 2020 about 2.9 trEUR out of the more than 12.1 trEUR of total assets owned by European listed firm are in the hands of family firms. These numbers imply that approximately 23.8 percent of the total assets of all European publicly listed firms belong to family firms.

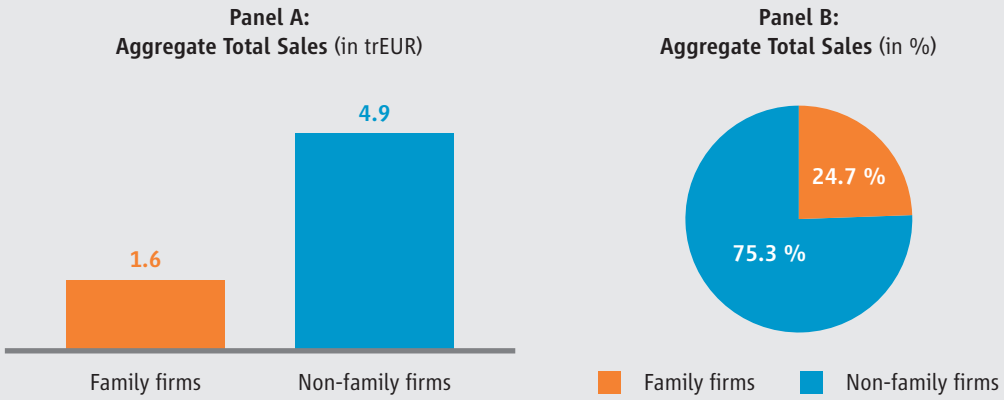
Figure C.11: Aggregate total assets: Family vs. non-family firms



Notes: Panel A reports the aggregate total assets (in trEUR) owned by European publicly listed family firms (FF) and non-family firms in 2020. Panel B reports the percentage of the aggregate total assets contributed by family firms (FF) and non-family firms in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Next, Figure C.12 documents that in 2020 family firms generated a total volume of sales of around 1.6 trEUR compared to the 4.9 trillion generated by non-family firms. Therefore, the fraction of total sales that corresponds to the family firm subsample is 24.7 percent.

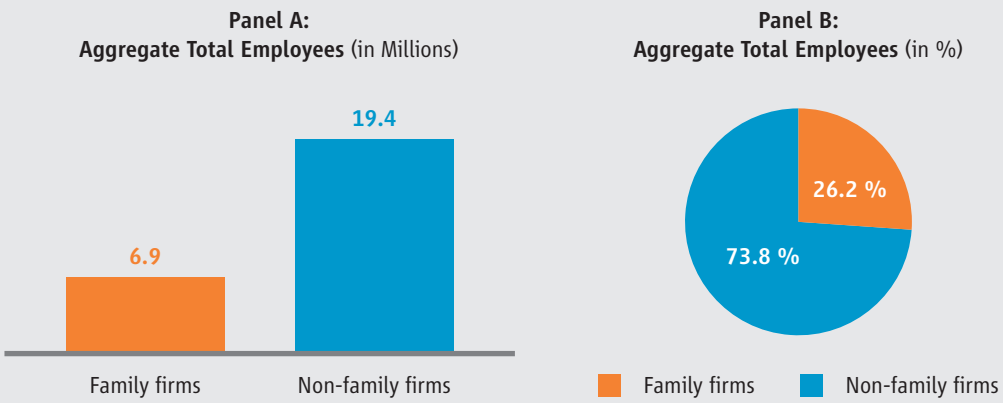
Figure C.12: Aggregate total sales: Family vs. non-family firms



Notes: Panel A reports the aggregate total sales (in trEUR) generated by European publicly listed family firms (FF) and non-family firms in 2020. Panel B reports the percentage of the aggregate total sales contributed by family firms (FF) and non-family firms in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Concerning the number of employees, the workforce of all family firms amounts to almost 7 million of the total 26.3 million employees in 2020 of all companies included in the sample. As a consequence, family firms generate 26.2 percent of the employment that corresponds to European listed firms, as can be seen in Figure C.13.

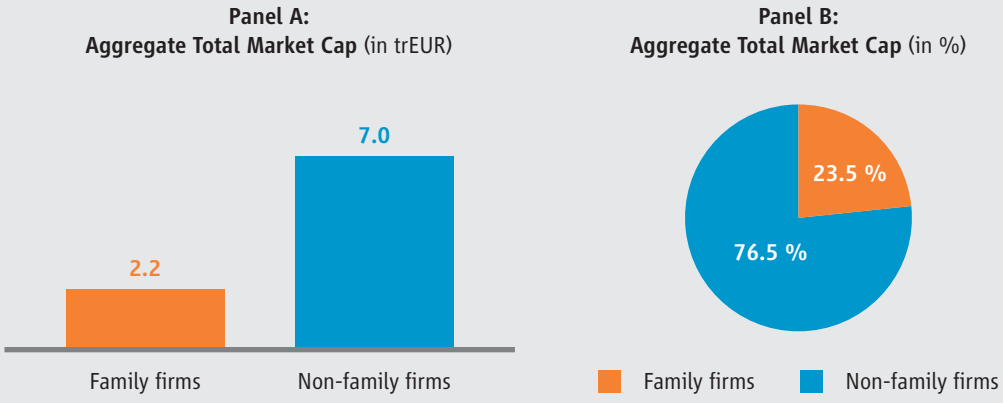
Figure C.13: Total employees: Family vs. non-family firms



Notes: Panel A reports the total number of employees (in millions) working for European publicly listed family firms (FF) and non-family firms in 2020. Panel B reports the percentage of employees contributed by family firms (FF) and non-family firms in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

In terms of market capitalization, the total value of European non-financial listed family firms in 2020 reached nearly 2.2 trEUR. Figure C.14 highlights that this number represents about 23.5 percent of the market capitalization of all publicly non-financial listed firms covered in our sample.

Figure C.14: Aggregate market cap.: Family vs. non-family firms



Notes: Panel A reports the total market capitalization (in trEUR) of European publicly listed family firms (FF) and non-family firms in 2020. Panel B reports the percentage of the aggregate market capitalization contributed by family firms (FF) and non-family firms in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

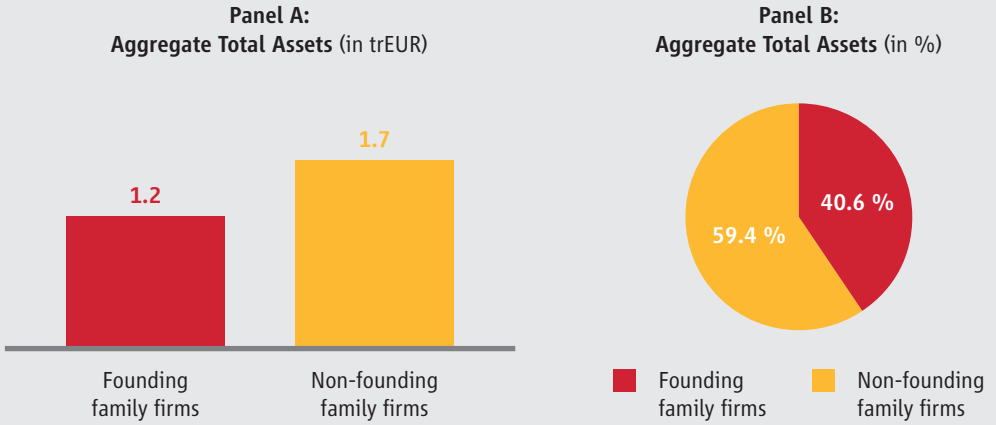
The percentages discussed above are comparable to the findings obtained by Cruz & Nuñez (2012), where the authors conclude that in 2010 family firms in Europe owned about 14 percent

of total assets, generated 20 percent of sales, employed 27 percent of the workforce, and were responsible for 19 percent of market capitalization.

Turning to the family firm subsample and differentiating between founding and non-founding family firms, we find that founding family firms contribute a higher share of employees and market capitalization than non-founding family firms, whereas in terms of total assets and sales it is the latter that own a higher fraction.

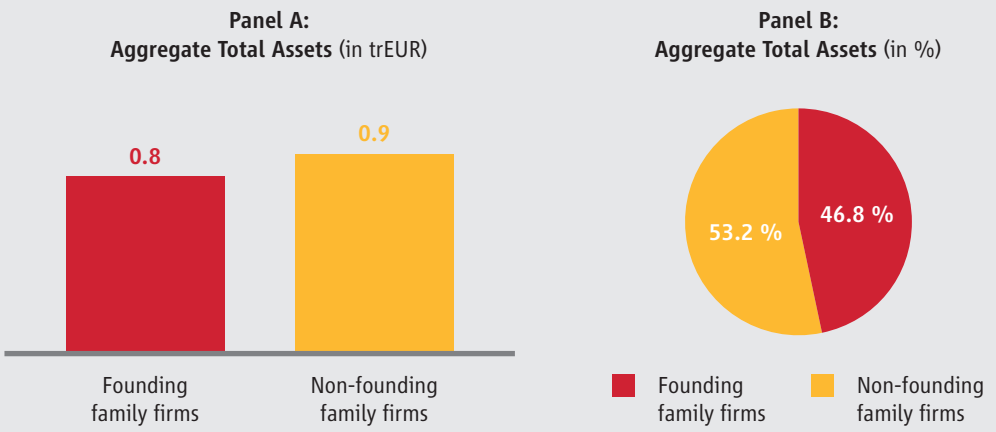
Specifically, Figure C.15 reports that, of all total assets in the hands of family firms, founding family firms own about 40.6 percent, which corresponds to 1.2 trEUR total assets (versus 1.7 trEUR that non-founding family firms have registered as total assets in their balance sheet). In terms of revenues, founding family firms contribute 0.8 trEUR or almost 47 percent of the total sales volume generated by all family firms, as can be seen in Figure C.16.

Figure C.15: Aggregate total assets: Founding vs. non-founding family firms



Notes: Panel A reports the aggregate total assets (in trEUR) owned by European publicly listed founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020. Panel B reports the percentage of the aggregate total assets contributed by founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

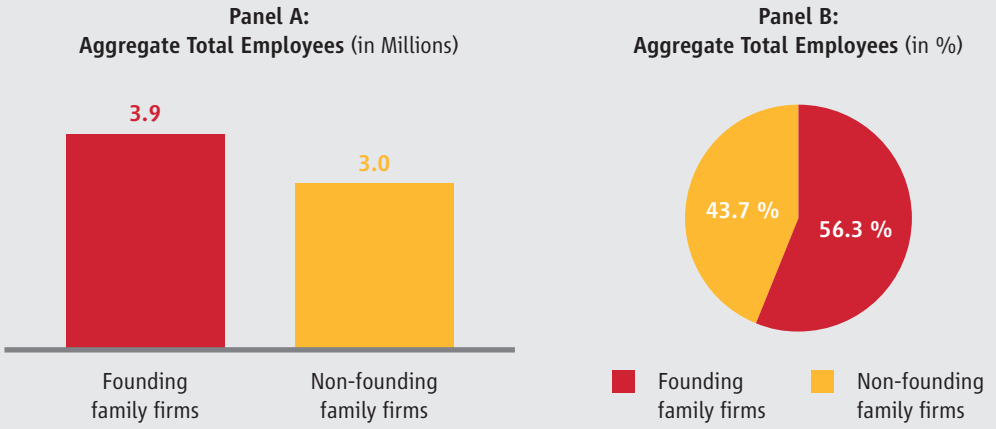
Figure C.16: Aggregate total sales: Founding vs. non-founding family firms



Notes: Panel A reports the aggregate total sales (in trEUR) generated by European publicly listed founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020. Panel B reports the percentage of the aggregate total sales contributed by founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

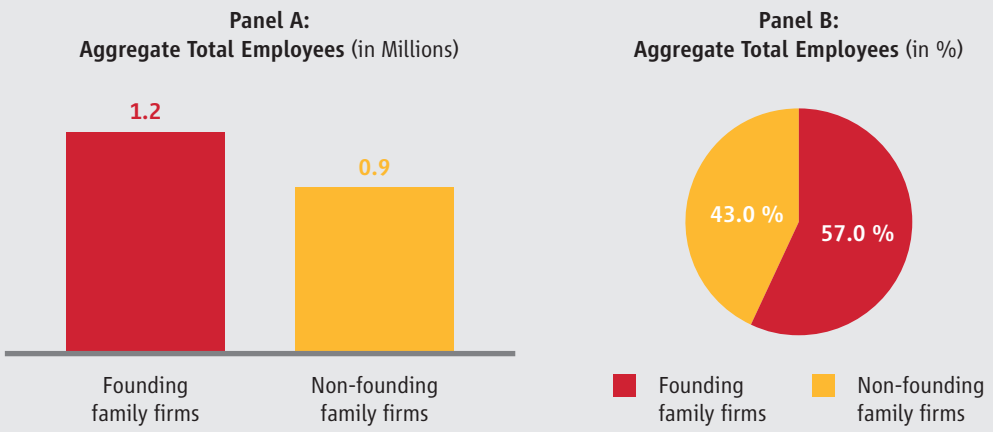
In contrast, Figure C.17 shows that founding family firms make a more important contribution in terms of employment, generating about 56.3 percent of all jobs created by family firms. This corresponds to 3.9 million employees in 2020. Finally, it is also worthwhile to note that, of the total market capitalization of about 2.2 trEUR attributed to all family firms, 57 percent corresponds to founding family firms, as captured in Figure C.18. These results highlight the importance of founding family firms not just by their sheer number, but also in economic terms.

Figure C.17: Total employees: Founding vs. non-founding family firms



Notes: Panel A reports the total number of employees (in millions) working for European publicly listed founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020. Panel B reports the percentage of employees contributed by founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure C.18: Aggregate market cap.: Founding vs. non-founding family firms



Notes: Panel A reports the total market capitalization (in trEUR) of European publicly listed founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020. Panel B reports the percentage of the aggregate market capitalization contributed by founding family firms (FFF) and non-founding family firms (Non-founding FF) in 2020.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

V. Summary and intermediate conclusion

In the previous sections, we discuss the relative prevalence of family firms within the cohort of publicly listed European firms. To this aim, we capture the relevance of family firms from two different perspectives: (i) as a proportion of European publicly listed firms and (ii) in economic terms. In the case of the latter perspective, we examine the proportion of total assets, total sales, employees, and market capitalization under family control. Also, in each analysis conducted, we differentiate between two types of family firms: founding and non-founding family firms.

Our findings can be summarized as follows: *First*, our analysis of the distribution of European publicly listed firms into the family and non-family categories reveals that, in the 2007-2020 time period covered in the study, family firms represent about 32 percent of the sample. This proportion implies that of the average of 3,820 publicly listed corporations covered each sample year, approximately 1,200 companies are under family control. There is, however, a slight variation over time, with the lowest proportion of family firms in 2008 (29 percent of family firms), and the highest fraction in 2013 and 2018 (33.5 percent of family firms in both years). Regarding the distinction between founding and non-founding family firms, about 760 firms of the yearly average of 1,200 family firms are still in the hands of the family who founded the business. Therefore, founding family firms represent 62 percent of the family firm category and about 20 of all European listed corporations. Regarding the time trend, although the number of firms fluctuates over the sample period, the proportion of non-financial family firms remains relatively stable at about 30 percent. However, the proportion of founding family

firms decreases over time by approximately one fourth, from 71.3 percent (as a fraction of the family firm subsample) in 2007 to 52.5 percent in 2020.

Second, despite the relevance of (founding) family firms in Europe, there are notable differences across countries. The UK is the country most broadly represented in the sample, followed by France and Germany. But while most British firms are non-family, the classification of French and German listed companies into the family and non-family categories shows a very balanced distribution. Indeed, we observe that the fraction of family firms exceeds 40 percent not only in France (53.2 percent) and Germany (43.1 percent), but also in countries like Greece (56.8 percent), Italy (50.6 percent), and Portugal (48.7 percent). On the opposite side, we find countries with less than 20 percent of family firms, like Finland (16.1 percent), Ireland (9.7 percent), the Netherlands (18.5 percent), and the UK (17.1 percent). Generally speaking, there is a north-south divide, with family firms being more prevalent in southern European countries. Nevertheless, the distinction between founding and non-founding family firms highlights that, with few exceptions, the number of founding family firms in most countries is higher than the number of non-founding family firms. This pattern is more pronounced in France, Greece, and Italy, where founding family firms constitute 72.3, 74.9, and 68.7 percent of family firms, respectively.

Third, we analyze the importance of (founding) family firms in economic terms. To this aim, we examine the fraction of total assets, total sales, employees, and market capitalization that are contributed by European (founding) family firms. We observe that, of the 12.1 trillion total assets owned by European non-financial listed firms in 2020, 23.8 percent are under family control. Meanwhile, 24.7 percent of the 6.5 trillion total sales generated by all companies correspond to family firms. In terms of market capitalization, family firms are responsible for 23.5 percent of the 9.2 trillion market capitalization of all European listed corporations. Interestingly, the economic relevance of family firms is the highest when we examine the number of employees. In this case, 26.2 percent of all employees working at our sample companies are employed by family firms. Differentiating between founding and non-founding family firms, we observe that founding family firms contribute a higher share of employees (56.3 percent) and market capitalization (57 percent) compared to non-founding family firms. In contrast, non-founding family firms own a higher fraction of the total assets (59.4 percent) and are responsible for a higher proportion of the total sales (53.3 percent) generated by all family firms.

D. Characteristics and Development of Listed Family Firms

I. Motivation and background

This section discusses the characteristics of family firms. It aims to shed light on the differences in the operating features of family firms and non-family firms, and their evolution over time. Also, it aims to explore the role of the founding family, by comparing the operational characteristics of the family firms that are in control of the family that founded the corporation (founding family firms - FFF) and the firms that are owned by a family but not the family that has founded the business in the first place. We refer to the latter as the non-founding family firms (non-founding FF).

As discussed in Section B of this report, family control – the defining characteristic of family firms – likely affects the firms' strategic choices and behavior and therefore the structure of their assets, liabilities, diversification across industries, and several other aspects of their operations. This section outlines the key differences between family firms (founding family and non-founding family), and non-family firms. Thereby, we build on the aspects that the academic literature has previously identified as those that most likely reflect the specificity of the family firm governance.[30] We follow the approach of Section C and compare (i) founding family firms with non-founding family firms and (ii) (all) family firms with non-family firms.

We proceed in several steps. *First*, we look into industry affiliation of firms. Ignoring financial service firms, we differentiate eight macro-industries, defined based on SIC (Standard Industry Classification), and discuss the distribution of family firms across these industries. *Second*, we study firm size as measured by total assets. To account for the increase attributable to inflation, we analyze deflated values. *Third*, we compare family and non-family firms in terms of their age. Arguably, as time goes by it becomes harder to keep the firm within the (founding) family, although some of the oldest firms in the world are family controlled.

Fourth, we study the firms' operating risk. Technically, we measure firms' operating risk by the firms' sales risk, namely the 3-year rolling coefficient of variation (i. e., standard deviation (for explanation see G.III) dividend by the mean, in percent) of the firm's sales. *Fifth*, we explore the difference in the firms' diversification decisions. We look at the number of 2-digit and 4-digit industries (based on the Standard Industrial Classification (SIC)) in which family firms operate and compare this number with those for non-family firms. We complement this analysis by looking into the firms' internationalization, as a form of activity that, on the one hand,

30 See Section B and, for example, Bennedsen & Fan (2014), Lins et al. (2013), Villalonga et al. (2015).

can help the firms to diversify risk but, on the other hand, also requires additional knowledge and resources. *Finally*, we conclude with a discussion of the firms' financing decision. These decisions are likely affected by family control, because of the families' preference for keeping control (controlling equity share) in the family and the families' attitudes to risk, among others.

II. Industry affiliation

1. Motivation and measurement

We start by describing a firm's industry affiliation, which is a commonly used approach to describe the business activities of the company on a broad level. The industry affiliation is an influential factor in firm behavior, as the market structure within an industry implies some similarities in the pattern of behavior and performance outcomes of the firms within the same industry.[31] The specificities in the operational activities within the different industries also affect the firms' potential for the economies of scale and, thus, the optimal size of the firms operating within the specific industries, the firms' exposure to demand and supply shocks, their operating risks and access to financing.

In the following, we use the first-digit of the primary Standard Industrial Classification (SIC) code to allocate firms to macro-industries. SIC codes are four-digit numerical codes that have a one-to-one correspondence to industry categories. As such, SIC codes allow to classify companies into industries based on their business activities. As our sample covers only non-financial firms, we end up with eight macro-industries.[32]

2. Empirical results

Figure D.1 below shows the percentage of listed firms in the different industries that are controlled by family (founding family). Panel A of Figure D.1 shows the percentage of all firm-year observations during the 2007-2020 period that are within a specific industry and that refer to family firms (FF). The corresponding percentage of firm-year observations in the industry that refer to non-family firms is then the difference between 100 and the depicted percentage of the firm-year observations for family firms.

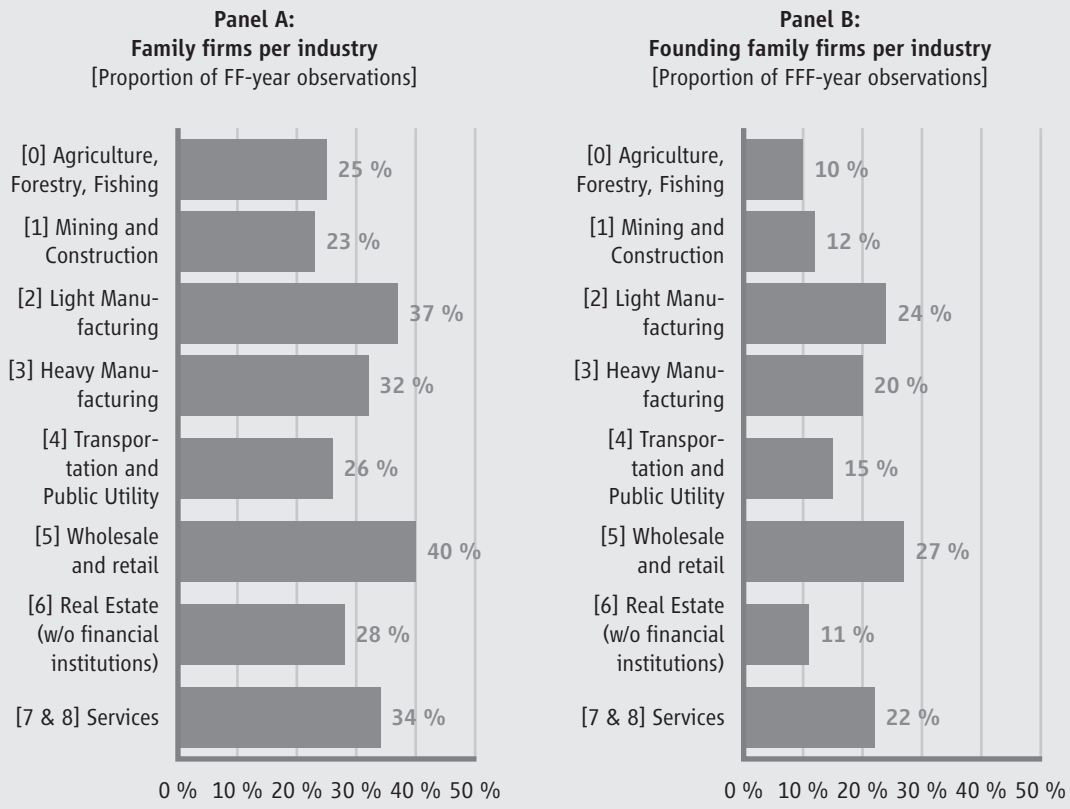
Panel B of Figure D.1 shows the percentages of firm-year observations that refer to the founding family firms in each of the industries. The percentage of non-founding family firm-year observations is then the difference between the corresponding industry percentages shown

31 See, e. g., Mauri & Michaels (1998).

32 The industries are: [0] Agriculture, Forestry, Fishing, [1] Mining and Construction, [2] Light Manufacturing, [3] Heavy Manufacturing, [4] Transportation and Public Utility, [5] Wholesale and retail, [6] Real Estate (w/o financial institutions), [7&8] Services, where the number in brackets refers to the first-digit SIC code.

for family firms (in orange, to the left) and the percentage reported for the founding family firms (in red).

Figure D.1: Industry affiliation of (founding) family firms



Notes: The figure reports the percentage of firm-year observations that family firms and founding family firms represent among all the publicly listed European firms that operate within each of the eight macro industries. Panel A reports the distribution of firm-year observations for family firms (FF), while Panel B shows the distribution of firm-year observations for the subsample of founding family firms (FFF).
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

As shown in D.1., in our sample of firm-year observations of European publicly listed non-financial firms, the non-family firms are in still the majority, i. e., representing more than 50 percent of all firm-year observations in all of the industries considered. Although they never outnumber non-family firms, family firms are most commonly represented within the wholesale and retail industry. About 40 percent of firm-year observations in this industry belong to family firms. The share of family firms is relatively high also in the light manufacturing, services, and heavy manufacturing. On the contrary, family firms constitute less than a third of firm-year observations in agriculture, forestry and fishing, real estate (without financial institutions' services), and more capital-intensive industries, such as mining and construction, as well as transportation, and public utility.

The red columns of Figure D.1 show the distribution of firm-year observations per industry for the founding family firms. Comparing the percentages for founding family firms and those for family firms overall, we conclude that – in most of the industries considered – founding family firms represent over a half of the firm-year observations that belong to family firms. Exceptions are the sector of agriculture, forestry, fishing, and the real estate sector. In these sectors, a larger share of observations in the group of family firms relate to companies that are family-owned but in which the family who founded the firm no longer holds control (i. e., non-founding FF).

The literature offers different explanations for why family firms are more common in some industries than in others. For example, industries like the light manufacturing, retail and wholesale, and services are less capital-intensive compared with, for example, the heavy manufacturing or mining and construction. The lower investment (financial) requirements for these industries probably implies lower financial roadblocks to families aiming to preserve family control, thereby making it more likely that family firms persist in these industries. Firms in certain industries, such as light manufacturing, might also be more strongly dependent on the specific assets that the founder and other family members contribute to the firm (e. g., values, vision, and passion). Studies suggest that the relevance of these assets in the firms' operations explain why firms remain under family management and control.[33] Family firms might also be more common in industries that provide for high amenity potential, namely those where being connected to their companies is more likely to provide the founders (family) with social recognition, valuable private information, and personal satisfaction.[34] This could for example explain the higher number of family firms in services, such as tourism, editorial services, etc.

III. Firm size

1. Motivation and measurement

We next compare the size of family (founding family) firms and non-family firms. Theoretically, we could expect the listed family firms to be on average smaller compared with non-family firms, considering the type of activities in which the family firms tend to concentrate, the family owners' preferences for preserving a controlling share in the firm's ownership, and the resulting financial roadblocks to family firms' growth.

Technically, we measure firms' size by the size of the firm's balance sheet, i. e., its total assets. For convenience, we mostly use million Euros (mEuro). To mitigate the effect of inflation, we deflate all values to the 2015-level.

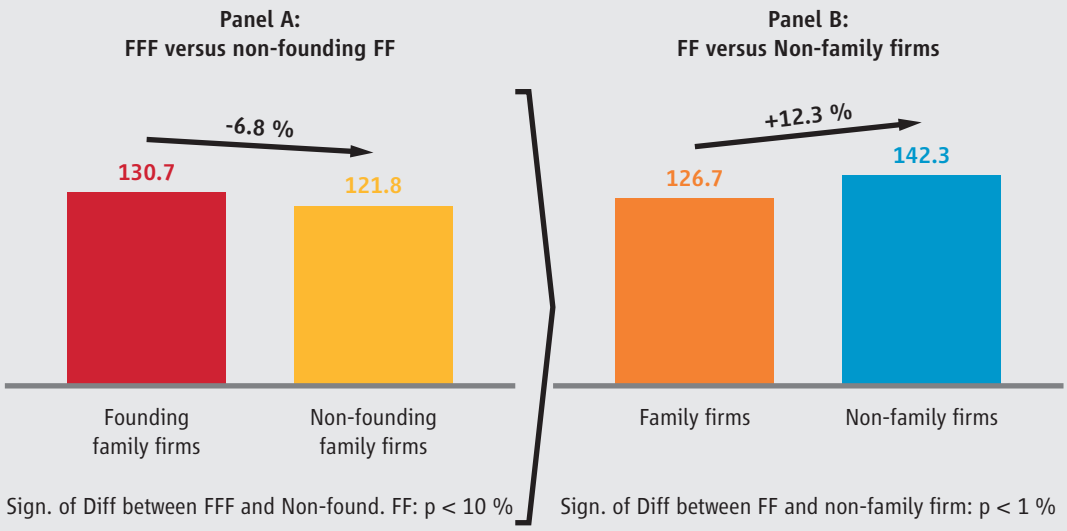
33 See for example Bennedsen & Fan (2014).

34 See Demsetz & Lehn (1985).

2. Empirical results

In Figure D.2 below, we show the amount of total assets in mEuro (deflated to 2015) for a median (founding) family and non-family firm during the 2007-2020 period. In the case of firm size, looking at the median firm is more informative than looking at the size of an average firm, as the latter is affected by extreme values (i. e., very large firms or very small firms in the sample). The median values of firm size are calculated based on all firm-year observations during the 2007-2020 period, using the asset values deflated to 2015 levels. The median size of family firm is therefore the amount that separates, in terms of the value of their assets, the higher half from the lower half of firm-year observations for family firms. This definition then correspondingly applies to founding family firms (as a subsample of family firms), the non-founding FF, and the non-family firms.

Figure D.2: Total assets comparison

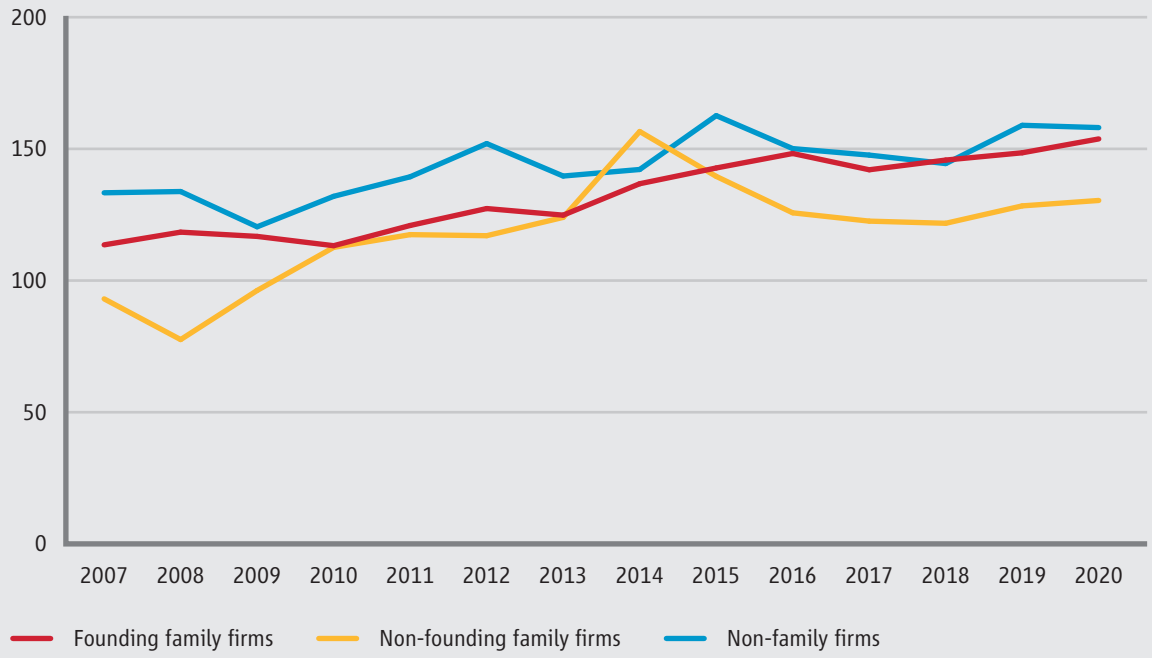


Notes: The figure reports the median firm size for the founding family firms (FFF), non-founding FF, family firm (FF), and non-family firms. Panel A compares the founding family firms with non-founding family firms. Panel B compares family firms (as the aggregate of the FFF and non-founding FF) with non-family firms. Firm size is measured by the size of the firm's balance sheet, i.e., its total assets in mEuro. All values are deflated to the 2015-level.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Panel A compares the median size of founding family firms and non-founding family firms, while panel B compares the median size of family firms and non-family firms. Panel A hence relates to family firms (only). It shows that the non-founding FF are (in terms of the median value) somewhat smaller compared with the founding family firms (FFF). Specifically, the median non-founding family firm is about 6.8 percent smaller compared with the median founding family firm.

While founding family firms are (in terms of the median value) larger than non-founding family firms, the median size of family firms (as an aggregation of FFF and non-founding FF) is smaller compared with non-family firms. Specifically, comparing family firms with non-family firms in panel B, we observe that the median family firm in our 2007-2020 sample operates with about 126.7 mEuro of assets, while the median non-family firm in the sample operates with 142.3 mEuro of assets. The median non-family firm is thus 12.3 percent larger compared with the median family firm. The differences between the family and non-family firms' median size (measured by total assets) are statistically significant (for explanation see G.III) at the 1 percent level.

Figure D.3: Total assets over time



Notes: The figure reports the median firm size for the founding family firms (FFF), non-founding family firms (non-founding FF) and the non-family firms over time. The firm size is defined as the value of total assets in mEURO deflated to 2015.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

We continue the description of firm characteristics by looking at the development of firm size for founding family firms, non-founding family firms, and non-family firms over time. We show the development of the median firm size for each of the firms' subgroups in Figure D.3. The figure shows an increase in terms of the median size during the period of our analysis for all three firm groups. For founding family firms (as a subgroup of family firms) and non-family firms, we observe a slow but steady increase in the median firm size over time, without major disruptions in the trend over the years. On the contrary, for non-founding family firms (as a subgroup of family firms), the figure documents a somewhat sharper increase in the median firm size between 2008 and 2014, followed by a decrease in the median firm size after 2014.

The trend for this latter group is not as linear as the one for founding family firm or non-family firm subgroups. The non-founding family firms also experience the most substantial drop in the median firm size during Great Recession (compare year 2008 and 2007 in Figure D.3 below).

IV. Firm age

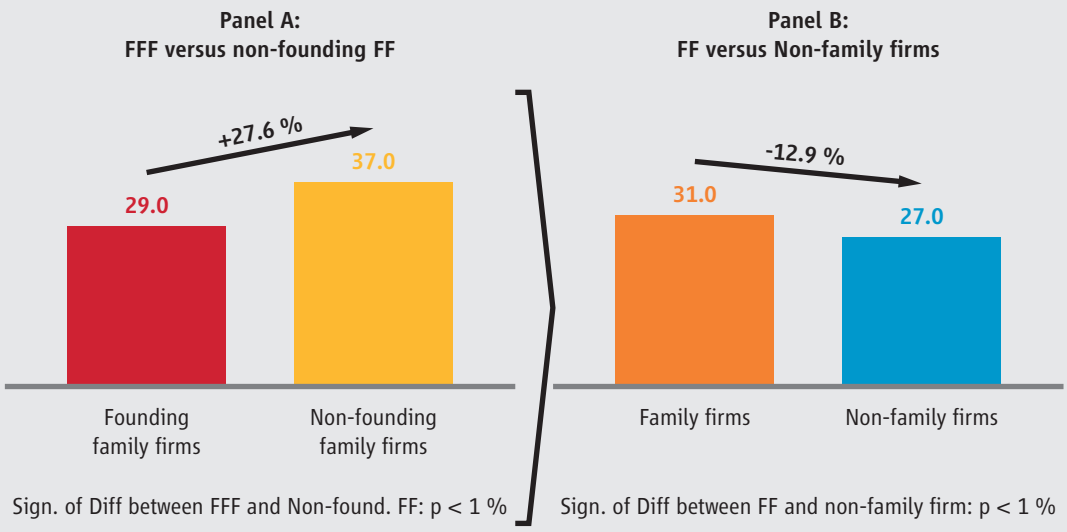
1. Motivation and measurement

Because of their owners' long-term orientation and concerns for family legacy, family firms might continue operating longer than non-family firms do. There are in fact several examples of family firms that have been operating for more than two centuries.[35] This section of the report investigates whether the longevity is also a characteristic of the European listed family firms and explores the relationship between the presence of the founding family and firms' age.

Technically, we measure firm age as the difference between the specific year of analysis and the founding year of the firm.

2. Empirical results

Figure D.4: Firm age comparison



Notes: The figure reports the median firm age for the founding family firms (FFF), non-founding family firms (FF), family firms, and non-family firms. Panel A compares founding family firms with non-founding family firms. Panel B compares family firms and non-family firms. Firm age is measured as the difference between the specific year of analysis and the firm's founding year.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

35 For instance, the Association les Hénokiens, an association of family businesses and bicentenary companies, reports on its webpage that it has currently 51 members including 13 Italian, 15 French, 10 Japanese, 4 German, 3 Swiss, 2 Dutch, 2 Belgian, 1 English, and 1 Austrian. See www.henokiens.com/ (accessed March 20, 2022).

Figure D.4 shows the median firm age for the different firm subgroups. In Panel A we compare founding family firms and non-founding family firms. Panel B compares family firms with non-family firms.

Within the sample of family firms, the founding family firms (FFF) are much younger compared with the non-founding family firms. The median age for the FFF in our sample is 29 years compared with 37 years for the non-founding family firms (non-founding FF). This difference is not surprising, as the founders (founding family) are probably more likely to exit the firm as the firm becomes older than in the firms' early age.

Looking at the median firm age for family firms and non-family firms in Panel B, we conclude that non-family firms are younger than family firms overall. During the period of analysis, the median non-family firm in our sample is 27 years old, which is 4 years younger than the age of the median family firm. It is 10 years younger compared with the age of the median non-founding family firm.

To provide further insights on the age distribution of family and non-family firms listed on the European stock markets, we look at the percentage of all family firms (founding family firms; non-founding family firms) and the percentage of non-family firms that are older than 100 or 200 years. The percentages are tabulated in Table D.1. Comparing family and non-family firms, we see that the percentage of non-family firms that are older than 100 or 200 years is higher than the percentage of family firms in these age categories. This difference in favor of the non-family firm category is partly due to the relatively lower share of very old firms within the group of the founding family firms (FFF). Only slightly above 1 percent of the founding family firms are older than 200 years, while this percentage is twice as high for non-family firms.

Table D.1: Age distribution

	Family firms			Non-family firms
	Founding FF	Non-founding FF	All family firms	
Older than 100 year	11.9 %	23.4 %	16.3 %	19.8 %
Older than 200 years	1.0 %	2.4 %	1.5 %	2.0 %

Notes: The table reports the percentage of founding family firms (FFF), non-founding family firms, and the percentage of family firms (FF) and non-family firms that are more than 100 and more than 200 years old. Firm age is measured as the difference between the specific year of analysis and the firm's founding year.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Family firms outperform non-family firms in terms of age, when we look only at the non-founding family firms (as a subgroup of family firms). The percentage of firms that are older than 100 years or that are older than 200 years in this subgroup is higher than the corresponding percentage in the subgroup of founding family firms, but also higher than the percentage in the group of non-family firms. This corroborates previous conclusion about non-founding family firms being older compared with both founding family firms and non-family firms.

To complete the picture of age differences across firms, we perform a simple regression analysis, where we compare the average age of family firms (founding family firms) and non-family firms that are similar in terms of their size and that operate in the same year, and within the same industry and country. In other words, the regression analysis allows us to inspect whether the differences in the firms' average age are associated with the type of ownership (family versus non-family) rather than driven by firm size, industry, and country-level characteristics that are also related with family ownership. For instance, if the founding family firms are more likely to concentrate in 'dynamic' industries, where companies tend to be relatively younger, the observed differences in the firm age between these and other firms would be in part capturing the impact of the industry characteristics, rather than the influence of the founding families as owners. We can control for these confounding effects by performing a regression analysis. We hence run a simple regression model, where we compare the average age of family firms with the average age of non-family firms (Specification 1, Table D.2) that operate within the same industry and country. We also compare founding family firms with other, non-founding family firms, and non-family firms (the reference group) in Specification 2 (Table D.2). Specification (3) includes only family firms and compares founding family firms with non-founding family firms. We tabulate the results in Table D.2 below.

The results of the regression analysis confirm that the size of the age differences between family firms and non-family firms depend on whether the firm is owned by the founding family or not. As shown in Table D.2, family firms are overall 4.3 percent older than non-family firms. The difference in the average firm age of family and non-family firms increases substantially once we split family firms into founding family firms and non-founding family firms in Specification (2). On average, Specification (2) shows that founding family firms are significantly younger (by 23.1 percent) compared with the reference group, which are non-family firms. On the contrary, non-founding family firms are 18.7 percent older, on average, compared with non-family firms. Thus, while non-founding family firms are on average older than both non-family firms (our reference category) and founding family firms, the latter are on average younger than non-family firms. Further corroborating this result, the Specification (3) shows that founding family firms are 24.4 percent younger than non-founding family firms, on average. All the stated differences are statistically significant.

Table D.2: Firm age regressions

Specification	(1)	(2)	(3)
Dependent variable	Natural Log of Firm Age		
Sample	All firms	All firms	Family firms
Family firm	0.043***	0.187***	
	(4.83)	(14.41)	
Founding family firm		-0.231***	-0.244***
		(-16.32)	(-16.97)
Total Assets (ln)	0.173***	0.173***	0.151***
	(88.80)	(89.05)	(46.04)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Observations	45,375	45,375	14,784
Adj. R^2	0.271	0.275	0.285

Notes: The table reports simple three-way fixed effect OLS regression relating firm age (measured in logarithms) to an indicator variable capturing the family status of the firm. Specifications (1) and (2) are estimated on the aggregate sample. Specification (3) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, industry-, time-, and country-fixed effects. Firm age is measured as the difference between the specific year of analysis and the firm's founding year. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.

For explanation regarding the interpretation of regression tables see G.IV.

Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

V. Operating risk

1. Motivation and measurement

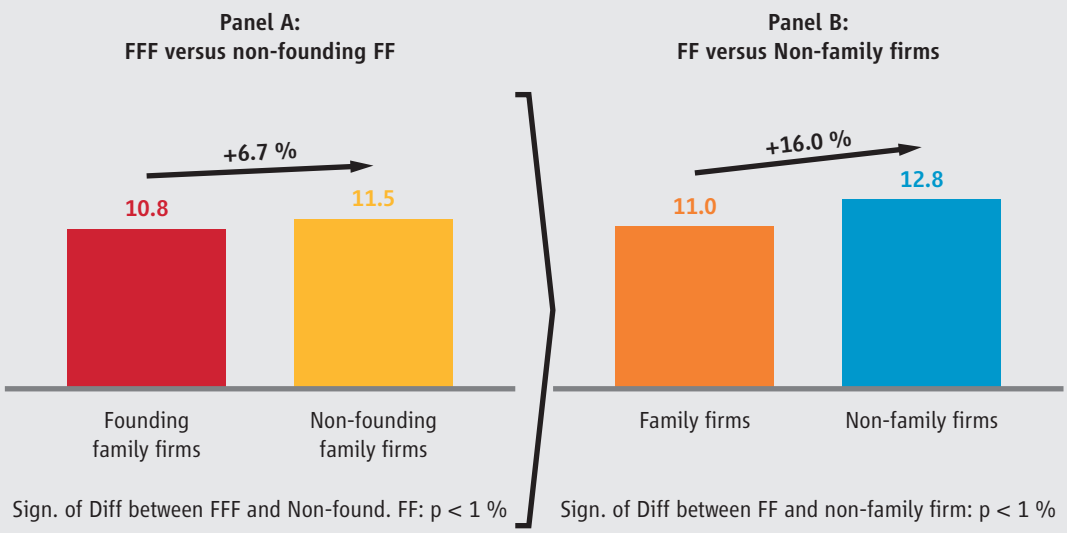
Next, we turn to operating risk. Previous studies show that, because of the long-term orientation and the owners' preference for maintaining control, family firms might pursue less risky policies. To investigate whether such differences between family and non-family firms also characterize the European context, we look at the various measures of firms' risk (operating risk, diversification), while comparing family and non-family firms and, within the group of family firms, founding family firms and non-founding family firms.

Technically, we measure firms' operating risk by the firms' sales risk, namely the 3-year rolling coefficient of variation (i. e., standard deviation dividend by the mean, in percent) of the firm's sales.

2. Empirical results

Figure D.5, Panel A, reports the operating risk for the median founding family firm (FFF) and the median non-founding family firm (non-founding FF). In Panel B, we compare the operating risk for family firms (FF), and non-family firms (median values).

Figure D.5: Operating risk comparison



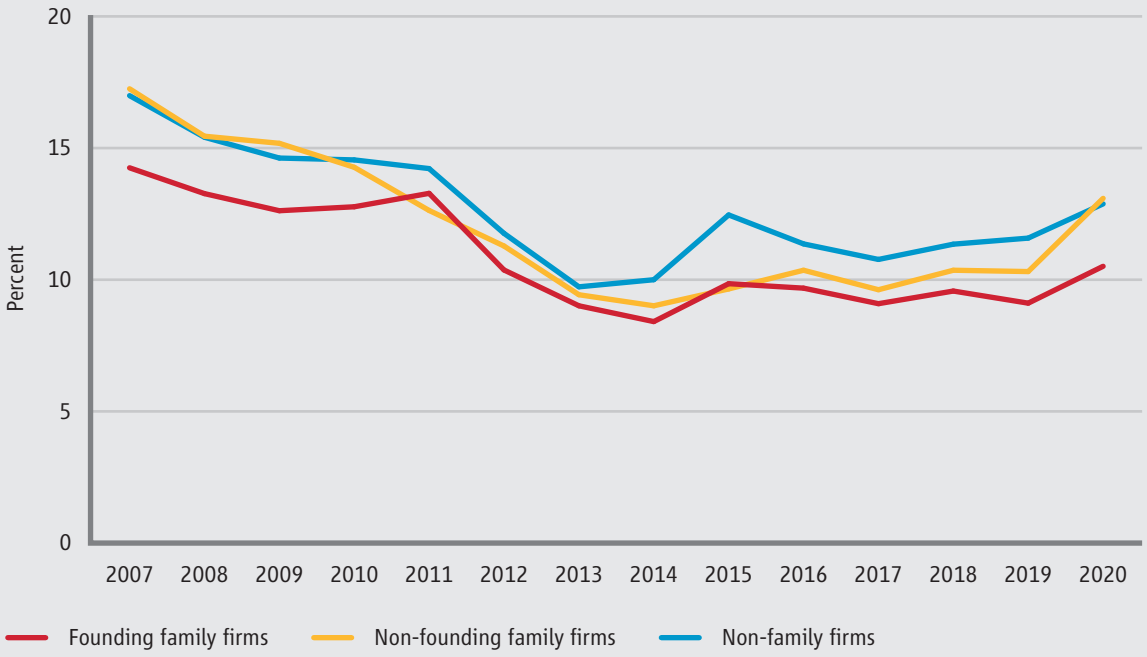
Notes: In Panel A the figure reports the median operating risk for the founding family firms (FFF) and non-founding FF. Panel B compares family firm (FF) and non-family firms. We measure firms' operating risk by the firms' sales risk, namely the 3-year rolling coefficient of variation (i.e., standard deviation dividend by mean, in percent) of the firm's sales.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Panel A of Figure D.5 shows that, in terms of the operating risk, founding family firms are somewhat less risky compared with non-founding family firms. The coefficient of variation of the firms' sales of the median founding family firm is 0.7 percentage points lower compared with the median non-founding family firm. Comparing family firms and non-family firms in Panel B we conclude that, the median family firm has a lower operating risk than the median non-family firm. The difference for the median firm is around 1.8 percentage points over the 2007-2020 period. Thus, in terms of the operating risk, family firms, founding family firms in particular, have lower operating risk compared with non-family firms.

We portray the evolution of operating risk during the 2007-2020 period for the various sub-groups of firms in Figure D.6 below. Broadly, the firms' operating risk is decreasing between

2007 and 2014 and then stabilizing or slowly increasing from 2014 onward. The trends in the operating risk for the various subgroups (FFF, non-founding family firms, and non-family firms) is similar during the 2007-2020 period. Non-family firms operate with slightly higher operating risk for most of the period of analysis (the risk defined as the operating risk of the median firm in the group), while the opposite is true for the founding family firms.

Figure D.6: Operating risk over time



Notes: The figure shows the median operating risk for the founding family firms (FFF), non-founding family firms FF, and the non-family firms over time. We measure firms' operating risk by the firms' sales risk, namely the 3-year rolling coefficient of variation (i.e., standard deviation dividend by mean, in percent) of the firm's sales.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

In Table D.3 we provide further insights into the relationship between family ownership and the firms' operating risk, by estimating a regression analysis that investigates the differences in the operating risk between the various firm subgroups, while controlling for firm size, year, industry, and country of operations. That is, in the regression below, we compare the average operating risk of two firms that are similar in terms of their size (measured by total assets), that operate in the same industry, year and are based in the same country, but that differ in their family status. This comparison is therefore more precise and correct relative to simply looking at the trend line and the median values.

As shown in Table D.3, family firms operate with significantly lower risk compared with non-family firms (see Specification (1)). The difference in the operating risk of family and non-family firms is higher when looking at founding family firms relative to non-family firms

in the second specification, and when comparing founding family firms with non-founding family firms in Specification (3). Founding family firms have on average lower operating risk compared with both non-founding family firms and non-family firms. The regression analysis also shows that non-founding family firms are on average less risky than comparable non-family firms.

Table D.3: Operating risk regressions

Specification	(1)	(2)	(3)
Dependent variable		Sales Risk	
Sample	All firms	All firms	Family firms
Family firm	-0.040***	-0.024***	
	(-14.09)	(-5.44)	
Founding family firm		-0.027***	-0.027***
		(-5.81)	(-5.91)
Total Assets (ln)	-0.041***	-0.041***	-0.027***
	(-57.92)	(-57.95)	(-21.11)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Observations	43,247	43,247	14,331
Adj. R^2	0.169	0.170	0.104

Notes: The table reports simple three-way fixed effect OLS regression relating firms' operating risk to the indicator variables capturing the family status of the firm. Specifications (1) and (2) are estimated on the aggregate sample. Specification (3) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, industry-, time-, and country-fixed effects. We measure firms' operating risk by the firms' sales risk, namely the 3-year rolling coefficient of variation (i. e., standard deviation dividend by mean, in percent) of the firm's sales. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.
For explanation regarding the interpretation of regression tables see G.IV.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

VI. Diversification decisions

1. Motivation and measurement

Next, we turn to firms' diversification decisions. A diversification of the business occurs when a firm develops a new product or enters a new market. The diversification of business can help the firm reduce its exposure to economic downturns, particularly when the business activity

expands into a sector (activity) that is not affected by the economic downturn in a similar way than the current activities of the firm. Diversification of a firm's activities might also be the result of the firms' growth, as firms enter new markets (activities) once the growth opportunities on the existing markets have been fully exploited. Considering the previously reported differences in terms of operating risk, age, and size of family and non-family firms, and the differences in the industry distribution of these firm sub-groups, we might expect that family and non-family firms differ also in the extent of their business' diversification.

We capture the diversification of firm activities by the number of product markets the firm operates in. Therefore, we analyze the different business segments reported in the financial accounts of the firm. Moreover, arguing that some business segments may serve very similar product markets, we aggregate business segments that belong to the same 2-digit (4-digit) SIC segment classification scheme. To complement the picture, we look at the international diversification of firm activities, captured by the percentage of firms' international sales and the percentage of the firms' international assets, over the total firms' sales and assets respectively.

2. Empirical results

Figure D.7 illustrates the product market diversification for the average (mean) firm in the various firm groups. Here we look at the mean numbers since the differences in the median numbers of product markets for different subgroups are negligible (and equal to about 1 in all subgroups). Moreover, using mean values here is less problematic as we don't have the problem of outliers with regards to the number of SIC-codes in which a firm operates. In Part I diversification is measured based on 2-digit SIC codes, while Part II measures diversification based on 4-digit SIC codes.

Regardless of the definition of industry diversification used, Panel A reports that founding family firms on average operate in somewhat higher number of product markets compared to non-founding family firms. Specifically, when aggregating the business segments with 2-digit SIC segment classification scheme, the number of product markets for the mean founding family firm amounts to 1.2 compared with 1.1 for non-founding family firms (numbers are rounded). The corresponding numbers for the 4-digit SIC segment classification scheme are 1.4 for founding family firms and 1.3 for non-founding family firms, on average.

Panel B compares all family firms with non-family firms. Panel B shows no significant differences for the mean family firm and the mean non-family firm for the period of our analysis. This is regardless of whether we use the 2-digit classification.

Figure D.7: Product market diversification comparison

Notes: The figure reports the number of product markets the firm earns revenues in based on business segments reported in the financial accounts of the firm aggregated using the 2-digit SIC classification scheme (in Part I) and then 4-digit SIC classification scheme (Part II). Panel A compares the number of business segments (industries) for founding family firms (FFF) and non-founding FF. Panel B compares family firm (FF) and non-family firms.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

In sum, within the group of family firms, founding family firms in particular seem to follow a more diversified business model compared to both non-founding family firms and non-family firms. Since product diversification decreases operating risk, this finding is in line with the results reported in Figure D.5 above.

To verify the observed differences, in Table D.4, we present the results of the simple regression analysis, where we relate the number of business segments on the indicator variable for the

family or founding family firms. We measure industry diversification by the number of 2-digit SIC segment classification scheme and, alternatively, by the number of 4-digit SIC segment classification scheme.

Specifications (1a, 1b) compare family firms and non-family firms, while Specification (2a, 2b) further distinguish between founding family firms and non-founding family firms. Specifications (3a, 3b) are estimated only on the subsample of family firms.

Table D.4: Firm age regressions

Specification	(1.a)	(2.a)	(3.a)	(1.b)	(2.b)	(3.b)
Dependent variable	Product Diversification 2 Digits			Product Diversification 4 Digits		
Sample	All firms	All firms	Family firms	All firms	All firms	Family firms
Family firm	0.054***	0.040***		0.054***	0.047***	
	(5.89)	(3.16)		(4.96)	(3.06)	
Founding family firm		0.022	0.023		0.012	0.013
		(1.47)	(1.58)		(0.68)	(0.72)
Total Assets (ln)	0.175***	0.175***	0.203***	0.235***	0.235***	0.264***
	(90.64)	(90.63)	(52.16)	(100.53)	(100.52)	(58.10)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	45,425	45,425	14,798	45,425	45,425	14,798
Adj. R^2	0.211	0.211	0.219	0.243	0.243	0.242

Notes: The table reports simple three-way fixed effect OLS regression relating the firms' diversification, measured by the number of the 2 and 4-digit SIC codes in which the firm operates, and the indicator variables capturing the family status of the firm. Specifications (1a, 1b) and (2a, 2b) are estimated on the aggregate sample. Specification (3a, 3b) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, industry-, time-, and country-fixed effects. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.
For explanation regarding the interpretation of regression tables see G.IV.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Table D.4 shows that, on average, family firms operate in 0.54 product market segments more compared with similar non-family firms. While the positive coefficient for founding family firms in Specifications (3a, 3b) indicates that the founding family firms operate in a slightly higher number of product markets compared with the non-founding family firms, this difference is

not statistically significant (see also the non-significant coefficient for founding family firms in Specifications 2a, 2b). In sum, relating the family and non-family firms that are comparable in terms of their size, industry, and country, we find that family firms on average operate in a somewhat higher number of product markets compared with non-family firms. We cannot conclude that there is a significant difference in terms of product market diversification between the founding family firms and the non-founding family firms. The conclusion remains the same when using the number of segments defined by the 4-digit SIC code.

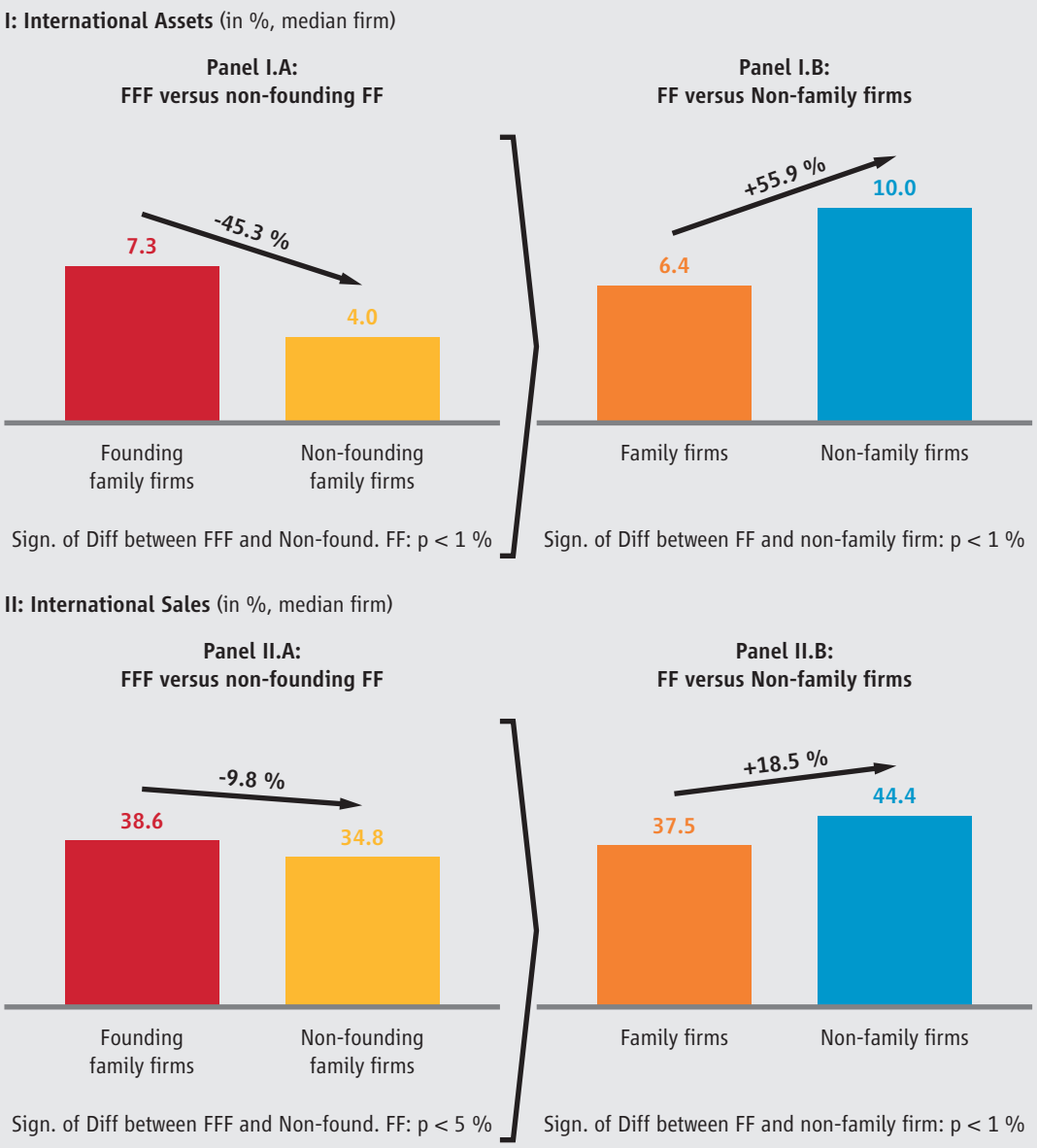
An alternative way for the firm to diversify the risk of their activities is to focus on geographically different markets, i. e., international diversification. While international expansion allows the firm to reduce its exposure to a single market, going abroad also involves substantial risk and requires knowledge and expertise on foreign markets, and often significant financial investments. These might represent a constraint to family firms, thereby implying smaller international diversification of activities for the family firms than for other firms.

To provide an insight into this issue, Figure D.8 shows the percentage of firm sales and percentage of firm assets that are generated or situated abroad, for the median firm. In Panel A we compare founding family firms and non-founding family firms. In Panel B we compare family firms and non-family firms. Part I of the figure shows the results for international assets (as a percentage of total firm assets), while Part II shows the results for the international sales, as a percentage of firm total sales. Both show the numbers for the median firm in the subgroup.

Somewhat surprisingly, we find that the founding family firms are more internationalized compared with the non-founding family firms. The median founding family firm in our sample has 7.3 percent of foreign assets, compared with 4 percent for the median non-founding FF. The median founding family firm in the sample generated 38.6 percent of sales abroad compared with 34.8 percent for the median non-founding family firm.

Comparing the entire group of family firms with non-family firms, we observe that non-family firms are overall more international compared with family firms. The median family firm has 6.4 percent of its assets abroad, compared with 10 percent of international assets for the median non-family firm. The median family firms generated 37.5 percent of its sales abroad compared with the 44.4 percent of international sales for non-family firms.

Figure D.8: International assets and international sales comparison



Notes: The figure reports the percentage of international assets (Part I) and the percentage of international sales (Part II) for the founding family firms (FFF) and non-founding FF (Panel A) and for the family and non-family firms (Panel B). International Assets are defined as the total international assets divided by total assets. International Sales are defined as the total international sales divided by total net sales
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

To corroborate these conclusions, we again run a regression analysis, comparing the average share of international assets and sales of (founding) family and non-family firms that are similar in terms of size, industry, and country. Table D.5 shows the results of this analysis.

The Specifications (1a-3a) compare the firms in terms of the (average) share of international assets in the firms' total assets, while the Specifications (1b-3b) look at the share of firms' international sales in the total sales. Looking at the international assets, we observe that,

on average, family firms associate with a lower share of international assets compared with non-family firms (see Specification (1a)). Within the group of family firms, this difference (to the benefit of non-family firms) seems to be particularly due to lower internationalization of non-founding family firms; looking at Specification (3a), however, we cannot conclude that there are significant differences in the size of international assets between the founding family firms and the non-founding family firms, on average.

Table D.5: International assets and international sales regressions

Specification	(1.a)	(2.a)	(3.a)	(1.b)	(2.b)	(3.b)
Dependent variable	International Assets			International Sales		
Sample	All firms	All firms	Family firms	All firms	All firms	Family firms
Family firm	-0.015***	-0.011*		-0.026***	-0.041***	
	(-3.87)	(-1.89)		(-6.42)	(-7.19)	
Founding family firm		-0.007	-0.004		0.025***	0.024***
		(-1.16)	(-0.67)		(3.89)	(3.71)
Total Assets (ln)	0.035***	0.035***	0.035***	0.041***	0.041***	0.044***
	(40.84)	(40.83)	(20.86)	(47.01)	(47.04)	(26.89)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,715	23,715	6,704	32,398	32,398	10,095
Adj. R^2	0.154	0.154	0.150	0.204	0.204	0.204

Notes: The table reports simple three-way fixed effect OLS regression relating the firms' internationalization, measured by percentage of international assets in the firms' total assets, and the percentage of international sales in the firms' total sales, and the indicator variables capturing the family status of the firm. Specifications (1a, 1b) and (2a, 2b) are estimated on the aggregate sample. Specifications (3a, 3b) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, industry-, time-, and country-fixed effects. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.
For explanation regarding the interpretation of regression tables see G.IV.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

The picture is somewhat different when looking at international sales. While family firms on average have a significantly lower share of international sales compared with non-family firms (Specification 1b), the negative difference is mostly due to non-founding family firms. The founding family firms are, in terms of international sales, more international compared with

the non-family firms' overall (Specification 2b), and also significantly more international than the non-founding family firms (see also Specification 3b).

VII. Financing decisions

1. Motivation and measurement

Finally, we turn to firms' financing decision. Firms need capital to finance their operations and they can get this capital through internal funds, bank loans (debt), and by issuing corporate bonds and stock in the capital market. Due to their preference for keeping control in the family, we might expect that family firms rely on average more on debt compared with equity financing. Because of their higher risk-aversion, family firms might also be better able to obtain cheaper debt financing compared with non-family firms. Yet, the risk-aversion and the preference to maintain control and sustainable performance in the long term might restrict the overall reliance on external financing in family firms.

To investigate the financial decisions, we look at several measures, namely total leverage, debt leverage, net debt leverage, long-term debt ratio, and cash holdings. Total leverage is defined as total liabilities to total assets. Debt leverage is defined as total debt to total assets. Net debt leverage is defined as total debt less cash and short-term investments to total assets. The long-term debt ratio is defined as long-term debt to total debt. Cash holdings are defined as cash and short-term investments to total assets.[36]

2. Empirical results

We report the numbers for the median firm in Table D.6. In terms of total leverage or net leverage, family firms have somewhat more liabilities and higher debt compared with non-family firms. The differences are however not very high. For example, the median family firm in our sample has about 2(3) percentage point higher debt (leverage) compared with the median non-family firm in the sample. Family firms, however, rely less strongly on the long-term debt, relatively to non-family firms. The difference in the long-term debt is larger, i. e., about 9 percentage points.

Within the group of family firms, the founding family firms have a lower long-term debt ratio compared with the non-founding family firms, and compared with the non-family firms. Family firms have slightly more cash compared to non-family firms. This aligns with previously observed family firms' attitudes towards risk, i. e., having more cash offers some additional protection towards risk. The higher cash holding for family firms are primarily due to higher cash holdings of the founding family firms, while the non-founding family firms have (in terms

36 Again, Appendix G.I provides details of our variables used.

of median firm values) lower cash holdings than founding family firms, but also (slightly) lower median cash holdings than those reported for the median firm in the non-family group.

Table D.6: Firm financing regressions

Type	Total leverage (median firm)	Debt leverage (median firm)	Net-debt leverage (median firm)	Long-term debt ratio (median firm)	Cashholdings (median firm)
All firms	52.43 %	19.03 %	8.82 %	72.11 %	9.76 %
Founding family firms	54.06 %	20.56 %	9.60 %	64.99 %	10.47 %
…vs all firms	*103.10 %*	*108.04 %*	*108.86 %*	*90.11 %*	*107.25 %*
Non-founding family firms	55.33 %	20.03 %	10.36 %	68.15 %	9.23 %
…vs all firms	*105.53 %*	*105.28 %*	*117.51 %*	*94.50 %*	*94.56 %*
Family firms	54.50 %	20.36 %	9.95 %	66.04 %	10.00 %
…vs all firms	*103.94 %*	*107.00 %*	*112.82 %*	*91.57 %*	*102.44 %*
Non-family firms	51.36 %	18.40 %	8.30 %	75.09 %	9.63 %
…vs all firms	*97.95 %*	*96.71 %*	*94.17 %*	*104.13 %*	*98.60 %*
Within family firms					
FFF vs. NFFF	-1.27 %	0.53 %	-0.76 %	-3.16 %	1.24 %
significance	*0.22 %*	*19.50 %*	*11.74 %*	*0.01 %*	*0.00 %*
Within all firms					
FF vs NFF	3.14 %	1.96 %	1.64 %	-9.05 %	0.37 %
significance	*0.00 %*	*0.00 %*	*0.00 %*	*0.00 %*	*0.74 %*

Notes: The table reports the various measures for financing decisions for the different types of firms, i. e., founding family firms (FFF), non-founding family firms, the family firms (FF) (as the aggregate of both non-founding family firms and the founding family firms), and for non-family firms. Total leverage is defined as total liabilities to total assets. Debt leverage is defined as total debt to total assets. Net debt leverage is defined as total debt less cash and short-term investments to total assets. Long-term debt ratio is defined as long-term debt to total debt. Cash holdings are defined as cash and short-term investments to total assets. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.

For explanation regarding the interpretation of regression tables see G.IV.

Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

VIII. Summary and intermediate conclusion

We outline different firm characteristics in an effort to shed light on the differences between the family and non-family firms. We also study the evolution of these differences over time and explore the role of the founding family.

First, we discuss industry affiliation of firms. Excluding financial service firms, we differentiate eight macro-industries and discuss the distribution of family firms over these industries. For our sample of firm-year observations of European publicly listed non-financial firms, we observe that non-family firms represent the majority (more than 50 percent) of firm-year observations across all industries. Family firms are most commonly represented within the wholesale and retail industry.

Second, we analyze firm size as measured by total assets. To account for the increase attributable to inflation, we analyze deflated values. Comparing median firm size, we observe that family firms are generally smaller compared with non-family firms. Within the group of family firms, founding family firms are larger compared with non-founding family firms, in terms of the value of total assets for the median firm. The median size of all firm subgroups has increased over time; while founding family firms and non-family firms show a slow stable increase over the period of analysis, for non-founding family firms we document an increase in the median firm size between 2008 and 2014, followed by a decrease in the median firm size over the years after 2014.

Third, we study firm age. We observe that, when comparing family and non-family firms that are similar in size and that operate within the same industry, country, and year, family firms are relatively older compared with non-family firms. The founding family firms are on average younger compared with non-family firms, and also compared with non-founding family firms. On the contrary, non-founding family firms are older compared with both founding family firms and non-family firms; these firms also have the largest percentage of very old firms (i. e., older than 100 or 200 years).

Fourth, we evaluate the operating risk of family and non-family firms. We measure firms' operating risk by the firms' sales risk, namely the 3-year rolling coefficient of variation (i. e., standard deviation dividend by the mean, in percent) of the firm's sales. We find that family firms operate on average with lower operating risk compared with similar non-family firms. Within the group of family firms, founding family firms have lower operating risk compared with non-founding family firms.

Fifth, we add to that analysis and outline difference in diversification decisions. Specifically, we look at the number of 2-digit and 4-digit SIC industries in which firms operate (as a measure of industry diversification), as well as at the percent of international assets and sales (as a measure of international diversification). Overall, we observe that family firms operate in slightly higher number of business segments compared with similar non-family firms. Although non-family firms are more international compared with family firms overall, the differences between non-family firms and family firms are less pronounced when looking only at founding

family firms. In terms of international sales, the founding family firms are more international compared with similar non-founding family firms, and similar non-family firms.

Finally, we discuss firms' financing decisions. We use various measures of financial ratios to capture the firms' reliance on external financing, long-term, and short-term debt in particular. Looking at the values for the median firm, we observe that founding family firms in particular operate with a smaller level of long-term debt and higher cash holdings compared with non-founding family firms and non-family firms. We conclude that, overall, the specificity of the family business is somewhat more strongly reflected in the financing of founding family firms (FFF) than in the financing of non-founding family firms.

E. Performance of Listed Family Firms

I. Motivation and background

This section aims to shed light on the performance of family firms. The main objective is to answer the question of whether there are performance differentials between family and non-family firms, while simultaneously exploring the role of the founding family.

As noted in Section B, family firms possess unique characteristics, which might lead to differences in performance between family firms and their non-family counterparts. On the one hand, (founding) family firms might have *higher* performance, because of

- limited agency conflicts between owners and managers,
- socio economic wealth considerations, or
- better product market experience.

On the other hand, family firms might display *lower* performance, because of

- agency conflicts between the controlling family and (minority) outside owners, or
- entrenchment, nepotism and related conflicts.

With these contradicting arguments in mind, we examine firm performance from different angles.[37] First, we describe the development of *firm growth*, where we measure firm size in terms of sales. Second, we study the *value added*, which represents the surplus generated by the firm for employees, tax authorities, and investors. Third, we take the perspective of employees and explore *employment growth*. Fourth, we examine standard *accounting performance measures* aiming to proxy the surplus generated for investors. Finally, we analyze *firm valuation* and *stock market performance*, and thus the wealth generated for (minority) shareholders.

For each performance measure, in an effort to disentangle the potential performance differentials between family and non-family firms, we apply a two-step explorative approach. We first compare the performance of the median family firm to the median counterpart firm and test for statistical differences using a simple univariate median test (for explanation see G.III). However, as Section D demonstrates European (founding) family firms may differ substantially from their European counterparts regarding industry affiliation and other firm characteristics.

37 The ESG literature has raised concerns about narrowly defined measures of "firm performance". As a result, consensus has been reached that "firm performance" should be evaluated from a variety of angles.

Thus, our second step consists in performing regression analyses that provide ceteris paribus correlations between the family nature of the firm and performance, to the extent that in this type of analysis we are able to consider heterogeneities in other business dimensions. As mentioned before, the analysis of the underlying cause-and-effect relationship between the family control of the business and its performance is beyond the scope of this study.

Our objective is to shed light on the performance of family firms and the role of the founding family. As such, throughout the analysis we take an ex-post perspective. That is, we evaluate the performance of all firms (mostly over an annual time period) and classify firms into (founding) family firms and non-(founding) family firms at the end of the time period. Moreover, we follow the approach of the previous sections and compare (i) founding family firms to non-founding family firms, and (ii) family firms to non-family firms.

II. Firm growth

1. Motivation and measurement

We start by describing growth in firm size, where we measure firm size in terms of net sales or revenues.[38] Growth in net sales or revenues proxies for the success of the firm in the product market. It is an important growth indicator for investors and often considered an important internal (managerial) performance indicator as well, for instance when it comes to determining executive remuneration. Technically, we measure sales growth as the rolling annual logarithmic growth rate of a firm's net sales or revenues measured over the last three years.[39]

2. Empirical results

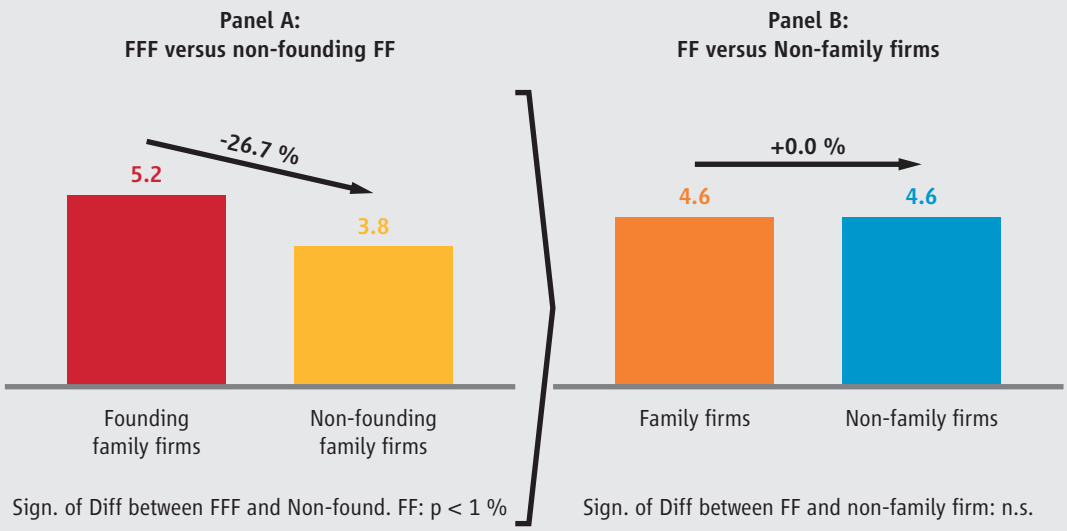
We start with a descriptive analysis. Figure E.1 reports sales growth for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). The median founding family firm displays an annual logarithmic sales growth of 5.2 percent measured over a three-year period. In contrast, the median non-founding family firm shows a growth rate of only 3.8 percent, which is about one forth less than the value of the median founding family firm.

On the right-hand side, Panel B of Figure E.1 compares family firms (FF) with non-family firms. It documents that there is not much difference between the median family firm and the median non-family firm. Both exhibit an annual logarithmic growth rate of approximately 4.6 percent.

38 We measure net sales or revenues in EUR for all firms (independent of their reporting currency or their country of residence).

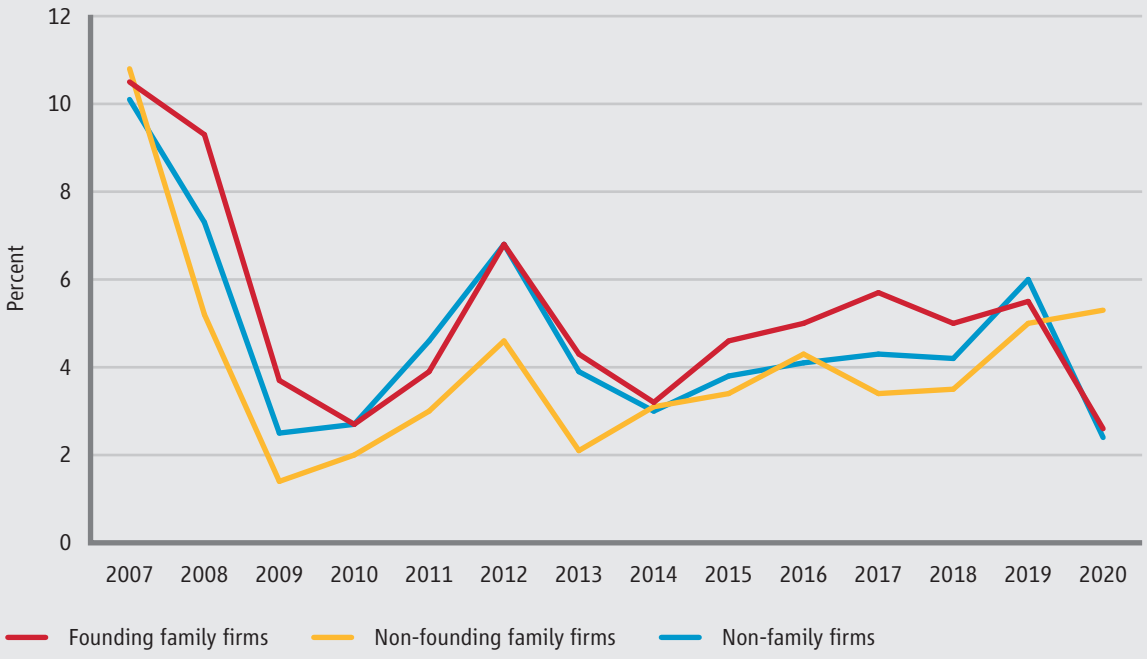
39 We opt for a three-year period here, to mitigate the effect of extreme one-time events.

Figure E.1: Sales growth comparison



Notes: The figure reports sales growth (in percent) for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Sales growth is the rolling annual logarithmic growth rate of a firm's net sales or revenues measured over the last three years.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.2: Sales growth over time



Notes: The figure reports annual median sales growth of founding family firms (FFF), non-founding family firms (Non-founding FF), and non-family firms over time. Sales growth is the rolling annual logarithmic growth rate of a firm's net sales or revenues measured over the last three years.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.1 suggests the following pattern: founding family firms display the highest growth rate, followed by non-family firms, and non-founding family firms show the lowest growth rate in terms of sales. Figure E.2 documents that this pattern is not driven by any particular extreme event or time period, but relatively consistent over time. Indeed, it is only in 2011 and 2019 that founding family firms underperform relative to non-family firms. Interestingly, in 2020 – during the Covid-Pandemic - non-founding family firms achieved a notably higher growth rate compared to the other firm categories.

Table E.1: Sales growth regressions

Specification	(1)	(2)	(3)
Dependent variable		Sales growth	
Sample	All firms	All firms	Family firms
Family firm	0.000	-0.011***	
	(0.18)	(-3.13)	
Founding family firm		0.019***	0.020***
		(4.90)	(5.07)
Total Assets (ln)	0.002***	0.002***	0.008***
	(4.14)	(4.12)	(8.48)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Observations	41,487	41,487	13,976
Adj. R^2	0.0250	0.0249	0.0200

Notes: The table reports simple three-way fixed effects OLS-regressions explaining sales growth and sales variation. Specifications (1) and (2) are estimated on the aggregate sample. Specification (3) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, as well as industry-, time-, and country-fixed effects. Sales growth is the rolling annual logarithmic growth rate of a firm's net sales or revenues measured over the last three years. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.
For explanation regarding the interpretation of regression tables see G.IV.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

In Table E.1, we challenge the descriptive results using simple OLS-regressions. Doing so, allows us to compare family and non-family firms, while taking into account heterogeneity in industry affiliation, country location, firm size, as well as macroeconomic cycles. Specifications

(1) and (2) are estimated on the aggregate sample. Specification (3) is estimated on the subsample of family firms only.

The regression results confirm the descriptive analysis above. Specification (1) documents no significant difference between family firms and non-family firms with respect to sales growth. Meanwhile, Specification (2) clarifies that, while non-founding family firms display lower sales growth (compared to non-family firms), founding family firms achieve higher growth rates (compared to both non-family firms and non-founding family firms). Indeed, Specification (3) supports that the average ceteris paribus difference in growth rates between founding family firms and non-founding family firms is about 2 percentage points.

III. Value added

1. Motivation and measurement

Next, we study the value added generated by the firm. Broadly speaking, value added refers to the 'extra value' created in a process relative to the value of process inputs used. In economics, value added aims to measure the 'value' a firm generates by designing, producing and assembling its products. A firm's value added is commonly defined as the value of its output; i. e., revenues of the firm earned by selling its products, less the value of production inputs the firm acquires from other firms and uses as intermediate inputs. As such, value added is a measure of the surplus generated by the firm for employees, tax authorities, and investors.

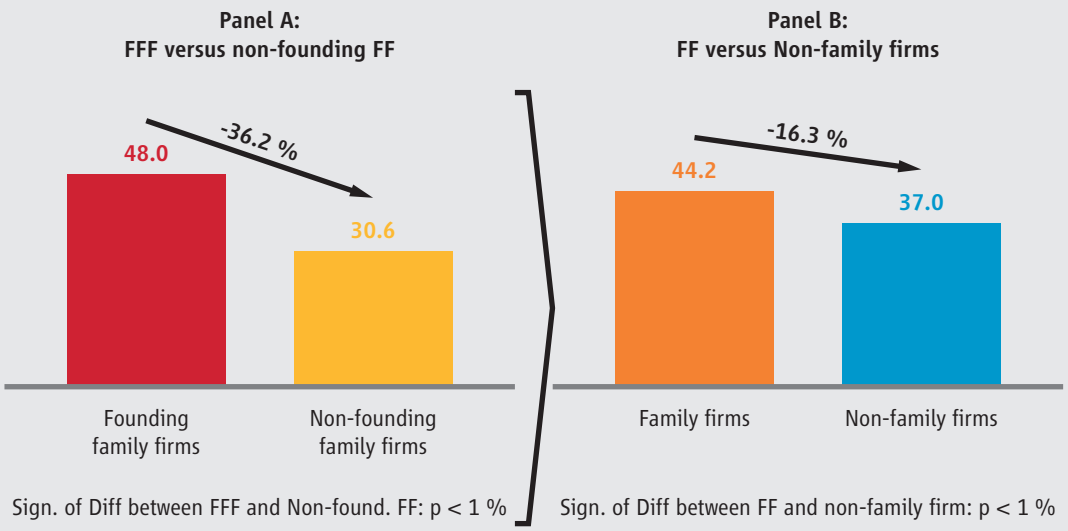
We measure value added as the sum of operating profits before taxes (EBIT) plus wages and salaries. As such, value added is defined net of depreciations. To take into account the effect of firm size and allow for a meaningful comparison across firms, we normalize this sum by total capital, which is defined as equity plus net debt (i. e., total debt minus cash holdings).

2. Empirical results

Starting with the general overall picture, Figure E.3 reports the value added per capital for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). The median founding family firm generates an annual value added per capital of 48.0 percent. In contrast, the median non-founding family firm only produces an annual value added per capital of 30.6 percent, which is about one third less than the value of the median founding family firm.

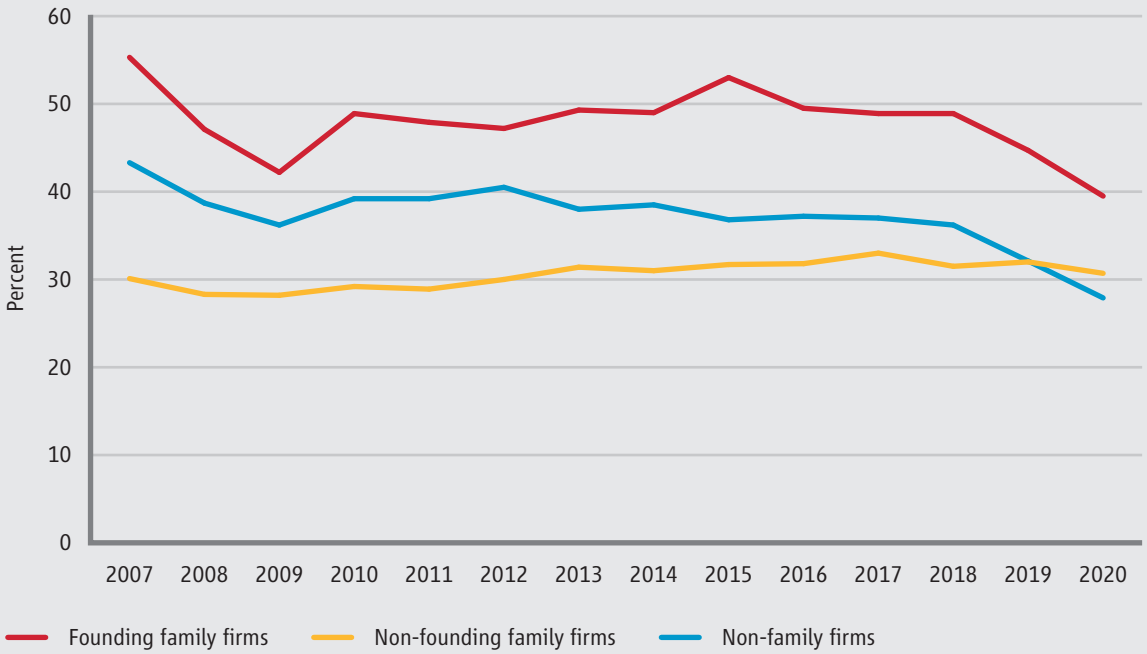
On the right-hand side, Panel B of Figure E.3 compares family firms (FF) with non-family firms. Results suggest that family firms are more productive in terms of value added per capital. Indeed, while the median family firm generates a value added per capital of 44.2 percent, the median non-family firm achieves only 37.0 percent per year.

Figure E.3: Value added comparison



Notes: The figure reports the value added per capital (in percent) for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Value added per capital is defined as the sum of operating profit (EBIT) plus wages and salaries, normalized by total capital, which is equity plus net debt.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.4: Value added over time



Notes: The figure reports the annual median value added per capital of founding family firms (FFF), nonfounding family firms (Non-founding FF), and non-family firms over time. Value added per capital is defined as the sum of operating profit (EBIT) plus wages and salaries, normalized by total capital, which is equity plus net debt.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Therefore, Figure E.3 suggests the following pattern: founding family firms display the highest value added per capital, followed by non-family firms, with non-founding family firms showing the lowest productivity in terms of value added per capital. Figure E.4 documents that this pattern is not driven by any particular extreme event or time period, but relatively consistent over time. It is worthwhile to mention that - consistent with the analysis of sales growth – the figure documents that the order between non-founding family firms and non-family firms reverses in 2020.

Table E.2: Value added regressions

Specification	(1)	(2)	(3)
Dependent variable		Value added	
Sample	All firms	All firms	Family firms
Family firm	0.157***	0.069**	
	(7.24)	(2.22)	
Founding family firm		0.140***	0.144***
		(4.10)	(4.16)
Total Assets (ln)	0.019***	0.019***	-0.027***
	(3.98)	(3.95)	(-3.32)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Observations	39,732	39,732	13,031
Adj. R^2	0.0320	0.0324	0.0487

Notes: The table reports simple three-way fixed effects OLS-regressions explaining value added per capital. Specifications (1) and (2) are estimated on the aggregate sample. Specification (3) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, as well as industry-, time-, and country-fixed effects. Value added per capital is defined as the sum of operating profit (EBIT) plus wages and salaries, normalized by total capital, which is equity plus net debt. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.

For explanation regarding the interpretation of regression tables see G.IV.

Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

In Table E.2, we challenge these descriptive results using simple OLS-regressions, in which we control for heterogeneity in industry affiliation, country location, and firm size, as well

as macroeconomic cycles. Specifications (1) and (2) are estimated on the aggregate sample. Specification (3) is estimated on the subsample of family firms only.

The regression results confirm much of the descriptive analyses presented above. Specifically, Specification (1) confirms the previous finding that family firms display higher productivity in terms of value added per capital compared to non-family firms. Similarly, Specification (3) corroborates the observation that productivity is higher in founding family firms compared to non-founding family firms. Interestingly, however, Specification (2) suggests that once heterogeneity in firm size, industry affiliation, etc. are taken into account, non-founding family firms perform better than their non-family firm counterpart. This result, which is consistent with the pattern documented in Figure E.6 for the year 2020, suggests that firm heterogeneity is important when analyzing firm productivity.

A detailed analysis of the ceteris paribus performance differentials from the regression analysis reported in Table E.2allows us to conclude the following: when performance is measured in terms of annual value added per capital, the data suggest that (a) family firms outperform non-family firms on average by 15.7 percentage points (see Specification (1)), (b) non-founding family firms outperform non-family firms on average by 6.9 percentage points (see Specification (2)), and (c) founding family firms outperform non-founding family firms on average by 14.4 percentage points (see Specification (3)).

IV. Employment

1. Motivation and measurement

From a societal perspective, an important purpose of firms is to provide employment, which not only allows employees to earn their living, but also is often considered an important mean of 'participation'. Thus, in this section we explore employment policies and in particular employment growth. Employment growth captures the role of the firm in the labor market. We complement this analysis by simultaneously exploring employment variation, which proxies for the (in)stability of a firm's employment policy.

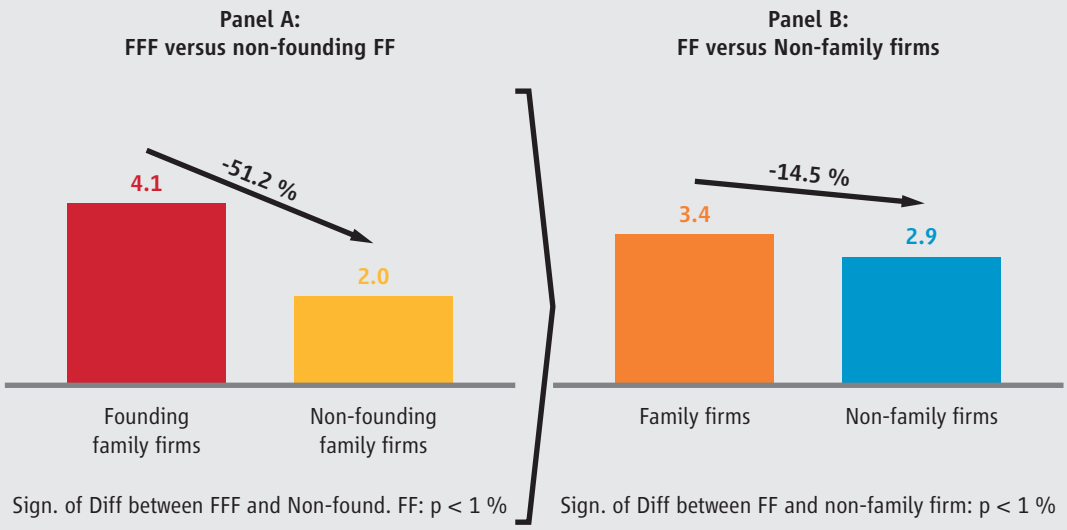
Technically, we measure employment as the number of employees measured in full time equivalents (FTE). Relatedly, employment growth is measured as the rolling annual logarithmic growth rate of a firm's employment measured over the last three years. Consistent with this approach, we measure employment variation as the 3-year rolling coefficient of variation (i. e., standard deviation standardized by the mean) of employment.

2. Empirical results

In Figure E.5, we provide a descriptive analysis of employment growth for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). The median founding family firm displays an annual logarithmic employment growth of 4.1 percent measured over a three-year period. In contrast, the median non-founding family firm shows a growth rate of only 2.0 percent, which is only half of the growth rate of the median founding family firm.

On the right-hand side, Panel B of Figure E.5 compares family firms (FF) with non-family firms. This panel suggests that employment growth is higher in family firms compared to non-family firm. Specifically, while the median family firm shows an annual logarithmic growth rate of 3.4 percent measured over three years, the median non-family firm shows a growth rate of just 2.9 percent.

Figure E.5: Employment growth comparison

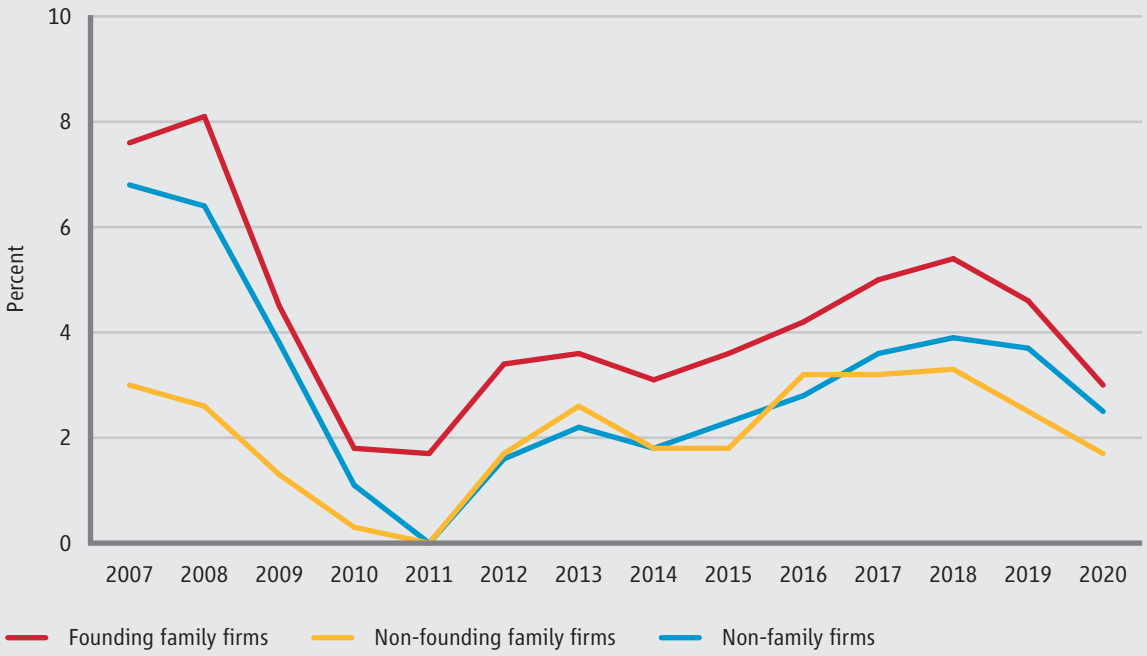


Notes: The figure reports employment growth (in percent) for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Employment growth is measured as the rolling annual logarithmic growth rate of a firm's employment measured over the last three years, where employment is the number of employees measured in full time equivalents.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.5 suggests the following order regarding employment growth: founding family firms display the highest growth rate, followed by non-family firms, and non-founding family firms show the lowest growth rate. Figure E.6 documents that founding family firms indeed outperform other firms throughout the whole sample period. However, the pattern regarding non-founding family firms versus non-family firms is relatively mixed. Non-family firms only

outperform in the early years of the sample period (2007-2011) and towards the end of the sample period (2017-2020). Note that the data in Figure E.6 displays the macroeconomic cycles with a time lag of up to three years, as employment growth is measured over a time horizon of three years.

Figure E.6: Employment growth over time

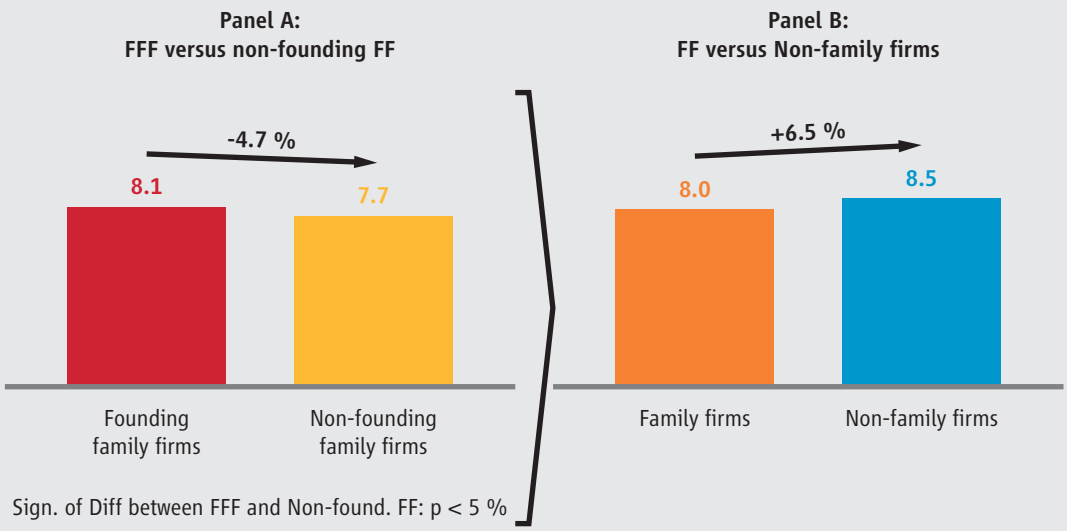


Notes: The figure reports annual median employment growth of founding family firms (FFF), non-founding family firms (Non-founding FF), and non-family firms over time. Employment growth is measured as the rolling annual logarithmic growth rate of a firm's employment measured over the last three years, where employment is the number of employees measured in full time equivalents.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

To complement this analysis, we also explore employment variation. Figure E.7 reports employment variation for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). The median founding family firms displays an employment variation of 8.1 percent measured over a three-year period. In contrast, the median non-founding family firm shows an employment variation of 7.7 percent, which is marginally lower (by 4.7 percent) than the employment variation in founding family firms.

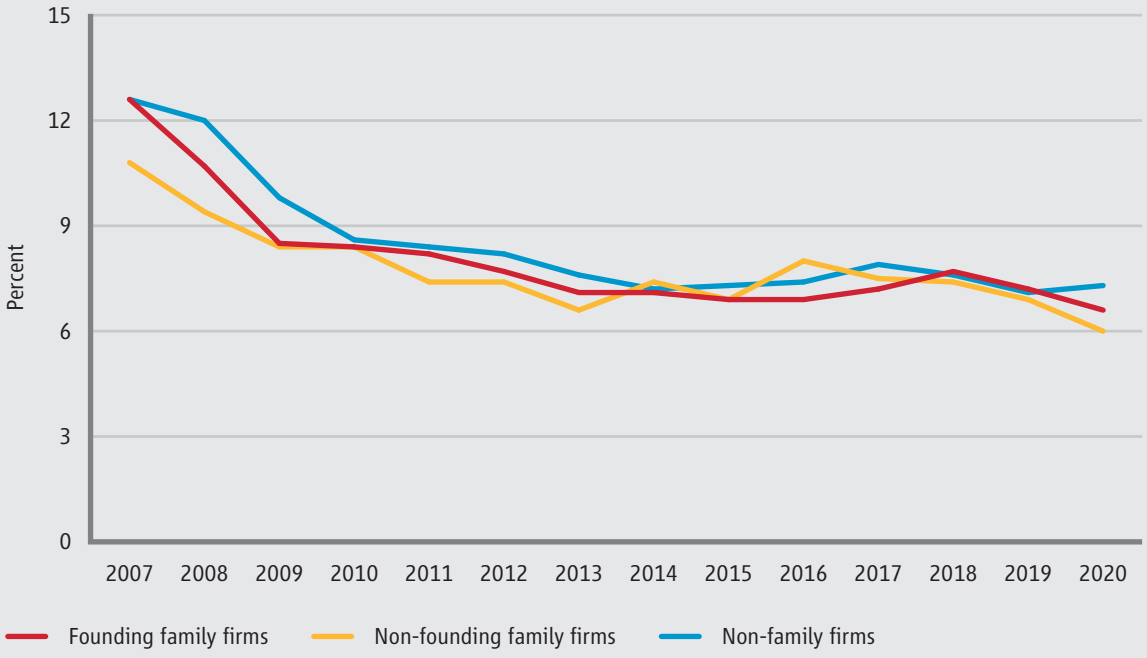
On the right-hand side, Panel B of Figure E.7 compares family firms (FF) with non-family firms. It documents that, while employment variation in the median family firm amounts to 8.0 percent, the risk profile of the median non-family firm is marginally higher (by 6.5 percent) at 8.5 percent.

Figure E.7: Employment variation comparison



Notes: The figure reports employment variation (in percent) for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Employment variation is the 3-year rolling coefficient of variation (i.e., standard deviation standardized by the mean) of employment, where employment is the number of employees measured in full time equivalents.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.8: Employment variation over time



Notes: The figure reports annual median employment variation of founding family firms (FFF) and family firms (FF) over time. Employment variation is the 3-year rolling coefficient of variation (i.e., standard deviation standardized by the mean) of employment, where employment is the number of employees measured in full time equivalents.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.7 supports the following order: Non-family firms display the highest employment variation, followed by founding family firms and non-founding family firms. However, the differences are relatively small. Figure E.8 examines annual sample medians and confirms this pattern. In fact, the figure highlights that the differences across firm categories are very small in all years of the sample.

In Table E.3, we verify the consistency of these descriptive results using simple OLS-regressions, which allow us to control for heterogeneity in industry affiliation, country location, and firm size, as well as macroeconomic cycles. Specifications (1.a/b) and (2.a/b) are estimated on the aggregate sample. Specification (3,a/b) is estimated on the subsample of family firms only.

The regression results confirm the descriptive analysis presented above. Regarding employment growth, Specification (1.a) documents that family firm status is positively corelated with employment growth and suggests that ceteris paribus family firms on average display a 0.5 percentage points higher employment growth (compared to non-family firms). Specification (2.a) documents that this pattern is driven by founding family firms: While non-founding family firms display ceteris paribus on average a 0.7 percentage points lower employment growth than non-family firms, founding family firms outperform non-founding family firms on average by 2.0 percentage points and non-family firms by some 1.3 percentage points(-0.7 percentage points plus 2.0 percentage points) on average. Specification (3.a) confirms the performance difference between founding and non-founding family firms.

Regarding employment variation, Specification (1.b) confirms that family firms on average display lower employment variation. However, in Specification (2.b) and (3.b) the difference between founding and non-founding family firms seems to reverse, although the coefficients are not significant at conventional levels. As such, the regression analysis confirms the observation presented above that differences in employment variation across firm categories are relatively small.

Table E.3: Employment growth and employment variation regressions

Specification	(1.a)	(2.a)	(3.a)	(1.b)	(2.b)	(3.b)
Dependent variable	Employment growth			Employment variation		
Sample	All firms	All firms	Family firms	All firms	All firms	Family firms
Family firm	0.005***	-0.007**		-0.010***	-0.006**	
	(2.64)	(-2.35)		(-5.27)	(-2.24)	
Founding family firm		0.020***	0.021***		-0.006*	-0.005
		(6.01)	(6.39)		(-1.86)	(-1.62)
Total Assets (ln)	0.003***	0.003***	0.006***	-0.015***	-0.015***	-0.010***
	(5.85)	(5.90)	(6.59)	(-33.07)	(-33.07)	(-11.64)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,974	35,974	11,381	36,360	36,360	11,449
Adj. R^2	0.0452	0.0460	0.0570	0.0933	0.0934	0.0672

Notes: The table reports simple three-way fixed effects OLS-regressions explaining employment growth and employment variation. Specifications (1.a/b) and (2.a/b) are estimated on the aggregate sample. Specification (3,a/b) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, as well as industry-, time-, and country-fixed effects. Employment growth is measured as the rolling annual logarithmic growth rate of a firm's employment measured over the last three years, where employment is the number of employees measured in full time equivalents. Employment variation is the 3-year rolling coefficient of variation (i. e., standard deviation standardized by the mean) of employment. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.

For explanation regarding the interpretation of regression tables see G.IV.

Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

V. Accounting performance

1. Motivation and measurement

Next, we focus on standard measures of accounting performance. We start by studying return on assets (ROA), which we measure before interests and taxes but after depreciations. Return on assets measures (in accounting terms) the value created by a firm's operations during the year normalized by the amount of assets owned by the firm.

We complement this analysis by examining return on equity (ROE), which we measure after taxes and interest expenses. Return on equity, being 'net accounting income' normalized by

equity capital, proxies for the relative operating performance of the firm in accounting terms from the perspective of shareholders, while return on assets is a relative performance measure that proxies for a firm's aggregate performance.

Technically, we define return on assets as operating profit before taxes (EBIT) dividend by total assets and return on equity as net income divided by total shareholders' equity, where both, total assets and total shareholders' equity, are measured in terms of book values.

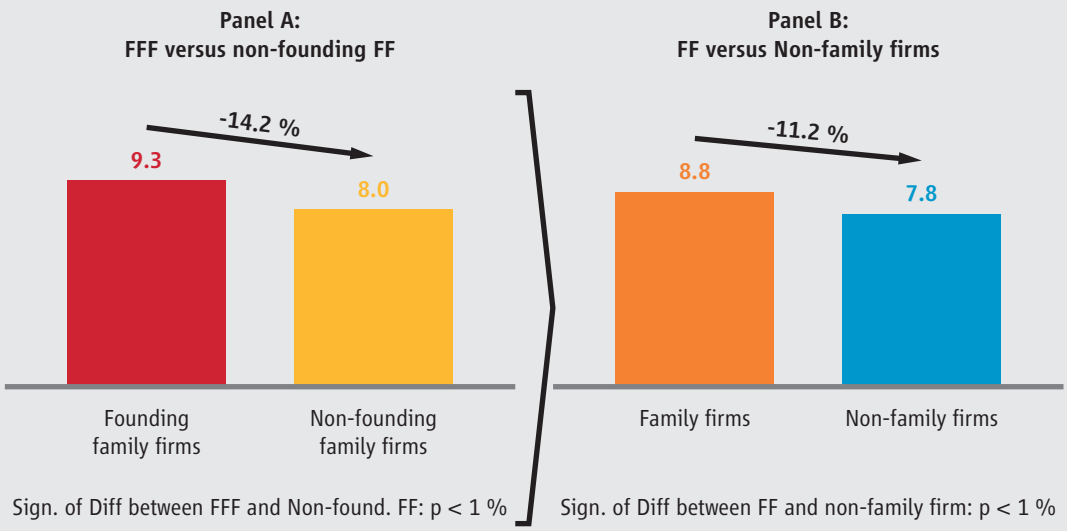
2. Empirical results

We start with a descriptive analysis. Figure E.9 reports return on assets for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). The median founding family firm generates an annual return on assets of 9.3 percent. In contrast, the median non-founding family firm produces only 8.0 percent return on assets per year, which is 14.2 percent less than in the case of the median founding family firm.

On the right-hand side, Panel B of Figure E.9 compares family firms (FF) with non-family firms. It documents that the median family firm earns a higher return on assets than the median non-family firm. More precisely, while the median family firm generates 8.8 percent return on assets annually, the median non-family firm only earns 7.8 percent, or 11.2 percent less, from its operating cycle.

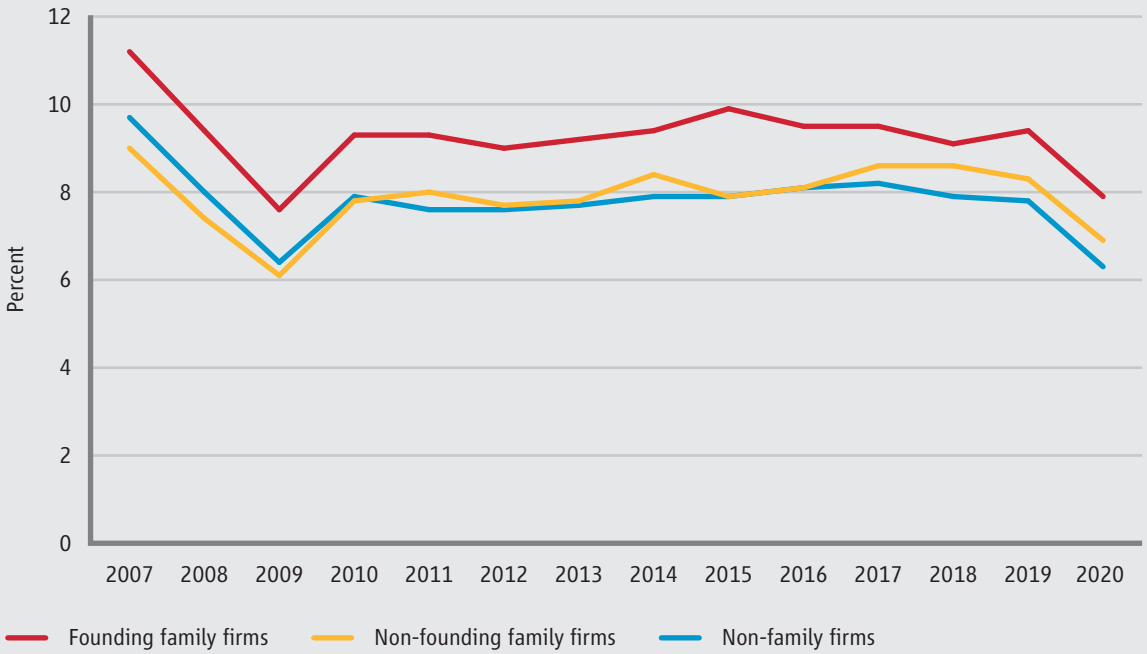
Figure E.9 suggests the following pattern: founding family firms earn the highest return during their operating cycle, followed by non-founding family firms, with non-family firms showing the lowest performance. Figure E.10 documents that the outperformance of founding family firm is a very consistent pattern that is observed throughout the sample period. Indeed, Figure E.10 documents that, despite the expected cyclicality in operating performance – with drops during the financial crisis and the recent covid pandemic –, founding family firms generate relatively stable operating returns between 9 and 10 percent per year, which are consistently higher than the returns of the other firms. For instance, compared to non-founding family firms the excess return is constantly between 0.6 and 2.1 percentage point per year. In contrast, the relative outperformance of non-founding family firms versus non-family firms is only observed since 2011; i. e., in the aftermath of the financial crisis.

Figure E.9: Return on assets comparison



Notes: The figure reports return on assets (in percent) for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Return on assets is defined as operating profit (EBIT) standardized by book value of total assets.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.10: Return on assets over time

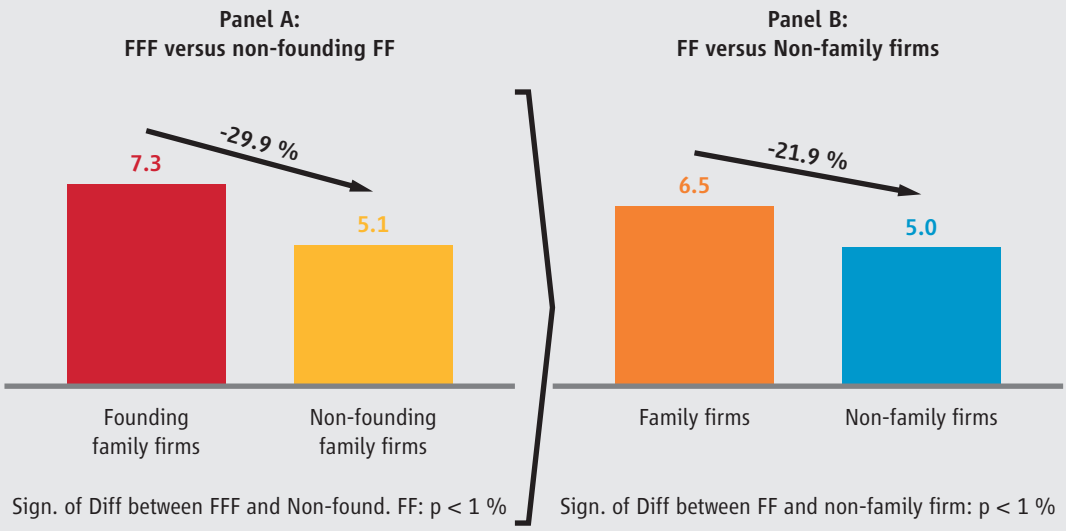


Notes: The figure reports annual median return on assets of founding family firms (FFF), non-founding family firms (Non-founding FF), and non-family firms over time. Return on assets is defined as operating profit (EBIT) standardized by book value of total assets.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

To provide a more complete view on the differences in accounting performance across firm categories, we also analyze return on equity.[40] Figure E.11 reports return on equity for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). The median founding family generates an annual return on equity of 7.3 percent. In contrast, the median non-founding family firm earns a return on equity of only 5.1 percent, which is 29.9 percent less than the return of the median founding family firm.

On the right-hand side, Panel B of Figure E.11 compares family firms (FF) with non-family firms. It documents that family firm also outperform non-family firms in terms of return on equity. Specifically, while the median family firm earns a 6.5 percent annual return on equity for its shareholders, the median non-family firm only earns 5.0 percent, or 21.9 percent less, for its shareholders.

Figure E.11: Return on equity comparison



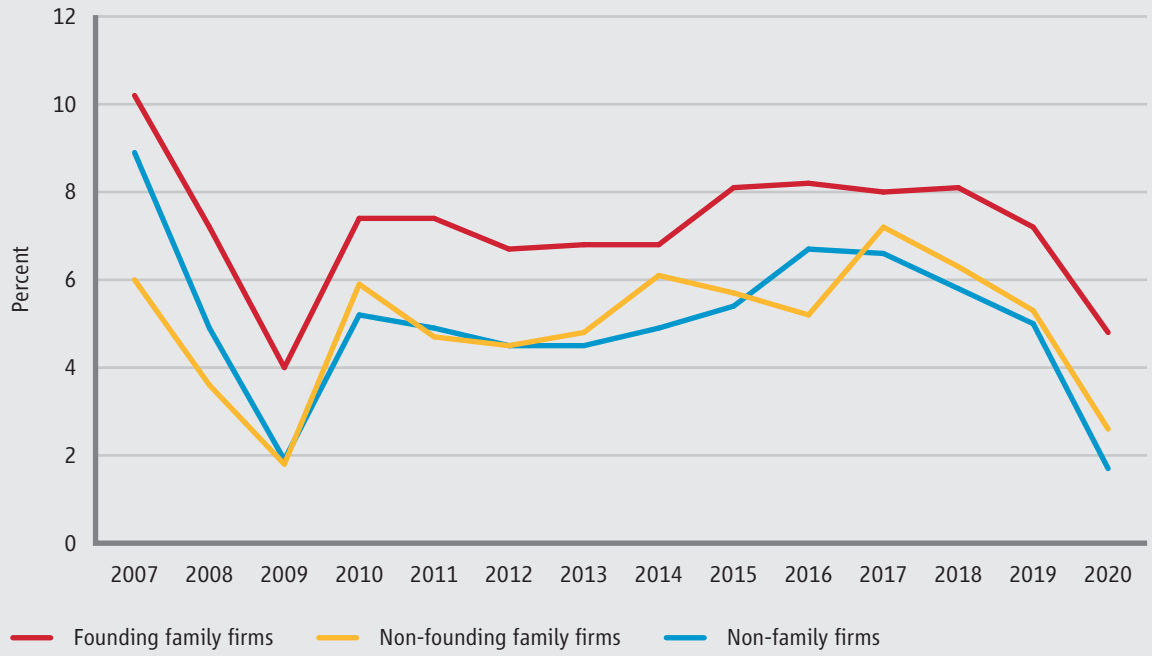
Notes: The figure reports return on equity (in percent) for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Return on equity is defined as net income standardized by book value of total shareholders' equity.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Therefore, Figure E.11 suggests the following order: founding family firms outperform other firms in terms of return on equity for their shareholders. At the same time, family firms outperform non-family firms. This latter finding, however, is exclusively driven by founding families.

40 It is worth noting here that return on equity is measured after interest expenses and taxes, while return on assets is measured before taxes. Thus, despite the well-known leverage effect, our return on equity values are lower than our return on assets values.

Indeed, there is not much difference between non-founding family firms and non-family firms. Figure E.12 documents that this pattern is not due to any particular extreme event or time period, but relatively consistent over time.

Figure E.12: Return on equity over time



Notes: The figure reports annual median return on equity of founding family firms (FFF), non-founding family firms (Non-founding FF), and non-family firms over time. Return on equity is defined as net income standardized by the book value of total shareholders' equity.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

In Table E.4, we check whether the results from the descriptive analyses remain unchanged when we conduct simple OLS-regressions, in which we control for heterogeneity in industry affiliation, country location, and firm size, as well as macroeconomic cycles. Specifications (1.a/b) and (2.a/b) are estimated on the aggregate sample. Specification (3.a/b) is estimated on the subsample of family firms only.

The regression results confirm the superior performance of founding family firms and show that – once firm size, time, industry and country of operations are taken into account – non-founding family firms also outperform non-family firms. Note that both measures of accounting performance are positively correlated with firm size in all regressions. Moreover, it

is worth noting that the correlation between return of equity and firm size is about 2.5 times the correlation between return on assets and firm size.[41]

Regarding return on assets, the regression analyses suggest that ceteris paribus family firms generate an extra return on assets of 5 percentage points per year. Meanwhile, non-founding families fall short of founding family firms by some 2.2 percentage points in return on assets terms.

Table E.4: Accounting performance regressions

Specification	(1.a)	(2.a)	(3.a)	(1.b)	(2.b)	(3.b)
Dependent variable		ROA			ROE	
Sample	All firms	All firms	Family firms	All firms	All firms	Family firms
Family firm	0.050***	0.036***		0.110***	0.074***	
	(26.36)	(13.54)		(15.42)	(7.20)	
Founding family firm		0.022***	0.023***		0.058***	0.055***
		(8.04)	(8.33)		(5.28)	(4.92)
Total Assets (ln)	0.034***	0.034***	0.020***	0.095***	0.095***	0.062***
	(64.06)	(64.06)	(24.10)	(49.53)	(49.51)	(20.30)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	44,020	44,020	14,407	45,352	45,352	14,773
Adj. R^2	0.173	0.174	0.0912	0.0983	0.0988	0.0492

Notes: The table reports simple three-way fixed effects OLS-regressions explaining return on assets and return on equity. Specifications (1.a/b) and (2.a/b) are estimated on the aggregate sample. Specification (3,a/b) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, as well as industry-, time-, and country-fixed effects. Return on Assets (ROA) is defined as operating profit (EBIT) standardized by book value of total assets. Return on Equity (ROE) is defined as net income standardized by book value of total shareholders' equity. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.
For explanation regarding the interpretation of regression tables see G.IV.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

41 The correlation between a firm's accounting performance and its firm size is also positive in unreported median regressions, which are less sensitive to potential outliers. Moreover, such analyses also confirm the ceteris-paribus outperformance of founding family firms versus other firms and non-founding family firms versus non-family firms.

Regarding return on equity, the analyses in Table E.4 suggest an even higher outperformance of family firms. Indeed, Specification (1) suggests a ceteris paribus extra return on equity of about 11 percentage points per year for shareholders of family firms. Again, within the sample of family firms, founding family firms achieve the highest returns. Overall, the ceteris paribus performance advantage of family firms is the double, when analyzing return on equity compared to return on assets.

VI. Firm valuation

1. Motivation and measurement

In this section, we analyze measures of firm valuation. Analyzing firm valuation sheds light on the relative assessment of firms by investors; i. e., providers of debt and equity capital.

We start by adopting the firm perspective and examine a version of Tobin's Q. Initially proposed in the 1960's by James Tobin, a Nobel laureate in economics, as the ratio of market value of assets to its replacement value, Tobin's Q is a commonly used valuation ratio. The ratio measures how much investors are willing to pay for one unit of capital used in the firm. As such, it is commonly interpreted as a measure of 'value' created by the firm.

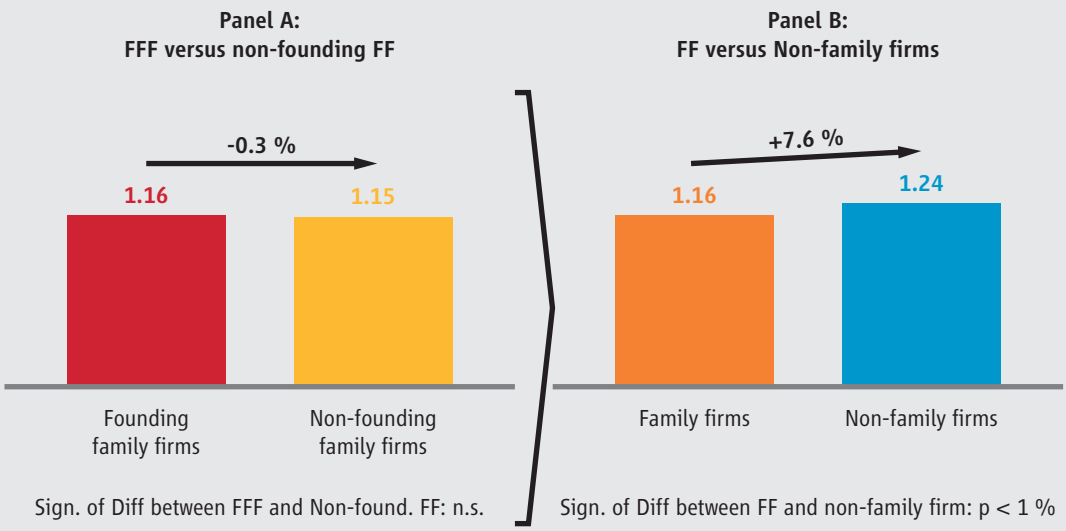
We complement this analysis by studying the market-to-book ratio of equity, which measures the ratio of market value of equity to book value of equity. While also being a valuation ratio, the market-to-book ratio of equity follows a 'shareholder primacy' perspective. Financing decisions, in particular leverage decisions, might create a wedge between Tobin's Q and the market-to-book ratio.

More specifically, we define Tobin's Q as the sum of market capitalization of all equity plus the book value of total liabilities less deferred taxes dividend by the book value of total assets less deferred taxes. That is, we follow the standard approach of large-scale empirical studies and (i) use the book value of liabilities to proxy for their market value, and (ii) substitute the replacement value by the book value of assets, because of data limitations. Meanwhile, we define market-to-book as market capitalization of all equity dividend by the book value of total equity.

2. Empirical results

To begin, we conduct some descriptive analyses. Figure E.13 reports Tobin's Q for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). The median founding family firm is found to be valued at a level of 1.16, which is fairly similar to the valuation level of its non-founding family firm counterpart at 1.15.

Figure E.13: Tobin's Q comparison



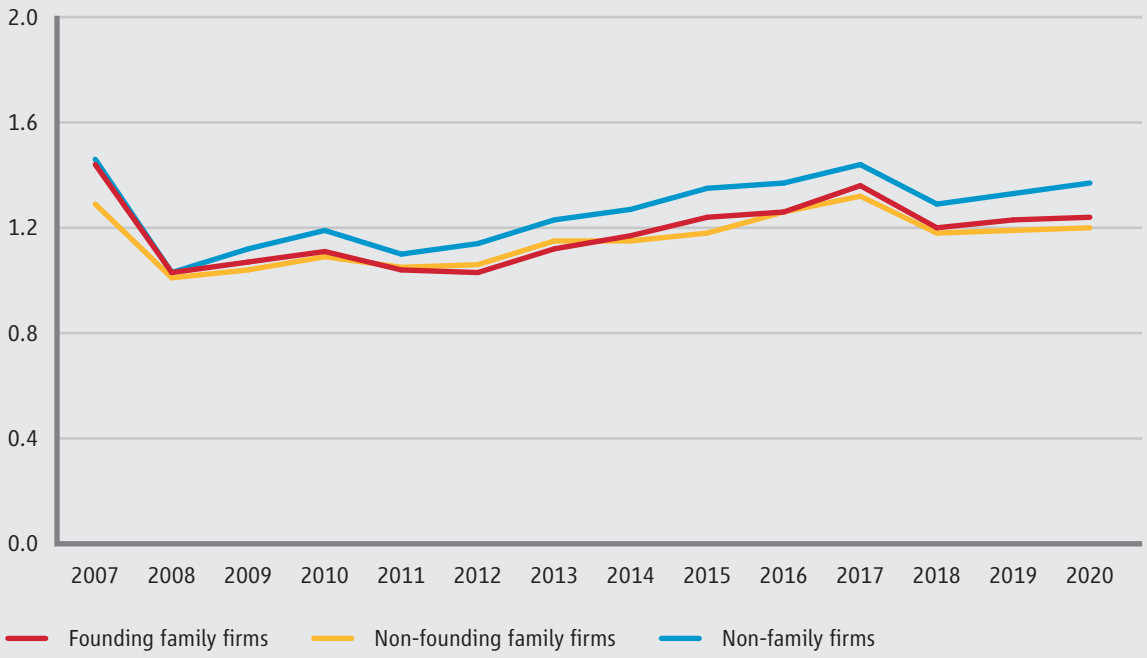
Notes: The figure reports the Tobin's Q valuation ratio for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Tobin's Q is the sum of market capitalization of all equity plus the book value of total liabilities less deferred taxes dividend by the book value of total assets less deferred taxes.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

On the right-hand side, Panel B of Figure E.13 compares family firms (FF) with non-family firms. Results suggest that family firms face a valuation discount relative to non-family firms. More precisely, while the median family firm is valued at a level of 1.16, the median non-family firm is valued at a level of 1.24. Put differently, the median non-family firm is valued at a premium of 7.6 percent relative to its family firm counterpart.

The pattern suggested by Figure E.13 is relatively persistent over time, as documented in Figure E.14. While there is some cyclicality in valuation levels with a low during the early phase of the financial crisis, the median non-family firm enjoys a valuation premium in every sample year. Also, valuation levels of founding family firms and non-founding family firms are relatively similar in each sample year.

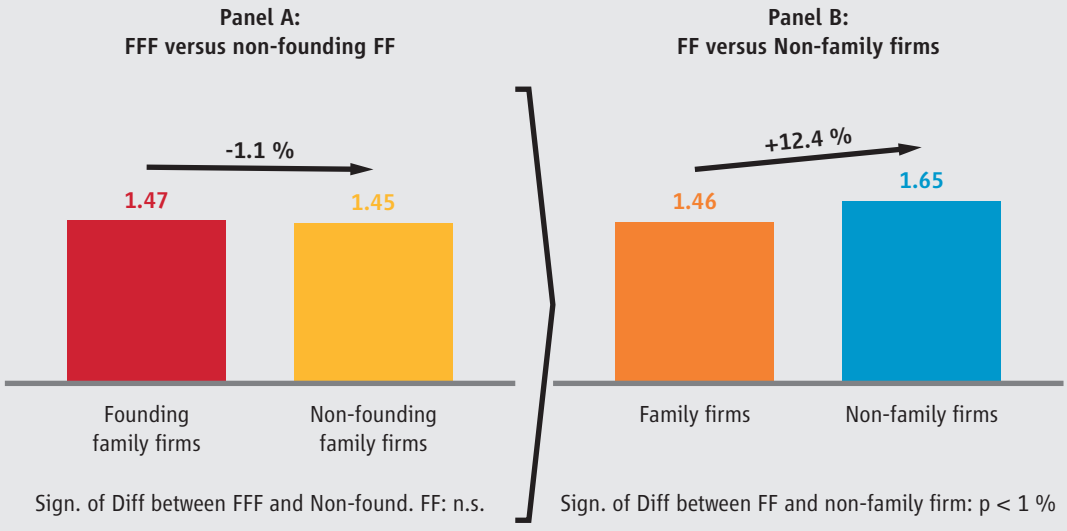
To check the robustness of these findings, we also have a look at the market-to-book ratio of equity. Figure E.15 reports market-to-book values for the median firm of various subsamples. On the left-hand side, Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Consistent with a leverage effect, market-to-book ratios for all samples are higher than the valuation levels measured by Tobin's Q. Moreover, the analysis confirms the findings of the Tobin's Q analysis: Non-family firms enjoy a premium, and founding family firms and non-founding family firms trade at relatively similar levels.

Figure E.14: Tobin's Q over time



Notes: The figure reports the annual median Tobin's Q of founding family firms (FFF), non-founding family firms (Non-founding FF), and non-family firms over time. Tobin's Q is the sum of market capitalization of all equity plus the book value of total liabilities less deferred taxes dividend by the book value of total assets less deferred taxes.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Figure E.15: Market-to-book comparison

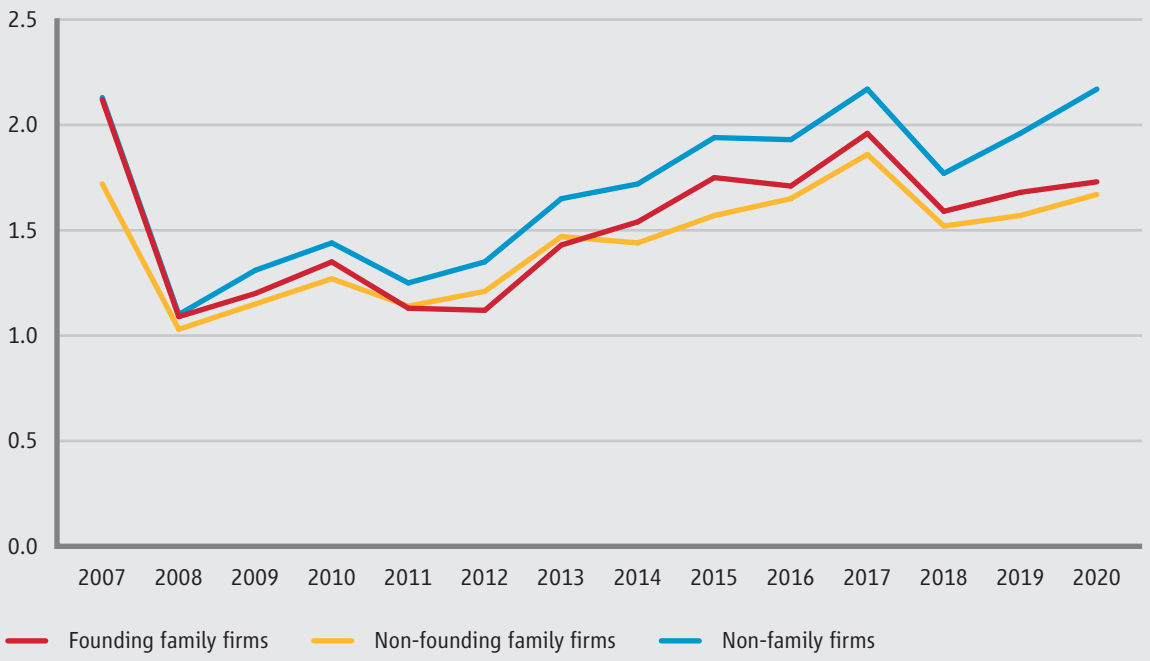


Notes: The figure reports market-to-book for the median firm of various subsamples. Panel A compares founding family firms (FFF) with non-founding family firms (Non-founding FF). Panel B compares family firms (FF) with non-family firms. Market-to-book is the market capitalization of all equity dividend by the book value of total equity.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

More precisely, while the equity of the median founding family firm trades at 1.47x its book value, the equity of the median non-founding family firms trades at 1.45x its book value. As a consequence, the equity of the median family firm trades at a factor of 1.46. In contrast, the equity of the median non-family firm trades at a market-to-book ratio of 1.65, which is 12.4 percent higher than the market-to-book ratio of its family firm counterpart.

Again, the pattern suggested by Figure E.15 is relatively persistent over time, as documented in Figure E.16. With valuation being lowest during the early phase of the financial crisis, the median non-family firm enjoys a valuation premium throughout the whole sample period. Also, valuation levels of founding family firms and non-founding family firms are relatively similar during the years covered in the sample, with founding family firms enjoying a small valuation premium in the second half.

Figure E.16: Market-to-book over time



Notes: The figure reports the annual median market-to-book ratio of founding family firms (FFF), nonfounding family firms (Non-founding FF), and non-family firms over time. Market-to-book is market capitalization of all equity dividend by the book value of total equity.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Following the same strategy as in previous sections, we challenge the descriptive results using simple OLS-regressions. With these analyses, we can control for heterogeneity in industry affiliation, country location, and firm size, as well as macroeconomic cycles. Table E.5 below reports the results. Specifications (1.a/b) and (2.a/b) are estimated on the aggregate sample. Specification (3.a/b) is estimated on the subsample of family firms only.

The regression results confirm the valuation discount of family firms. With respect to Tobin's Q, Specification (1.a) suggests that family firms trade on average at a ceteris-paribus valuation discount of 2.3 percent.[42] Regarding the market-to book ratio, Specification (1.b) suggests an average a ceteris-paribus trading premium of 7.9 percent.[43]

Table E.5: Tobin's Q and market-to-book regressions

Specification	(1.a)	(2.a)	(3.a)	(1.b)	(2.b)	(3.b)
Dependent variable		Tobin's Q			Market-to-book	
Sample	All firms	All firms	Family firms	All firms	All firms	Family firms
Family firm	-0.036***	-0.096***		-0.215***	-0.247***	
	(-2.91)	(-5.62)		(-5.71)	(-4.53)	
Founding family firm		0.095***	0.098***		0.050	0.082
		(4.93)	(4.97)		(0.84)	(1.33)
Total Assets (ln)	-0.054***	-0.054***	-0.030***	-0.216***	-0.216***	-0.188***
	(-17.84)	(-17.85)	(-5.05)	(-22.26)	(-22.26)	(-10.53)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,289	39,289	12,881	44,873	44,873	14,595
Adj. R^2	0.0966	0.0970	0.108	0.0691	0.0691	0.0798

Notes: The table reports simple three-way fixed effects OLS-regressions explaining the Tobin's Q and market-to-book (MtB) valuation ratios. Specifications (1.a/b) and (2.a/b) are estimated on the aggregate sample. Specification (3.a/b) is estimated on the subsample of family firms only. All regressions control for firm size, measured as the logarithm of total assets in kEUR, as well as industry-, time-, and country-fixed effects. Tobin's Q is the sum of market capitalization of all equity plus the book value of total liabilities less deferred taxes dividend by the book value of total assets less deferred taxes. Market-to-book is market capitalization of all equity dividend by the book value of total equity. Constant not reported. t-statistics, which allow for heteroscedasticity, are reported in parentheses below the coefficient estimates. *, **, and *** indicate significance at the 10 %, 5 %, and 1 % levels (two-sided), respectively.

For explanation regarding the interpretation of regression tables see G.IV.

Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

42 The sample mean Tobin's Q is 1.59. With a coefficient of 0.036 in Specification (1.a), to the benefit of the non-family firms, the average premium is 0.036 divided by 1.59; i. e., 0.023 or 2.3 percent.

43 The sample mean market-to-book is 2.73. With a coefficient of 0.215 in Specification (1.b), the average premium is 0.215 divided by 2.73; i. e., 0.079 or 7.9 percent.

Moreover, Table E.5 suggests that – after taking into account heterogeneity in size, industry and country location – founding family firms enjoy a valuation premium compared to non-founding family firms. Indeed, analyzing Tobin's Q, Specifications (2.a) and (3.a) suggest that founding family firms are valued at par with non-family firms and enjoy a valuation premium of 6.0 percent when compared to non-founding family firms.[44] Interestingly, this premium disappears when analyzing the market-to-book ratio (see Specifications (2.b) and (3.b)), which is consistent with founding family firms maintaining lower leverage.[45]

VII. Stock market performance

1. Motivation and measurement

In a final step, we analyze the stock market performance of family firms vis-à-vis their counterparts. This type of analysis can be seen as a dynamic assessment of firm valuation. Ultimately, such an analysis sheds light on the question of whether firms have created value for their residual claimants, their shareholders.[46]

As there is no excess return without risk (common parlance puts it the other way "No risk, no return!"), we complement the analysis of stock market performance with an analysis of two commonly accepted measures of investment risk. First, we look at a stock's standalone-risk, which is measured as the time-series variation of investment returns. While seemingly a natural choice to measure a stock's investment risk, standalone risk ignores the benefits of diversification, which rational investors may enjoy by forming portfolios of stocks. Therefore, we also evaluate a stock's systematic risk, which measures the relationship between the valuation dynamics of the stock and the valuation dynamics of the overall market. Both measures are important to properly understand and evaluate a stock's risk-return trade-off.

To be more precise, we measure stock market performance of a firm's stock as its total return, which is commonly referred to as 'total shareholder return' (TSR). A stock's TSR is the aggregate of the stock's dividend yield earned plus its capital gains. We use monthly intervals (end-to-end of month) to evaluate a stock's TSR and capture the performance of cohorts of stocks along two lines: First, we evaluate the median of annual TSRs of all stocks in the cohort; second,

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44 The sample mean Tobin's Q is 1.59. With a coefficient of 0.095 in Specification (2.a), the average premium is 0.095 divided by 1.59; i. e., 0.060 or 6.0 percent over non-founding family firms. Note that, in contrast, non-founding family firms on average are valued at a discount compared to non-family firms that also amounts to 6.0 percent.

45 See the discussion in Section D.

46 It is worth noting that our objective here is to shed light on the performance of family firms and the role of the founding family. Thus, we take an 'ex-post perspective' in which we assign firms to the cohort of (founding) family firms or non-(founding) family firms at the end of the time period. As such, our results should not be interpreted as the outcome of an asset manager's 'prediction exercise', where firms are classified at the beginning of the period and performance is evaluated subsequently.

we evaluate the return of an equally-weighted portfolio consisting of all stocks in the cohort, where the portfolio is re-allocated on a monthly basis.

A stock's TSR is also the starting point for the analysis of its investment risk, which we measure over a 3-year period.[47] Specifically, we proxy a stock's standalone risk as the volatility of annual TSRs, which we measure as the annualized standard deviation of its monthly TSRs.[48] Following this logic, we proxy for a stock's systematic risk, which accounts for the benefits of diversification, by the beta coefficient of a simple OLS regression of the stock's monthly TSRs on the monthly investment return of a value-weighted portfolio that includes all our sample firms. Technically, this is the ratio of the covariance between the stock's TSR and the portfolio return and the variance of the portfolio return.

2. Empirical results

We start with a descriptive analysis. Figure E.17 reports the annual stock market performance for different portfolios. Part I of Figure E.17 reports median values of stocks' annual total shareholder returns over the period 2007-2020, while Part II reports annualized returns of equally-weighted portfolios of stocks as generated over the 2007-Q2/2021 period.[49] In both cases, Panel A, presented on the left hand side, compares the portfolio of founding family firms (FFF) with the portfolio of non-founding family firms (Non-founding FF).

The median annual total shareholder return of founding family firms is found to be 4.9 percent (See Figure E.17, Panel I.A). In contrast, the median annual value for non-founding family firms is 2.9, which is some 42 percent lower. As such, the median value for family firms is 4.3 percent per annum, which is 37 percent higher than the median value for non-family firms, which is 2.7 percent per annum. A similar picture emerges, when analyzing the performance of equally-weighted, monthly rebalanced portfolios in Part II of Figure E. 17. While the portfolio of founding family firms generates 7.6 percent annual return, non-founding family firms only generate 6.3 percent year-by-year. Comparing family firms to non-family firms, in Panel II.B of Part II, reveals that non-family firms underperform by some 20 percent.

It is interesting to note, that the median performance differential between family and non-family firms from Panel I.B as well as the portfolio performance differential from Panel II.B both suggest that family firms earn, on average, a premium of some 11 to 12 basis points per month (i. e. an absolute premium of 0.11 to 0.12 percent per month) over non-family firms.

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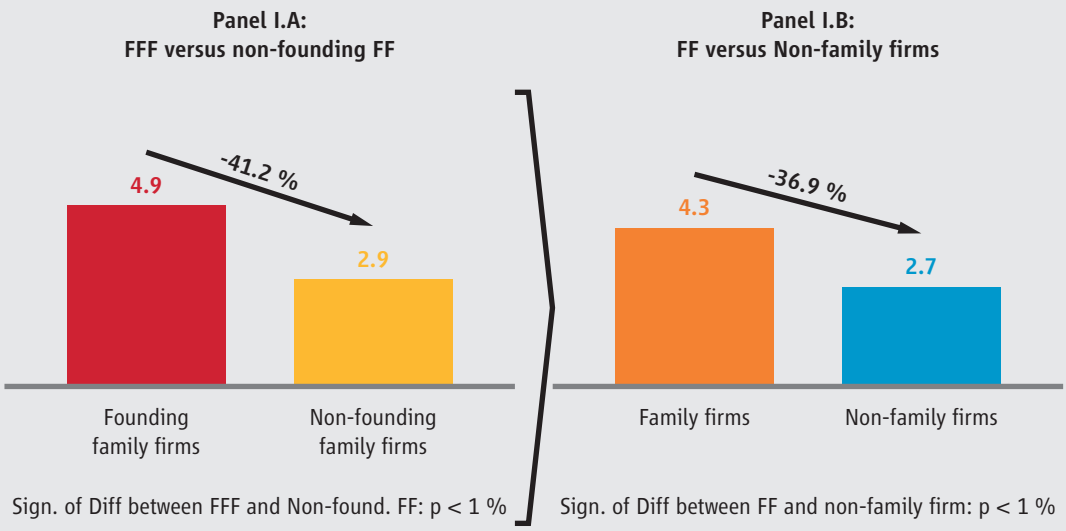
47 While our standard approach is to measure risk over a 5-year period, we require at least 36 monthly TSR observations.

48 We 'annualize' the standard deviation of monthly TSRs by multiplying it by √12.

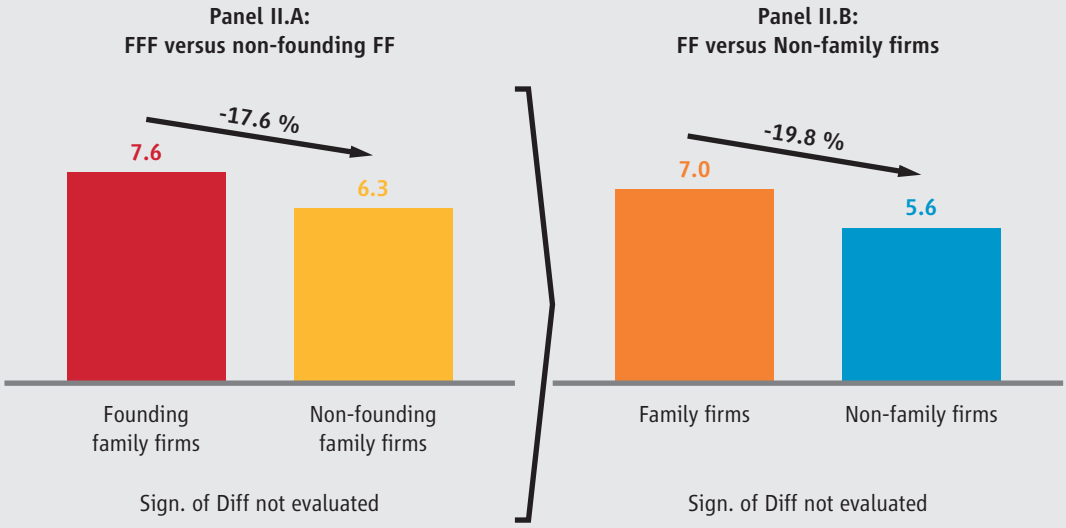
49 The performance of an equally-weighted portfolio corresponds to the mean performance of the included stocks. We rebalance portfolios on a monthly basis.

Figure E.17: Stock market performance

I. Stock Market Performance I (median annual total shareholder return in % over 2007-2020 period)



II. Stock Market Performance II (annualized performance of equally-weighted portfolio in % over 2007-Q2/2021 period)

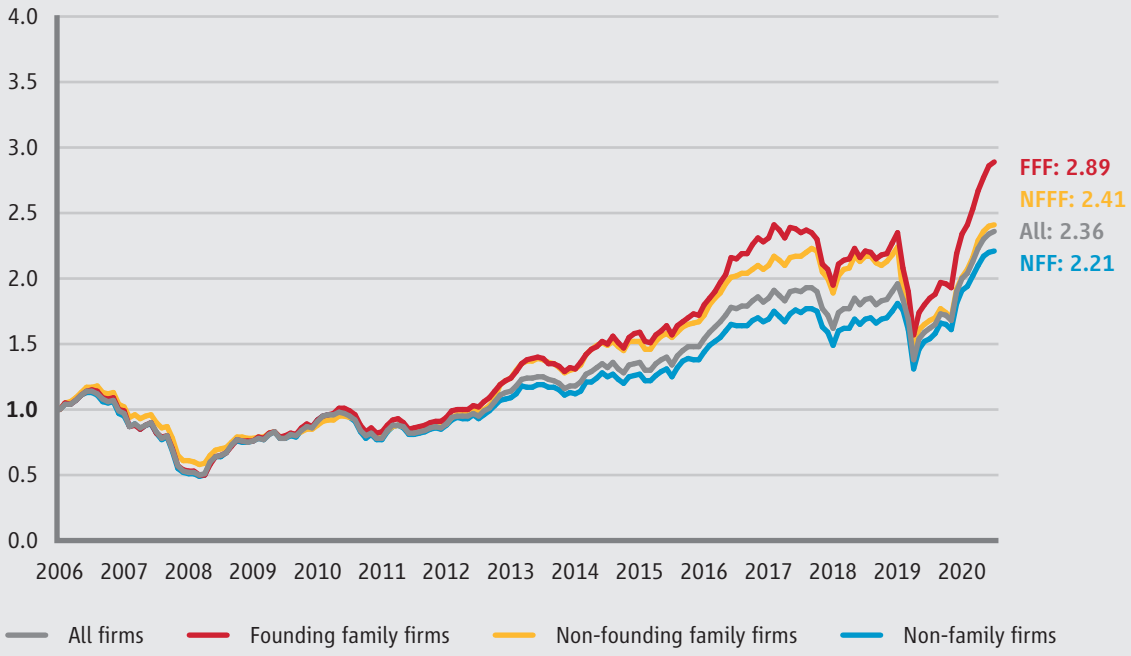


Notes: Figure reports measures of stock market performance for various subsamples of stocks. While Part I reports median values of stocks' annual total shareholder returns over the period 2007-2020, Part II reports annualized returns of equally-weighted portfolios of stocks as generated over the 2007-Q2/2021 period. In each Figure, Panel A contrasts stocks of founding family firms (FFF) with stocks of non-founding family firms (Non-founding FF), and Panel B contrasts stocks of family firms (FF) with stocks of non-family firms. Total shareholder return is defined as the aggregate of the stock's dividend yield earned plus the its capital gains, portfolio returns aggregate stocks' total shareholder returns, and portfolios are re-balanced on a monthly basis.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

The pattern suggested by Figure E.15 is relatively persistent over time, as documented in Figure E.18, which plots the performance of equally-weighted portfolios over the 2007-Q2/2021 period. The portfolio of founding family firms dominates and outperforms all other portfolios.

The portfolio of non-founding family firms, while underperforming the portfolio of founding family firms, still dominates the portfolio of non-family firms.

Figure E.18: Stock market performance (development over time)

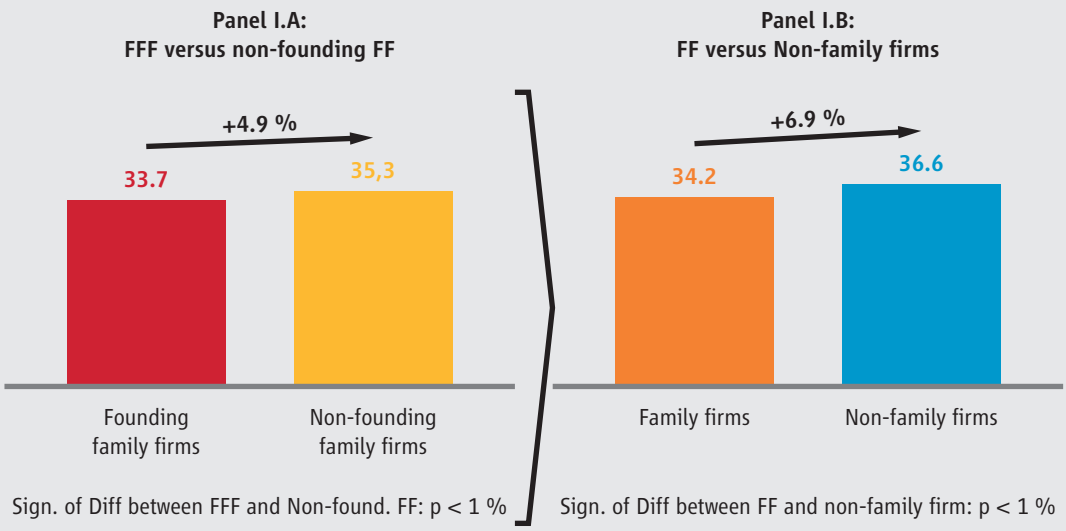


Notes: Figure reports the equally-weighted stock market performance of all sample firms (All), founding family firms (FFF), non-founding family firms (NFFF), and non-family firms (NFF) over time. Stock market performance is proxied by total shareholder return, which is defined as the aggregate of the stock's dividend yield earned plus the its capital gains, and portfolios are re-balanced on a monthly basis.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

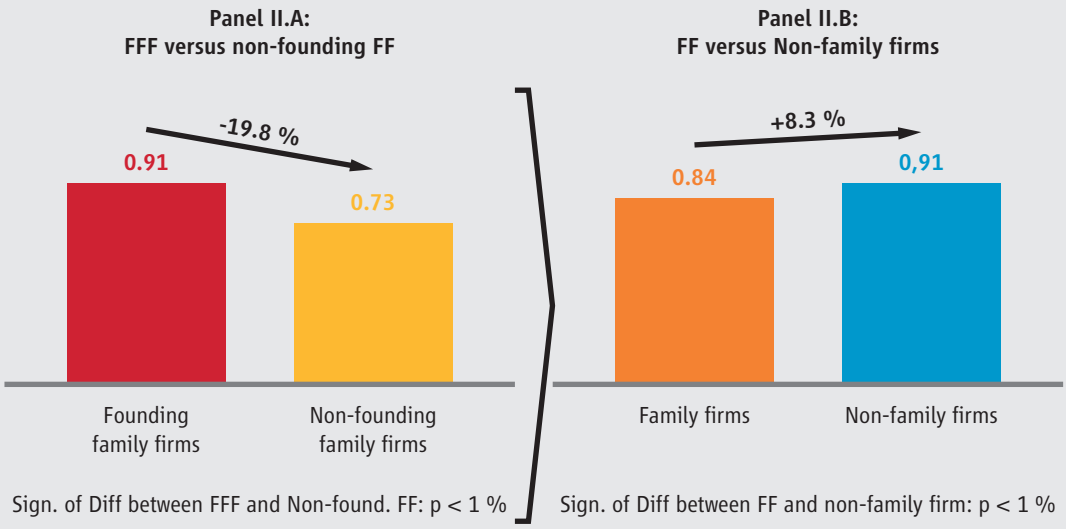
One might argue that the outperformance of (founding) family firms, as documented in Figure E.17, comes for the cost of excessive investment risk. However, Figure E.18 already documents that on portfolio level investment risks are relatively equally balanced over the cohorts. Figure E.19 takes a more detailed look and reports two commonly accepted measures of stock market performance risk. While Part I reports standalone risk, which measures the variation of monthly stock market returns, Part II, reports systematic risk, which proxies the association between the dynamics of firm valuation and aggregate market valuation and thus takes into account potential benefits of diversification.

Figure E.19: Stock market performance risk comparison

I. Standalone risk (annualized volatility in %; median firm)



II. Systematic risk (beta versus value-weighted portfolio; median firm)



Notes: Figure reports measures of stock market performance risk for various subsamples of stocks. While Part I reports standalone risk, which measures the variation of monthly stock market returns, Part II, reports systematic risk, which proxies the association between the dynamics of firm valuation and aggregate market valuation and thus takes into account potential benefits of diversification. In each Figure, Panel A contrasts stocks of founding family firms (FFF) with stocks of non-founding family firms (Non-founding FF), and Panel B contrasts stocks of family firms (FF) with stocks of non-family firms. Standalone risk is defined as the annualized volatility (i.e. standard deviation) of monthly total shareholder returns. Systematic risk is defined as the beta coefficient of a simple OLS regression of the stock's monthly total shareholder return on the monthly investment return of the value-weighted portfolio of all our sample firms. Thereby, total shareholder return is defined as the aggregate of the stock's dividend yield earned plus the its capital gains.
Source: Authors' analysis based on data from Refinitiv, Bureau van Dijk, company webpages, and other selected sources.

Part I in Figure E.19 documents that the standalone risk is indeed relatively balanced across the cohorts. While the differences are statistically significant, they are economically marginal. The results become more interesting in Part II, where values for systematic risk, which is more

important for a rational investor, is reported. Here, Figure E19 documents that non-founding family firms display statistically significantly lower betas. And, indeed, a difference of some 20 percent (between the median founding family firm versus the median non-founding family firm) is also economically relevant, as the following example illustrates: Assuming a risk-free return of 2.0 percent per annum, a market excess premium of some 5.0 percent per annum and a systematic risk of 0.91 for a stock, the fair expected return is some 6.55 percent per annum according to the well-know capital asset pricing model (CAPM). Moreover, a 20 percent reduction in systematic risk will lower the fair expected return of the stock by 91 basis points.

As such, the analysis of investment risk cannot support the argument that the outperformance of (founding) family firms in terms of stock market performance is due to excessive investment risk of family firms. If anything, the analysis mitigates the underperformance of non-founding family firms versus founding family and strengthens the performance benefit of family firms versus non-family firms.

VIII. Summary and intermediate conclusion

In the previous sections, we have examined firm performance from different perspectives in an effort to provide an answer to the question of whether family firms, given their unique characteristics, exhibit some particular performance patterns and whether the founding family really plays a role in family firms' performance.

The first measure we have analyzed is sales growth, one of the most prominent key performance indicators. The results obtained suggest that founding family firms display the highest growth rate, followed by non-family firms, whereas non-founding family firms show the lowest growth rate in terms of sales. Non-founding family firms, however, outperform in 2020 – during the Covid-Pandemic. Moreover, non-family firms show the highest level of sales variation.

The second performance metric has been value added, understood as the surplus generated by the firm for employees, tax authorities, and investors. Our findings suggest that founding family firms display the highest value added per capital, followed by non-family firms, with non-founding family firms showing the lowest productivity. While this pattern is not driven by any particular extreme event or time period, it is worthwhile to mention, that - consistent with the analysis of sales growth – the ranking between non-founding family firms and non-family firms reverses in 2020.

In our third set of analyses, we have focused on employment. The empirical evidence suggests that founding family firms display the highest employment growth rate, again followed by non-family firms. Meanwhile, non-founding family firms show the lowest growth rate.

Founding family firms outperform other firms throughout the entire sample period, which can be interpreted as a commitment with their employees. The comparison of non-founding family firms with non-family firms provides mixed results. Non-family firms only outperform in the early years of the sample period (2007-2011) and towards the end of the sample period (2017-2020). It should also be noted that non-family firms display the highest variation in employment.

Fourth, we have analyzed standard measures of accounting performance. Regarding return on assets, a measure of operating excellence, the analysis highlights that founding family firms earn the highest return during their operating cycle. The outperformance of founding family firm is a pattern that is observed consistently throughout the sample period. Regarding the comparison between non-founding family firms and non-family firms, although the descriptive analysis provides mixed signals, the regression analysis, which allows for heterogeneity in firm size, macro cycles, industry and country location, supports that on average non-founding family firms outperform non-family firms.

We have further examined return on equity, a measure that takes the perspective of shareholders. In this respect, founding family firms outperform other firms, and family firms outperform non-family firms. Again, the descriptive analysis does not reveal notable differences between non-founding family firms and non-family firms. However, the regression analysis, in which we control for heterogeneity in firm size, macro cycles, industry and country affiliation, indicates that on average non-founding family firms perform better than non-family firms.

Our fifth performance measure has been firm valuation. In this case, our findings suggest that non-family firms enjoy a valuation premium versus family firms. This pattern persists regardless of whether we explore an aggregate firm valuation measure such as Tobin's Q or a shareholder-oriented metric like the market-to-book ratio of equity. The higher valuation of non-family firms is very persistent over time. This result is also confirmed in a regression analysis that allows for heterogeneity in firm size, macro cycles, industry and country affiliation. Interestingly, the regression analysis suggests that, in terms of Tobin's Q, founding family firms trade at par with non-family firms.

Our sixth performance measure was stock market performance. We proxy a firm's stock market performance by its 'total shareholder return', which is the aggregate of the stock's dividend yield earned plus its capital gains. We find that – no matter, whether we examine median total shareholder returns or the performance of equally weighted portfolios – founding family firms dominate and outperform other firms. Also, family firms on aggregate dominate and outperform non-family firms. Examining standard measures of investment suggests that

non-founding family firms displays relatively lower risk and thus corroborates the findings of outperforming family firms.

F. Conclusion

Wooldridge (2015) has argued that "[F]amilies have always been at the heart of business." Indeed, evidence suggests that family firms account for two third of businesses and some 70 – 90 percent of GDP worldwide.[50] Thereby, and in contrast to the widely held perception, family firms are not restricted to small and medium sized enterprises nor are they only a characteristic of the less developed countries. The anecdotal evidence and early academic studies suggest that family control is also prevalent among the large and well-established corporations in the advanced economies. Against this background, this report aims to provide *large-scale evidence* on the *relevance*, *characteristics*, and *performance* of listed family firms in Europe.

Family firms are not restricted to small and medium sized enterprises

The study explores a novel and extensive sample that covers non-financial listed firms from 17 European countries (EU15 countries, Switzerland, and Norway) over the 2007-2020 time period. It provides novel and timely evidence building on a final sample that comprises a total of 6,702 individual firms and 53,484 firm-year observations. As such, the study builds on one of the largest samples of this type.

To document the relevance of family control in the composition, characteristics and performance of European listed corporations, the sample firms are classified as family firms if an individual or a family owns a significant equity stake (25 percent or more of decision-making rights). Moreover, the study differentiates between founding and non-founding family firms. More precisely, the firms in which the controlling family has ties to one of the founders of the firm or his/her descendants, are classified as founding family firms. Importantly, the identification of (founding) family firms is done on a year-by-year basis.

In a first step, the study documents that family firms account for a significant proportion of the universe of European publicly listed firms. Specifically, family firms represent about 32 percent of all firm-year observations in the EU15 countries, Switzerland, and Norway, whereas founding family firms are 62 percent of the family firm category and about 20 percent of all European companies. There is, however, heterogeneity across countries. Family firms are more prevalent in countries like France, Germany, Greece, Italy, and Portugal, where they exceed 40 percent of the business population. On the contrary, they play a less important role in Finland, Ireland, the Netherlands, and the UK, where the fraction of family firms among all non-financial listed firms does not reach 20 percent. Family firms are also important in economic terms, being responsible for about one fourth of the total assets, total sales, employees, and market capitalization owned or generated by all publicly listed European corporations. We complement this analysis by a description of selected examples of family firms.

Family firms account for a significant proportion of the universe of European publicly listed firms

Family firms are more prevalent in countries like France, Germany, Greece, Italy, and Portugal

50 See the references in Section A.

On the contrary, they play a less important role in Finland, Ireland, the Netherlands, and the UK

In a second step, the study discusses the characteristics of family firms. Specifically, it provides a comparison between the family and non-family firms in terms of their industry, size, age, operating risk, diversification, internationalization and financial policies. To increase the understanding of the role of the founding family, it also compares founding family firms with non-founding family firms. The data analysis reveals that the median family firm is comparatively smaller and older than the median non-family firm. Non-founding family firms in particular tend to be older compared to other firms. Family firms and, especially, the founding family firms have lower operating risk compared to non-family firms. The family firms operate in a slightly higher number of business segments than comparable non-family firms. The median family firm has higher total leverage (defined as total liabilities to total assets) and relies more heavily on debt compared with the median non-family firm. However, for founding family firms in particular, the family firms' debt maturity is shorter and the cash holdings higher compared to other firms.

In a third step, we examine the performance of family firms. Acknowledging that performance is not a one-dimensional construct, the study evaluates a variety of performance measures and also challenges the descriptive comparisons using simple OLS-regressions, in which we control for heterogeneity in industry affiliation, country location, firm size, as well as macroeconomic cycles. Family firms are on par with other firms regarding sales growth, but family firms report higher employment growth. The latter is primarily driven by the exceptionally high growth in founding family firms. This pattern remains robust over time and when controlling for size, as well as industry, time, and country fixed effects.

Family firms generate comparatively higher value added per unit of capital than other firms. Within family firms, founding families tend to produce even higher value added per capital. This pattern carries over to accounting returns. Indeed, family firms are comparatively more profitable in terms of return on assets and return on equity than other firms. Within the cohort of family firms, founding family firms generate higher returns. These patterns remain robust when controlling for size, as well as industry, time, and country fixed effects.

However, family firms trade at a discount when compared to firms of the same size and taking into account industry, time, and country heterogeneity. Within the cohort of family firms, founding families trade at a premium. In contrast, stocks of family firms earn, on average, higher returns. Family firms earn, on average, a premium of about 11 basis points per month over non-family firms. Within the cohort of family firms, founding family firms earn, on average, a premium of about 10 basis points per month over non-founding family firms. Risk of stock returns, as measured by the standard deviation of stock returns, is relatively similar across all categories. However, non-founding family firms display lower systematic risk.

In sum, family firms are found to display superior performance in many regards; however, they still trade at a valuation discount in capital markets.

Family firms are found to display superior performance in many regards; however, they still trade at a valuation discount in capital markets

It is important to note two fundamental limitations of the study. *First*, although the study covers a rather long time period of 14 years, the results – in particular the evidence on firm performance – may depend on the sample period investigated. *Second*, the study primarily presents descriptive evidence, supported by simple OLS-regression analyses. As a consequence, the report cannot provide a final answer to the question of whether the observed differences (e. g., in performance terms) bear a causal relationship with the family firm status. Indeed, ownership decisions of founders and their families might very well be an endogenous choice that is influenced by the competitive environment, the need for financing, and other external forces.

Relatedly, the study leaves a number of interesting questions for future research:

- Further evidence and more granular information regarding the relevance of family firms within the universe of listed firms, and regarding the dynamics of the family firms' representation among the listed firms would be welcomed. Indeed, while in some countries we see an increasing number of listed firms (e. g., Sweden) in other countries we observe that this number shrinks (e. g., Germany). This calls for further research in order to provide a deeper understanding of the dynamics of the individual family firm's listing decision. Bessler et al. (2021) provide an interesting first step in this direction. Moreover, an analysis of the institutional factors and their effect on listing decisions might offer valuable insights here.
- Related to the previous point, as the study documents the importance of family firms in many European countries, an in-depth analysis of the institutional factors and their differential influence on the behavior of family and non-family firms might explain the variation in the incidence of family firms across countries. Regulatory differences are particularly important here. Lins et al. (2013), who study labor market regulation, provide an interesting first attempt in this respect.
- The current report offers suggestive evidence that financial crises and the COVID-19 pandemic have had a severe impact on firm performance. Accordingly, a careful analysis of (a) the "resilience capacity" of family firms and (b) their willingness to adapt to change should be considered in further research. In this regard, further research might analyze the effects of political uncertainty on the behavior and performance of family firms. Amore & Minichilli (2018) advance our knowledge in this direction by conducting a study of how political uncertainty affects the investment behavior of family firms.

- Finally, our study documents a performance advantage of family firms. From an academic perspective, this calls for a more detailed analysis of the causal influence of the family firm status on the firm's economic outcomes. From a practical perspective, an ex-ante analysis replicating the investment decision problem of an asset manager might add additional interesting insights.

Finally, the study carries a number of practical and policy implications:

- External (non-family) managers working for listed family firms need to be aware of the need to reconcile the economic and non-economic interests of the controlling family and the other stakeholders of the company. This is quite often not an easy task given that the capital market scrutiny exerts pressure on them to prioritize economic outcomes.
- Given the overall better performance of founding family firms relative to non-founding family firms and non-family firms, those family firms which are still under the influence of the founding family should work diligently to facilitate the transfer of the business to the next generation. In this regard, the elaboration of a family protocol and a well-thought family governance could increase the prospects of the business remaining under family control.
- From an institutional point of view and in light of the different role played by family firms across European countries, regulators and policymakers might take into account who the owners of companies are, when approving new laws aimed at the corporate sector or when modifying the existing ones. Regulations that condition a firm's access to external financing and that facilitate or hamper the transfer of stakes in the company between family members are likely to affect the survival of family ownership (control) in the businesses over time.

G. Appendix

I. Examples of Family Firms

Table G.1: HEINEKEN International

"Facts and figures [as of end of 2020]"	**HEINEKEN International**
Headquarter location	Amsterdam (The Netherlands)
Industry	Beverage (light manufacturing)
Business description	Production of local and specialty beers in and ciders
Balance sheet (total assets in kEUR)	41,853,000
Number of employees (FTE)	84,394
Founder(s)	Gerand Adriaan Heineken
Founding year	1864
Current generation of founding family	4th and 5th generation
Initial public offering (IPO, year)	1939, NYSE Euronext Amsterdam (AEX)
Voting rights of dominant founding family*	Heineken and Hoyer family control 50.005 % of Heineken, through Heineken Holding N.V. Heinken Holding N.V. is in majority ownership of L'Arche Green N.V. who has a 52.599 % ownership in the holding. L'Arche Green N. V. is owned 88.86 % by the Heineken Family and 11.14 % by the Hoyer family.
Board involvement of founding family*	Charlene de Carvalho-Heineken is the executive director of Heineken Holding N.V. (the investment company behind Heineken International), her husband Michel de Carvalho is member of the supervisory board of Heineken International, and her eldest son Alexander is a non-executive director on Heineken Holding N. V.

* based on publicly available information as of 2020

Table G.2: COLOPLAST

"Facts and figures [as of end of 2020]"	**COLOPLAST**
Headquarter location	Humlebaek (Denmark)
Industry	Health care (heavy manufacturing)
Business description	Ostomy care, continence care, wound and skin care, and interventional urology
Balance sheet (total assets in kEUR)	1,723,658
Number of employees (FTE)	12,427
Founder(s)	Aage Louis-Hansen
Founding year	1957
Current generation of founding family	2nd generation
Initial public offering (IPO, year)	1983
Voting rights of dominant founding family*	68 % (through A shares and B shares, 45 % of equity)
Board involvement of founding family*	Niels Peter Louis-Hansen (the founder's son) holds 20.5 % of the firm ownership (41.4 % of voting rights) and is the deputy chairman of the supervisory board. His sister Benedikte owns 3.7 % of equity and 5.4 % of votes. N.P. Louis-Hansen has a daughter but no information on her involvement in the family business could be found.

* based on publicly available information as of 2020

Table G.3: H&M GROUP

"Facts and figures [as of end of 2020]"	**H&M GROUP**
Headquarter location	Stockholm (Sweden)
Industry	Wholesale and retail
Business description	Fast-fashion clothing, clothes retailer
Balance sheet (total assets in kEUR)	16,784,176
Number of employees (FTE)	110,325
Founder(s)	Erling Persson
Founding year	1947
Current generation of founding family	3rd generation
Initial public offering (IPO, year)	1974, Stockholm Stock Exchange (currently Nasdaq Stockholm)
Voting rights of dominant founding family*	The Stefan Persson family and related companies own 49.5 % of equity and 75.4 % of voting rights.
Board involvement of founding family*	Karl-Johan Persson is the chairman of the board of H&M Group (his father Stefan Persson was the chairman of the board until autumn 2020). Karl-Johan Persson was previously also the CEO of the group.

* based on publicly available information as of 2020

Table G.4: Jerónimo Martins

"Facts and figures [as of end of 2020]"	**Jerónimo Martins**
Headquarter location	Lisbon (Portugal)
Industry	Retail
Business description	Food distribution, special retail
Balance sheet (total assets in kEUR)	9,264,490
Number of employees (FTE)	118,210
Founder(s)	Jerónimo Martins
Founding year	1792
Current generation of founding family	None: The dos Santos family has controlled the company since 1921 but this family is presumably not associated to the founders of the company. Pedro Soares dos Santos is the 4th generation of the Soares dos Santos family in Jerónimo Martins.
Initial public offering (IPO, year)	1989, Euronext Lisbon
Voting rights of dominant founding family*	Sociedade Francisco Manuel dos Santos holds 56.1 % of the share capital.
Board involvement of founding family*	Pedro Soares dos Santos (member of the family in control of Jerónimo Martins) is the CEO and the Chairman of the Board of directors. José Soares Dos Santos (executive president of Sociedade Francisco Manuel dos Santos) is a member of the board of directors.

* based on publicly available information as of 2020

Table G.5: PERNOD-RICARD

"Facts and figures [as of end of 2020]"	**PERNOD-RICARD**
Headquarter location	Paris (France)
Industry	Light Manufacturing
Business description	Wine and spirits manufacturing
Balance sheet (total assets in kEUR)	29,847,000
Number of employees (FTE)	18,776
Founder(s)	Paul Ricard
Founding year	1975, resulting from the merger of two French anise-based spirits companies, i.e., Pernod, founded in 1805, and Ricard, created in 1932 by Paul Ricard.
Current generation of founding family	3rd generation
Initial public offering (IPO, year)	1975, Paris Stock Exchange
Voting rights of dominant founding family*	Paul Ricard concert party owns 16.4 %
Board involvement of founding family*	Mr. Alexandre Ricard, the grandson of Paul Ricard, the founder of Société Ricard, is currently the CEO and the Chairman of the Board. Patricia Ricard also holds the board seat as the permanent representative of the Societe Ricard. Patricia is the granddaughter of Paul Ricard.

* based on publicly available information as of 2020

Table G.6: SWATCH Group

"Facts and figures [as of end of 2020]"	**SWATCH Group**
Headquarter location	Biel (Switzerland)
Industry	Heavy Manufacturing
Business description	Watchmaking/Luxury Goods
Balance sheet (total assets in kEUR)	11,507,569
Number of employees (FTE)	32,424
Founder(s)	Nicolas George Hayek
Founding year	1983 (from two financially troubled predecessor companies, ASUAG and SSIH)
Current generation of founding family	2nd and 3rd generation
Initial public offering (IPO, year)	2007, Berne Stock Exchange
Voting rights of dominant founding family*	The Hayek Pool, related parties, institutions, and persons control 62,773,361 registered shares and 749,811 bearer shares, totaling 43.6 % of all the votes. The community of heirs of N. G. Hayek controls directly, through related parties and institutions and in the context of the Pool, 42.9 % of all the votes.
Board involvement of founding family*	Nayla Hayek is the Chairwoman of the board of director. Nick Hayek is the board member and the President of the Group's Management Board. Marc A. Hayek (Nayla Hayek's son) is a member of the Group's Management Board.

* based on publicly available information as of 2020

Table G.7: EASY JET

"Facts and figures [as of end of 2020]"	**EASY JET**
Headquarter location	London Luton Airport, UK
Industry	Transportation and public utility
Business description	Airline
Balance sheet (total assets in kEUR)	9,465,981
Number of employees (FTE)	14,566
Founder(s)	Sir Stelios Haji-Ioannou
Founding year	1995
Current generation of founding family	1st generation
Initial public offering (IPO, year)	2000, London Stock Exchange
Voting rights of dominant founding family*	The Haji-Ioannou family concert party shareholding, consisting of easyGroup Holdings Limited (holding vehicle for Sir Stelios Haji-Ioannou and Clelia Haji-Ioannou) and Polys Haji-Ioannou holds 28.694 % of equity (as of September 2020)
Board involvement of founding family*	None

* based on publicly available information as of 2020

Table G.8: GEOX

"Facts and figures [as of end of 2020]"	**GEOX**
Headquarter location	Montebelluna (Italy)
Industry	Manufacturing and distribution of footwear and apparel
Business description	Textiles (manufacturing); footwear/clothing
Balance sheet (total assets in kEUR)	814,554
Number of employees (FTE)	4,458
Founder(s)	Mario Moretti Polegato
Founding year	1995
Current generation of founding family	1st and 2nd generation
Initial public offering (IPO, year)	2004, Milan Stock Exchange (Euronext Milan)
Voting rights of dominant founding family*	Geox S.p.A. is controlled by LIR S.r.l. which has a shareholding of 71.10 %. LIR S.r.l., with registered offices in Montebelluna (TV), Italy, is an investment holding company that belongs entirely to Mario Moretti Polegato and Enrico Moretti Polegato (who respectively own 85 % and 15 % of the share capital).
Board involvement of founding family*	Mario Moretti Polegato (founder) is the chairman of the board. His son Enrico Moretti Polegato is the Deputy Chairman of the board and Executive director.

* based on publicly available information as of 2020

Table G.9: DRÄGER (Drägerwerk AG & Co. KGaA)

"Facts and figures [as of end of 2020]"	**DRÄGER (Drägerwerk AG & Co. KGaA)**
Headquarter location	Lübeck, Germany
Industry	Heavy Manufacturing
Business description	Manufacturer of medical and safety technology products
Balance sheet (total assets in kEUR)	3,306,000
Number of employees (FTE)	15,657
Founder(s)	J. Heinrich Dräger; Carl Adolf Gerling
Founding year	1889
Current generation of founding family	5th generation
Initial public offering (IPO, year)	"1979, FrankfurtStock Exchange (preferred shares) 2010, Frankfurt Stock Exchange (common shares)"
Voting rights of dominant founding family*	Dräger family holds 71.49 % of common shares, which are the only shares that confer voting rights.
Board involvement of founding family*	Stefan Dräger is the Chairman of the Executive Board.

* based on publicly available information as of 2020

Table G.10: COLRUYT Group

"Facts and figures [as of end of 2020]"	**COLRUYT Group**
Headquarter location	Halle (Belgium)
Industry	Wholesale (retail)
Business description	Supermarkets, toy and leisure retail, wholesale, cash and carry
Balance sheet (total assets in kEUR)	4,544,500
Number of employees (FTE)	29,056
Founder(s)	François Jean Baptiste Marie "Franz" Colruyt
Founding year	1928, legal name of the company Etablissementen Franz Colruyt NV
Current generation of founding family	3rd and 4th generation
Initial public offering (IPO, year)	1999, Brussels Stock Exchange
Voting rights of dominant founding family*	Colruyt family holds 59.2 % of equity.
Board involvement of founding family*	Jozef Maria Damiaan "Jef", Baron Colruyt (grandson of the founder) is the Chairman of the Board of Directors and CEO of Colruyt Group. Five other representatives of the main shareholder (the Colruyt family) are members of the Board of Directors.

* based on publicly available information as of 2020

Table G.11: NATURHOUSE HEALTH

"Facts and figures [as of end of 2020]"	**NATURHOUSE HEALTH**
Headquarter location	Madrid (Spain)
Industry	Light manufacturing
Business description	Nutrition and weight management industry
Balance sheet (total assets in kEUR)	42,380
Number of employees (FTE)	289
Founder(s)	Félix Revuelta (from business group Kiluva)
Founding year	1986
Current generation of founding family	1st and 2nd generation
Initial public offering (IPO, year)	2015, Spanish Stock Exchanges
Voting rights of dominant founding family*	Félix Revuelta is its major shareholder (76.72 %) through Kiluva (dissolved in 2021).
Board involvement of founding family*	Félix Revuelta, the founder, is Executive Chairman (Chairman and CEO) of Naturhouse Group. Two of the Felix's children are also involved in the management/board of directors: Ms.Vanesa Revuelta Rodríguez is the Executive Vice-chairman of the group, Mr. Kilian Revuelta Rodríguez is the Vice chairman of the group.

* based on publicly available information as of 2020

Table G.12: BASLER

"Facts and figures [as of end of 2020]"	**BASLER**
Headquarter location	Ahrensburg, Germany
Industry	Heavy Manufacturing
Business description	Manufacturer of high-quality cameras and accessories for applications in factory automation, medicine, traffic and a variety of other markets.
Balance sheet (total assets in kEUR)	189,253
Number of employees (FTE)	808
Founder(s)	Norbert Basler
Founding year	1988
Current generation of founding family	1st generation
Initial public offering (IPO, year)	1999, Frankfurt Stock Exchange
Voting rights of dominant founding family*	Norbert Basler Holding GmbH holds 53 % of the company shares.
Board involvement of founding family*	Norbert Basler (the founder) is the Chairman of the Supervisory Board.

* based on publicly available information as of 2020

Table G.13: PATRIZIA

"Facts and figures [as of end of 2020]"	**PATRIZIA**
Headquarter location	Augsburg (Germany)
Industry	Real estate
Business description	Delivering a variety of real estate investment services for institutional investors
Balance sheet (total assets in kEUR)	1,941,052
Number of employees (FTE)	881
Founder(s)	Wolfgang Egger
Founding year	Frankfurt Stock Exchange (1984)
Current generation of founding family	1st generation
Initial public offering (IPO, year)	2006
Voting rights of dominant founding family*	Mr Wolfgang Egger holds 51.81 % of the share capital via First Capital Partner GmbH.
Board involvement of founding family*	Patrizia is managed by the founder (1st generation). Wolfgang Egger is the chairman of the Management Board

* based on publicly available information as of 2020

Table G.14: MELIA HOTELS

"Facts and figures [as of end of 2020]"	**MELIA HOTELS**
Headquarter location	Palma de Mallorca (Spain)
Industry	Services
Business description	Travel, tourism (hotel chain)
Balance sheet (total assets in kEUR)	3,755,322
Number of employees (FTE)	8,475
Founder(s)	Gabriel Escarrer Julià
Founding year	1956
Current generation of founding family	1st and 2nd generation
Initial public offering (IPO, year)	1996, Madrid Stock Exchange
Voting rights of dominant founding family*	The Escarrer family holds 54 % of the firms' equity.
Board involvement of founding family*	The founder Gabriel Escarrer Julià is the chairman of the board of directors. His son Gabriel Juan Escarrer Jaume is the CEO and vice-chairman of the board. The founder's daughter, María Antonia Escarrer Jaume, is also a member of the board.

* based on publicly available information as of 2020

Table G.15: WENDEL (group)

"Facts and figures [as of end of 2020]"	**WENDEL (group)**
Headquarter location	Paris (France)
Industry	Services
Business description	Investment company
Balance sheet (total assets in kEUR)	12,999,700
Number of employees (FTE)	88,344
Founder(s)	Jean-Martin Wendel
Founding year	1704
Current generation of founding family	Beyond 5th generation
Initial public offering (IPO, year)	NA
Voting rights of dominant founding family*	Wendel-Participations SE (controlled by the 1,200 members of Wendel family) owns 39.3 % of Wendel's group share capital corresponding to 52.4 % of the voting rights.
Board involvement of founding family*	Six members of the Wendel family are members of the group's board of directors.

* based on publicly available information as of 2020

II. Details about variable definitions and sources

Table G.16: Variables, definitions and sources

Variable	Definition	Source
Family Firm (Dummy)	Dummy variable indicating whether a firm classifies as a family firm. A firm is considered a family firm, if a person or a family owns 25 percent of the decision-making rights mandated by their share capital	Bureau van Dijk, own analysis
Founding Family Firm (Dummy)	Dummy variable indicating whether a firm classifies as a founding family firm, i.e. as a family firm where the ultimate owner is (one of) the founders of the firm or a relative (by blood or marriage)	Own analysis
Capex	Investment behavior proxy, defined as capital expenditures scaled by total assets	Refinitiv Datastream, own calculation
Capital intensity	Asset structure measure, defined as fixed assets (net property, plant, and equipment) scaled by total assets	Refinitiv Datastream, own calculation
Cash holdings	Liquidity measure, defined as cash holdings (cash and short-term investments) scaled by total assets	Refinitiv Datastream, own calculation
Employment	Measure of employment, defined as the number of employees measured in full time equivalents (FTE)	Refinitiv Datastream, Bureau van Dijk, own research
Employment growth	Measure of employment growth, defined as the rolling annual logarithmic growth rate of a firm's employment measured over the last three years	Refinitiv Datastream, Bureau van Dijk, own research
Employment variation	Measure of (in)stability of employment, defined as the 3-year rolling coefficient of variation (i.e., standard deviation standardized by the mean) of employment	Refinitiv Datastream, Bureau van Dijk, own research
Firm age	Measure of firm age, defined as the difference between the current year and the founding year of the firm	Refinitiv Datastream, Bureau van Dijk, own research
Intangible asset intensity	Asset structure measure, defined as intangible assets scaled by total assets	Refinitiv Datastream, own calculation
International sales	Total international sales divided by total net sales	Refinitiv Datastream, own calculation
International assets	Total international assets divided by total assets	Refinitiv Datastream, own calculation
Leverage (debt)	Capital structure measure, defined as total debt to total assets	Refinitiv Datastream, own calculation
Leverage (net-debt)	Capital structure measure, defined as total debt less cash and short-term investments to total assets	Refinitiv Datastream, own calculation
Leverage (total)	Capital structure measure, defined as total liabilities standardized by total assets	Refinitiv Datastream, own calculation
Long term debt	Defined as long-term debt to total debt.	Refinitiv Datastream, own calculation
Market risk	Market-based risk measure, defined as the market risk of firm's stock price measured by a standard market model (beta risk)	Refinitiv Datastream, own calculation

Variable	Definition	Source
Market-to-book ratio	Valuation measure, defined as market value of shareholders' equity (market capitalization) divided by total sharholders' equity	Refinitiv Datastream, own calculation
Operating risk	Measure of operating risk, defined as coefficient of variation of sales measured over three years	Refinitiv Datastream, own calculation
Product diversification	the number of product markets in which the firm earns revenues based on business segments reported in the financial accounts of the firm aggregated using the 2-digit SIC classification scheme or the 4-digit SIC classification scheme	Refinitiv Datastream, own calculation
RnD	Investment behavior proxy, defined as research and development expenditures scaled by total assets	Refinitiv Datastream, own calculation
ROA	Return on assets, defined as operating profit (EBIT) scaled by total assets	Refinitiv Datastream, own calculation
ROE	Return on equity, defined as net income before extraordinary items scaled by book value of total equity (including minority interests)	Refinitiv Datastream, own calculation
Size	Natural log of total assets	Refinitiv Datastream, own calculation
Sales growth	Measure of firm growth, defined as rolling annual logarithmic growth rate of a firm's net sales or revenues measured over the last three years	Refinitiv Datastream, own calculation
Standalone risk	Measure of stock market performance risk, defined as the annualized standard deviation of a firm's monthly stock market performance measured over three years	Refinitiv Datastream, own calculation
Stock market performance	Measure of value creation for (minority) shareholders, defined as the the total return of a firms's stock, which is commonly referred to as 'total shareholder return' (TSR).	Refinitiv Datastream, own calculation
Systematic risk	Measure of stock market performance risk that accounts for the benefits of diversification, defined as the beta coefficient of a simple OLS regression of the stock's monthly stock market performance on the monthly investment return of a value-weighted portfolio that includes all our sample firms measured over three years	Refinitiv Datastream, own calculation
Tobin's Q	Valuation measure, defined as market value of shareholders' equity (market capitalization) plus book value of total liabilities less defered taxes, divided by total sharholders' equity plus book value of total liabilities less defered taxes	Refinitiv Datastream, own calculation
Value added	The sum of operating profit (EBIT) plus wages and salaries, normalized by total capital, which is equity plus net debt	Refinitiv Datastream, own calculation

Notes: We assume that firms are willing to report their research and development expenditures and thus consider missing information as "no research and development activities", i. e. replace missing information with "zero".

Source: Authors' analysis.

III. Glossary of technical terms

Ceteris paribus (correlation or difference)

“Ceteris paribus” is a Latin phrase meaning "other things equal". In our regression analyses, we control for firm size and allow for industry, country, and year effects. In that sense, the coefficients provide a “ceteris paribus” estimate of the correlation between the left-hand side variable and the right-hand side variable (see term “Regression” for details). In case of a dummy variable, i. e., a variable that can only takes values of “0” and “1” (for instance, a coded “yes”/”no” variable), the correlation can also be interpreted as a “difference in means”. Thus, we interpret the coefficients of the (founding) family firm variable, which is a dummy variable, as “ceteris paribus” differences between the mean (founding) family firm and its counterpart.

Family firm

A listed company is considered a family firm (in the text referred to as “FF”), if a person or a family owns at least 25 percent of the decision-making rights mandated by their share capital. All other firms are considered non-family firms (referred to as “Non-family firm”).

Founding family firm

A listed company is considered a founding family firm (referred to as “FFF”), if a founder or its family owns at least 25 percent of the decision-making rights mandated by their share capital.

Mean value

The (arithmetic) mean is a statistic that aims to characterize the "average" value of a sample. Technically, the arithmetic mean is the sum of the values of observations divided by the number of observations.

Median value

The median is a statistic that aims to characterize a "typical" value of a sample. Technically, it is the "middle value" separating the higher half of a sample from its lower half. Compared to the mean, the median is less sensitive to "extreme" observations (often referred to as "outliers"). As such, it might be interpreted as a "robust average".

Median test

A statistical test to study the hypothesis that two samples are from populations with equal medians. The research uses Stata's 'median' command, which performs a nonparametric test.

Non-financial firm

A firm is considered a financial firm, if it operates in the financial sector (e. g., banks, insurance companies, fintechs). All other firms are refered to as non-financial firms. As such, a non-financial firm is a firm with core business activities in the real sector.

Non-founding family firm

A listed company is called a non-founding family firm (referred to as "Non-founding FF"), if it classifies as a family firm, but not as a founding family firm.

OLS Regression

A regression is a mathematical method to estimate a relationship between y, a "dependent variable" (or "outcome" variable), and one or more "independent variables" x_1, ..., x_N. Independent variables are also called "predictor" or "explanatory variables" or, in case they are of less interest, "control variables". The ordinary least squares (OLS) method aims to identify coefficients a_1, ..., a_N, such that the linear regression function $y = a_1 \cdot x_1 + ... + a_N \cdot x_N + \varepsilon$ 'fits' the data nicely, i. e., the sum of squared "residuals" ε (i. e., the different between the true data and the estimated response $a_1 \cdot x_1 + ... + a_N \cdot x_N$) is minimized. A specific coefficient ai provides a ceteris paribus estimate of the sensitivity of the (expected) outcome with respect to a one-unit change in the independent variable x_i. As such, in case of a dummy variable x_i the coefficient a_i provides a ceteris paribus estimate of the difference between observations with $x_i = 0$ and observations with $x_i = 1$. Ceteris paribus estimate refers to an estimate that assumes the predictors x_1, ..., x_N are fixed. Further assumptions and statistical arguments allow researchers to interpret the sum $a_1 \cdot x_1 + ... + a_N \cdot x_N$ as the ceteris paribus estimate of the expected value of the outcome variable, as well as to complement coefficients with confidence levels (and intervals) and to test whether (or not) they are statistically different from zero.

Standard deviation

The standard deviation is a statistic commonly used as a measure of the dispersion of a variable's distribution. A low standard deviation signals that most of the data points in a sample are grouped close to the mean value, while a high standard deviation indicates that they are spread over a wider range of values.

Statistical significance

Statistical significance means that the observed relationship between two or more variable, or observed difference between the medians and means of the two groups (i. e., family firms and non-family firms) is not due to that random change at work in the data. That is, that

relationship/difference would be observed if we had selected a different sample from the population of all European listed firms.

Winsorization

A method to deal with "extreme" observations (often referred to as "outliers"). Many econometric applications and tests are sensitive to outliers. Winsorization refers to a data transformation process that limits extreme observations. Technically, we determine for each variable the 1st and the 99th percentiles and replace all values below the 1st or above the 99th percentile by the corresponding percentile.

IV. Interpretation of regression tables

Our regression tables report results of ordinary least square (OLS) regression analyses with three-way fixed effects (industry, country, and year fixed effects). Specifically, we report coefficient estimates and t-statistics. The latter are reported in parentheses below the coefficient estimates. The three-way fixed effects aim to absorb heterogeneity across industries, countries, and years. As such, we do not report the constant, as it becomes meaningless because of the industry, country, and year fixed effects. In all specification, we add Total Assets (ln) as a control variable aiming to capture heterogeneity in firm size.

The coefficients of interest are the coefficients for Family Firm and Founding Family Firm. Both variables are dummy variables. As such, we can interpret their coefficients as the ceteris paribus estimate of the difference between observations of firms with and without the characteristic indicated by the dummy variable (see our explanation of OLS regressions).

For instance, in the first specification we always estimate a regression, which only includes the Family Firm dummy. As such, we can interpret the coefficient of the Family Firm dummy in the first specification as the ceteris paribus estimate of the difference between family firms and non-family firms. Relatedly, in the third specification we always estimate a regression on the sample of family firms, which only includes the Founding Family Firm dummy. As such, we can interpret the coefficient of the Founding Family Firm dummy in the third specification as the ceteris paribus estimate of the difference between founding family firms and non-founding family firms.

The second specification is a bit more complex, as it includes the Family Firm dummy and the Founding Family Firm dummy simultaneously. Here, we have to carefully think about the various subsamples (all firms, family firms, founding family firms) and start with the smallest subsample. Indeed, we can interpret the coefficient of the Founding Family Firm dummy in

the second specification as the ceteris paribus estimate of the difference between founding family firms and non-founding family firms. Also, we can interpret the sum of the coefficient of the Founding Family Firm dummy and the of the coefficient of the Family Firm dummy in the second specification as the ceteris paribus estimate of the difference between founding family firms and non-family firms. As such, we must interpret the coefficient of the Family Firm dummy in the second specification as the ceteris paribus estimate of the difference between non-founding family firms and non-family firms.

Technically, t-statistics, which indicate significant of coefficient estimates, are based on standard error estimates that allow for heteroscedasticity. We use *, **, and *** to indicate significance at the 10%, 5%, and 1% levels (two-sided), respectively.

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List of abbreviations

bnEUR	billion Euros
FF	Family firm
FFF	Fouding family firm
kEUR	thousands Euros
mEUR	million Euros
n.s.	not significantly different (at the 10%-level)

Bibliography

Adams, Almeida, and Ferreira (2009). Understanding the relationship between founder-CEOs and firm performance. Journal of Empirical Finance, Vol. 16, pp. 136-150.

Amore and Minichilli (2018). Local political uncertainty, family control, and investment behavior. Journal of Financial and Quantitative Analysis, Vol. 53, pp. 1781-1804.

Anderson and Reeb (2003). Founding-family ownership and firm performance: Evidence from the S&P 500. Journal of Finance, Vol. 58, pp. 1301-1328.

Anderson, Duru, and Reeb (2012). Investment policy in family controlled firms. Journal of Banking and Finance, Vol. 36, pp. 1744-1758.

Anderson, Mansi, and Reeb (2003). Founding family ownership and the agency cost of debt. Journal of Financial Economics, Vol. 68, pp. 263-285.

Andres (2008). Large shareholders and firm performance—An empirical examination of founding-family ownership. Journal of Corporate Finance, Vol. 14, pp. 431-445.

Barontini and Caprio (2006). The effect of family control on firm value and performance: Evidence from Continental Europe. European Financial Management, Vol. 12, pp. 689-723.

Basco and Pérez Rodríguez (2009). Studying the family enterprise holistically: Evidence for integrated family and business systems. Family Business Review, Vol. 22, pp. 82-95.

Bennedsen and Fan (2014). The family business map. Palgrave Macmillan, London.

Bennedsen, Nielsen, Perez-Gonzalez, and Wolfenzon (2007). Inside the family firm: The role of families in succession decisions and performance. Quarterly Journal of Economics, Vol. 122, pp. 647-691.

Berrone, Cruz, and Gomez-Mejia (2012). Socioemotional wealth in family firms: Theoretical dimensions, assessment approaches, and agenda for future research. Family Business Review, Vol. 25, pp. 258-279.

Berrone, Duran, Gómez-Mejía, Heugens, Kostova, and van Essen (2020). Impact of informal institutions on the prevalence, strategy, and performance of family firms: A meta-analysis. Journal of International Business Studies, forthcoming.

Bertrand and Schoar (2006). The role of family in family firms. Journal of Economic Perspectives, Vol. 20, pp. 73-96.

Besser, Beyenbach, Rapp, and Vendrasaco (2021). The global financial crisis and stock market migrations: An analysis of family and non-family firms in Germany. International Review of Financial Analysis, Vol. 74, pp. 1-19.

Block (2012). R&D investments in family and founder firms: An agency perspective. Journal of Business Venturing, Vol. 27, pp. 248-265.

Bornheim (2000). The organizational form of family business. Kluwer Academic Publishers, Massachusetts.

Burkart, Panunzi, and Shleifer (2003). Family firms. Journal of Finance, Vol. 58, pp. 2167-2201.

Carney und Dieleman (Eds) (2023). Handbook of business families. De Gruyter Handbooks in Business, Economics and Finance.

Chua, Chrisman, Steier, and Rau (2012). Sources of heterogeneity in family firms: An introduction. Entrepreneurship Theory and Practice, Vol. 36, pp. 1103-1113.

Claessens, Djankov, and Lang (2000). The separation of ownership and control in East Asian corporations. Journal of Financial Economics, Vol. 58, pp. 81-112.

Croci, Doukas, and Gonenc (2011). Family control and financing decisions. European Financial Management, Vol. 17, pp. 860-897.

Cruz and Nuñez (2012). Value creation in listed European family firms 2001-2010. https://entrepreneurship.blogs.ie.edu/files/2012/06/ES-EFCE-10072012.pdf.

Cruz, Larraza-Kintana, Garcés-Galdeano, and Berrone (2014). Are family firms really more socially responsible? Entrepreneurship Theory and Practice, Vol. 38, pp. 1295-1316.

De La Cruz, Medina, and Tang (2019). Owners of the world's listed companies. OECD Capital Market Series, Paris.

Demsetz and Lehn (1985). The structure of corporate ownership: Causes and consequences. Journal of Political Economy, Vol. 93, pp. 1155-1177

Durán, Lozano, and Yaman (2016). Is family control relevant for corporate cash holding policy? Journal of Business Finance and Accounting, Vol. 43, pp. 1325-1360.

EU Commission Expert Group (2009). Overview of family-business-relevant issues: Research, networks, policy measures and existing studies. Final Report for the European Commission – Directorate-General for Enterprise and Industry. Project carried out under the Multiannual Programme for Enterprise and Entrepreneurship coordinated by the European Commission's Directorate-General for Enterprise and Industry.

Faccio and Lang (2002). The ultimate ownership of Western European corporations. Journal of Financial Economics, Vol. 65, pp. 365-395.

Faccio, Lang, and Young (2001). Dividends and expropriation. American Economic Review, Vol. 91, pp. 54-78.

Franks, Mayer, Volpin, and Wagner (2012). The life cycle of family ownership: International evidence. Review of Financial Studies, Vol. 25, pp. 1675-1712.

Gadhoum, Lang, and Young (2005). Who controls US? European Financial Management, Vol. 11, pp. 339-363.

Gedajlovic, Carney, Chrisman, and Kellermanns (2012). The adolescence of family firm research: Taking stock and planning for the future. Journal of Management, Vol. 38, pp. 1010-1037.

Gomez-Mejia, Haynes, Nuñez-Nickel, Jacobson, and Moyano-Fuentes (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. Administrative Science Quarterly, Vol. 52, pp. 106-137.

Gomez-Mejia, Patel, and Zellweger (2018). In the horns of the dilemma: Socioemotional wealth, financial wealth, and acquisitions in family firms. Journal of Management, Vol. 44, pp. 1369-1397.

Hanauer (2014). Risk factors and capital market anomalies. Dissertation Technische Universität München.

Hillier, Martínez, Patel, Pindado, and Requejo (2018). Pound of flesh? Debt contract strictness and family firms. Entrepreneurship Theory and Practice, Vol. 42, 259-282.

Holderness (2009). The myth of diffuse ownership in the United States. Review of Financial Studies, Vol. 22, pp. 1377-1408.

IFERA (2003). Family business dominate. Family Business Review, Vol. 16, pp. 235-239.

Ince and Porter (2006). Individual equity return data from Thomson Datastream: Handle with care! Journal of Financial Research. Vol. 29, pp. 463-479.

Jensen and Meckling (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. Journal of Financial Economics, Vol. 3, pp. 305-360.

Kerr, Kerr, and Xu (2018). Personality traits of entrepreneurs: A review of recent literature. Foundations and Trends® in Entrepreneurship, Vol. 14, pp. 279-356.

Koh (2017). We are family. Dialogue Review Magazine, pp. 24-27.

La Porta, Lopez-de-Silanes, and Shleifer (2008). The economic consequences of legal origins. Journal of Economic Literature, Vol. 46, pp. 285-332.

La Porta, Lopez-de-Silanes, and Shleifer (1999). Corporate ownership around the world. Journal of Finance, Vol. 54, pp. 471-517

La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). Law and finance. Journal of Political Economy, Vol. 106, pp. 1113-1155.

Le Breton-Miller and Miller (2009). Agency vs. stewardship in public family firms: A social embeddedness reconciliation. Entrepreneurship Theory and Practice, Vol. 33, pp. 1169-1191.

Le Breton-Miller and Miller (2006). Why do some family businesses out-compete? Governance, long-term orientations, and sustainable capability. Entrepreneurship Theory and Practice, Vol. 30, pp. 731-746.

Leppäaho and Jack (Eds) (2021). Handbook of family firm internationalization. Palgrave Macmillan, Cham.

Lins, Volpin, and Wagner (2013). Does family control matter? International evidence from the 2008-2009 financial crisis. Review of Financial Studies, Vol. 26, pp. 2583-2619.

Lumpkin and Brigham (2011). Long-term orientation and intertemporal choice in family firms. Entrepreneurship Theory and Practice, Vol. 35, pp. 1149-1169.

Luo and Chung (2013). Filling or abusing the institutional void? Ownership and management control of public family businesses in an emerging market. Organization Science, Vol. 24, pp. 591-613.

Mandl (2008). Overview of family business relevant issues. Report commissioned by the European Commission (Contract No. 30-CE-0164021/00-51).

Mauri and Michaels (1998). Firm and industry effects within strategic management: An empirical examination. Strategic management journal, Vol. 19, pp. 211-219.

Maury (2006). Family ownership and firm performance: Empirical evidence from Western European corporations. Journal of Corporate Finance, Vol. 12, pp. 321-341.

Melin, Nordqvist, and Sharma (Eds) (2013). Handbook of family business. SAGE Publications Ltd.

Memili and Dibrell (Eds) (2019). Handbook of heterogeneity among family firms. Palgrave Macmillan, Cham.

Miller and Le Breton-Miller (2021). Brief reflections on family firm research and some suggested paths forward. Journal of Family Business Strategy, Vol. 12, 100410.

Miller, Le Breton-Miller, and Lester (2011). Family and lone founder ownership and strategic behaviour: Social context, identity, and institutional logics. Journal of Management Studies, Vol. 48, pp. 1-25.

Miller, Le Breton-Miller, Lester, and Cannella (2007). Are family firms really superior performers? Journal of Corporate Finance, 13, pp. 829-858.

Neubauer and Lank (1998). The family business: Its governance for sustainability. Macmillan Press, London.

Pindado and Requejo (2015). Family business performance from a governance perspective: A review of empirical research. International Journal of Management Reviews, Vol. 17, pp. 279-311.

Pindado, Requejo, and de la Torre (2014). Family control, expropriation, and investor protection: A panel data analysis of Western European corporations. Journal of Empirical Finance, Vol. 27, pp. 58-74.

Poutziouris, Smyrnios, and Rau (Eds) (2006). Handbook of research on family business. Edward Elgar Publishing Limited.

Rapp and Trinchera (2017). Regulation and the ownership structure of European listed firms. Global Corporate Governance, Vol. 19, pp. 23-76.

Requejo, Reyes-Reina, Sanchez-Bueno, and Suárez-González (2018). European family firms and acquisition propensity: A comprehensive analysis of the legal system's role. Journal of Family Business Strategy, Vol. 9, pp. 44-58.

Sanchez-Bueno, Muñoz-Bullón, and Galan (2020). Socially responsible downsizing: Comparing family and nonfamily firms. Business Ethics: A European Review, Vol. 29, pp. 35-55.

Sarkar, Hernández-Linares, and Cobo (2014). Winnowing wheat from the chaff: The evolution of the family business concept. Academy of Management Proceedings, Vol. 2014, pp. 14200.

Schmid (2013). Control considerations, creditor monitoring, and the capital structure of family firms. Journal of Banking and Finance, Vol. 37, pp. 257-72.

Shanker and Astrachan (1996). Myths and realities: Family businesses' contribution to the US economy – A framework for assessing family business statistics. Family Business Review, Vol. 9, pp. 107-123.

Shleifer and Vishny (1997). A survey of corporate governance. Journal of Finance, Vol. 52, pp. 737-783.

Sraer and Thesmar (2007). Performance and behavior of family firms: Evidence from the French stock market. Journal of the European Economic Association, Vol. 5, pp. 709-751.

Stiftung Familienunternehmen (Ed) (2019a). Börsennotierte Familienunternehmen in Deutschland – Bedeutung, Merkmale, Performance. Prepared by the Center for Entrepreneurial and Financial Studies (CEFS), Technische Universität München (TUM).

Stiftung Familienunternehmen (Ed) (2019b). Die volkswirtschaftliche Bedeutung der Familienunternehmen (5. Auflage). Prepared by the ZEW – Leibniz-Zentrum für Europäische Wirtschaftsforschung Mannheim and IfM – Institut für Mittelstandsforschung Mannheim.

Stiftung Familienunternehmen (Ed) (2020). Assessing Regulatory Impact on Family Businesses – A Family Business Test for Germany and the EU. Prepared by Prof. Mathias Habersack.

Tagiuri and Davis (1996). Bivalent attributes of the family firm. Family Business Review, Vol. 9, pp. 199-208.

Thomsen and Pedersen (2020). Ownership structure and economic performance in the largest European companies. Strategic Management Journal, Vol. 21, pp. 689-705.

Thomsen, Pedersen, and Kvist (2006). Blockholder ownership: Effects on firm value in market and control based governance systems. Journal of Corporate Finance, Vol. 12, pp. 246-269.

Villalonga and Amit (2006). How do family ownership, control, and management affect firm value? Journal of Financial Economics, Vol. 80, pp. 385-418.

Villalonga, Amit, Trujillo, and Guzmán (2015). Governance of family firms. Annual Review of Financial Economics, Vol. 7, pp. 635-654.

Wennberg (2013). Managing high-growth firms: A literature review. Background Paper International Workshop on "Management and Leadership Skills in High-Growth Firms", Warsaw, 6 May 2013.

Wooldridge (2015). To have and to hold. Economist, Apr 16th 2015 edition.

Yu, Lumpkin, Sorenson, and Brigham (2012). The landscape of family business outcomes: A summary and numerical taxonomy of dependent variables. Family Business Review, Vol. 25, pp. 33-57.

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