

‘Running in the Family’

The Evolution of Ownership, Control, and Performance in German Family-owned Firms 1903-2003

by

Olaf EHRHARDT^a, Eric NOWAK^{b*}, Felix-Michael WEBER^c

^a *Humboldt University of Berlin and University of Witten/Herdecke, Germany*

^b *University of Lugano, Lugano, Switzerland*

^c *University of Witten/Herdecke, Germany*

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In this study we analyze the evolution of ownership, control, and performance of German founding-family-owned firms over the last century. We begin by identifying German family-owned stock companies that were founded before 1913 and still in existence in 2003 with sales turnover of more than 50 million Euro. Then we construct a matching sample of non-family-owned German stock companies in 2003. The resulting full sample consists of 62 Family and 62 Non-Family Firms in 2003. We go back a century and identify all firms, for which we are able to collect data for the whole period. Then we compare family-owned vs. non-family-owned firms over the 100-year time-span, analyzing a variety of variables like ownership, control, industries, bank relationships and performance, as well as the impact of intergenerational control transfers. We find that families give up ownership slowly and control of family businesses remains strong even after several generations. Family businesses seem to outperform non-family firms in terms of operating (but not stock) performance, but grow more slowly, and performance decreases through time.

* Corresponding author: Eric Nowak, University of Lugano, Institute of Finance, Via Guiseppe Buffi 13, CH-6904 Lugano, Switzerland, nowake@lu.unisi.ch.

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¹ Classification as a large company as defined by the European Union in 2004.

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In this study we analyze the evolution of ownership, control, and performance of German founding-family-owned firms over the last century. We begin by identifying German family-owned stock companies that were founded before 1913 and still in existence in 2003 with sales turnover of more than 50 million Euro. Then we construct a matching sample of non-family-owned German stock companies in 2003. The resulting full sample consists of 62 Family and 62 Non-Family Firms in 2003. We go back a century and identify all firms, for which we are able to collect data for the whole period. Then we compare family-owned vs. non-family-owned firms over the 100-year time-span, analyzing a variety of variables like ownership, control, industries, bank relationships and performance, as well as the impact of intergenerational control transfers. We find that families give up ownership slowly and control of family businesses remains strong even after several generations. Family businesses seem to outperform non-family firms in terms of operating (but not stock) performance, but grow more slowly, and performance decreases through time.

A INTRODUCTION

In the years leading up to World War I, German equity markets were among the most highly developed in the world. Although today there are only about 750 companies listed on German stock exchanges, in 1914 there were almost 1,200 (as compared to only about 600 stocks listed on the New York Stock Exchange), and there was an active underwriting market with 300 IPOs from 1905 to 1914 (Eube 1998; Goetzmann et al. 2001). But after World War II, the role of the equity markets in funding corporate growth was largely taken over by the German “universal banks.” Measured in terms of total market capitalization, the German stock market is now only number five in the world, which seems unimpressive when the size of the German economy is taken into account. However, another characteristic pattern has been more stable through both World Wars, namely the prevalence of family-owned firms in the German economy.

In 2003, nearly 700 large German companies that were founded in or before 1913 existed with a sales turnover of more than 50 million Euro.¹ Of these companies 159 can be classified as stock companies (*Aktiengesellschaften*), of which 62 still continue to be owned and operated by descendants of the founding family.² Furthermore, there is concentrated family ownership in a large share of the century-old large non-stock firms owned by families. The descendants of the founders still own the controlling stake in 60 percent of these firms and control the board in 84 percent of the cases. Thus even today, Germany still has powerful families.

In comparison to Anglo-Saxon countries, family-ownership seems to be more widespread, persistent, and successful in Germany. It seems that German families had a better chance to inherit and transfer controlling stakes to successive generations while staying on an expansion path and sustaining firm performance. Bjuggren and Sund (2002) show that inheritance tax laws act as crucial constraints that foster intergenerational transition of ownership in family firms. Thus, one possible explanation for strong family ownership may be that inheritance taxation of corporate estates in Germany has always been low in comparison to international standards. A comparative study of the Japanese Ministry of Finance (2004) shows that Germany has both the lowest inheritance tax rates as well as the highest tax-exempt thresholds among

¹ Classification as a large company as defined by the European Union in 2004.

² See Table 1 - Selection of the Sample.

the five biggest economies in the world (Appendix I).³ Contrasting this with the scarce empirical evidence and mixed evidence for other countries, we want to shed some light on the evolution of ownership, control, and performance of German family-owned firms over the last century.

In our paper we want to find empirical answers to the question: What does the evolution of some of the largest and oldest companies in Germany look like? Our central research topic is the relationship between family ownership, family control, and firm performance. Related questions arising are: By whom and in which industries were they established and where and when did families sell their companies? What is the evolution of family control (CEOs, board membership) in the post-founder generations? Furthermore, we want to know how founding-family ownership and generational succession correspond to corporate performance (operating, stock returns, growth).

The remainder of the paper is organized as follows: Section B reviews the related literature and predictions of analytical studies, shows comparable results of similar performance studies, and derives testable hypotheses. In section C1 we explain how we construct our sample, and discuss limitations of our study with respect to data availability. Section C2 clarifies how we define performance and other variables. The tables discussed in section D document our results. In particular, section D1 is on the evolution of ownership and control; section D2 covers industry distribution and control transfers; and section D3 deals with the impact of family ownership on performance and growth. In Section E we draw conclusions of our study.

B RELATED LITERATURE

B1 Evolution of Family Business

Recent research documents a strikingly high concentration of ownership around the world, primarily held by families. Based on ownership structures of companies from the richest 27 countries, La Porta et al. (1999) show that families control 30 percent of the top 20 firms. For medium-sized firms, family control is more common in countries with poor shareholder protection (50 vs. 39 percent) and with a civil-law

³ The study comparing Japan, U.S.A., U.K., Germany, and France can be found at

tradition. According to Faccio and Lang (2002), 44 percent of Western European firms are family controlled. They also report that firms are more likely to be family controlled in continental European countries (e.g., France 64.8 percent, Germany 64.6 percent, Italy 59.6 percent) compared to the U.K. (23.7 percent) and Ireland (24.6 percent). The last-mentioned evidence is consistent with Franks et al.'s (2004ab) finding that family ownership in Britain was rapidly diluted in the twentieth century.

In contrast to the U.K. and the U.S., it is less likely that control transfers in German family firms are the result of (hostile) takeovers. However, Franks and Mayer (2001) and Jenkinson and Ljungqvist (2001) argue that an active market in share blocks and accumulation of 'hostile stakes' also enables control changes and acts as a substitute for an Anglo-Saxon style market for corporate control. Our research shows that 66 percent of German large-scale enterprises, which were founded in or before 1913 and are still in existence in 2003, are family-owned firms. As these results indicate, inherited control is more common in Germany than in countries like the U.K. or the U.S.

In line with the theoretical predictions of Zingales (1995) and Bebchuk (1999), Ehrhardt and Nowak (2003) show that German family owners tend to either manifest controlling shareholder structures or sell their controlling stakes completely and exit. Other theoretical models, such as Bhattacharya and Ravikumar (2001, 2002) and Burkart et al. (2003), also predict cross-country differences in the evolution of family ownership. The salient finding in Bhattacharya and Ravikumar (2001) is that market imperfections influence the decision of the incumbent family owners either to bequeath the controlling stake (and the business skills), or to sell the business and to bequeath the proceeds. Therefore, family businesses should be bigger, last longer, and have lower investment rates in countries with less developed capital markets. Bhattacharya and Ravikumar (2002) focus on the succession in family firms by analyzing the trade-off between hiring a family member (with aligned incentives) and hiring a more qualified outside professional (with non-aligned incentives). In that principal-agent framework, family firms can professionalize their management only after reaching a critical firm size. Burkart et al. (2003) report that the quality of minority shareholder protection in a given country affects the evolution of family firms. They predict firms with diffuse stock ownership and professional managers to be

prevalent only in countries that have established a high quality corporate governance environment. In an intermediate shareholder protection environment, the management is delegated to a professional and the family acts as a controlling shareholder to monitor the management. In legal regimes with weak protection there is no separation of ownership and control because of the high level of agency costs. These theoretical models of the evolution of family businesses are consistent with the existence of a variety of corporate governance designs that change through time and differ between firms and legal systems.

In the following section, we discuss empirical evidence on the performance of family firms in North America, and on corporate governance structures that several generations of family members in different countries have adopted through time.

B2 Family ownership and performance in North-America and Asia

Although family ownership is essential in most countries, so far there are only a few studies that look at the performance of family firms empirically. In analyzing the long-run impact of family ownership on firm performance the question that jumps to the forefront is what motivates families to concentrate much of their wealth in one (single undiversified) firm? Do they have superior management or monitoring abilities as compared to other types of shareholders? This can be considered by looking at whether family-owned firm actually achieve superior long-run performance through successive generations. If this is the case, then from the perspective of minority shareholders it is important to know, if management and control mechanisms potentially wipe out the family's incentives to enjoy private benefits of control.

Some studies examine the impact of some forms of family management and control on firm value, the most recent ones being related to management successions within family firms and possible inefficient control transfers through inheritance. McConaughy, Matthews, and Fialko (2001) find some evidence that founding family firms have greater value, are operated more efficiently, and carry less debt than non-family firms in the US. They suggest that "it is the family control of the firm rather than management ownership that is the key to the differences". McConaughy and Phillips (1999) look at 147 public family firms in the US. and find that founder-

controlled firms grow faster and invest more than descendent-controlled firms, but are less profitable than firms in the second and later generations.

Amoaku-Adu and Smith (1999) and Pérez-Gonzalez (2002) report that family firms experience declines in performance when family successions are appointed. For Canada, Amoaku-Adu and Smith (1999) find that “the negative stock market reaction to family successors is related to their relatively young age than their family connection per se.” They further show some evidence that poor performance influences the family’s decision of management succession. In the case of poor corporate performance it is more likely that the family hires a non-family insider or outsider than a family member. Pérez-Gonzalez (2002) looks at successions in family firms in the U.S. and observes a negative impact on performance, which, however, is not evident in firms where the promoted CEO is unrelated to the controlling family. He interprets his findings as evidence that “nepotism hurts firms’ performance by limiting the scope of labour market competition.”

On the contrary, Anderson and Reeb (2003) argue that family firms perform better than non-family firms in the US. Based on operating performance, family ownership creates value when the founder or founder-descendants are active as CEO. However, both the presence of the founder CEO and a hired outside CEO have a positive effect on market performance. Contrary to the operating performance results, however, founder descendants seem not to affect the stock market performance.

Villalonga and Amit (2004) find that family management creates value as long as the founder serves as the CEO, or as its chairman with a hired non-family CEO. Contrarily to Anderson and Reeb (2003), they find that firm value as measured by *Tobin’s q* is destroyed in descendant-CEO firms in the US. This negative effect is - as the authors point out - entirely attributable to second-generation family firms. In addition, control mechanisms such as dual-class structures, pyramids, cross-holdings, or voting agreements also have a negative impact on firm value. The authors point out that differing results in the literature concerning a positive or negative impact of family control could be due to varying definitions of family ownership, family control, and family management.

Lehn et al. (2004) investigate U.S. corporate boards from 1935-2000 and find that board structure (size, insider ownership) is strongly related to growth opportunities. However, they find no robust relation between firm performance and either

board size or structure when the board characteristics are treated as endogenous variables. The authors argue that board size and structure are endogenously determined in ways consistent with value maximization.

For the case of Thai business families, Bertrand et al. (2004) show that large families perform worse than small families and that the presence of the founder is important for performance. They also find a positive relationship between family size and involvement of family members in the business group, especially when the ultimate control has passed from the founder to one of his descendants. The authors conclude that part of the decay in family-run groups over time may be due to infighting for group resources as control becomes more diluted among different family members.

Summarizing, so far the international evidence on the relation between family control and firm performance is mixed and inconclusive, but transferring control to a successive generation seems to have an important impact. Let us now take a look at Germany where management succession by family members is quite common.

B3 Hypothesis Development

In a standard corporate finance set-up the founding family maximizes the combined value of the firm as a source of security benefits (cash flows, income) and as a source of private benefits (amenities, reputation). Since growth of the company requires access to outside capital, the family faces a trade off between an increase in income (maximization of the value of cash flow rights) and the cost of giving up control (and losing utility from expropriation of private benefits). Therefore, it can be assumed that family firms try to maintain control while growing the firm at the same time.

Suppose that families trade in income from marginal projects financed with external capital for private benefits from retaining control by reducing investment. Then this would lead to the following testable implications:

Hypothesis 1: Ownership stakes of families (1a) do not decrease through generations over time; and (1b) are concentrated at critical stakes (50 percent, 75 percent).

Hypothesis 2: Families give up ownership only if capital intensity is too large to grow internally (as in high-technology industries).

Hypothesis 3: Family firms are more profitable than non-family firms.

Hypothesis 4: Performance of family firms decreases over generations.

Hypothesis 5: Family firms sacrifice growth in order to retain control, i.e., non-family firms grow faster than family firms.

C SAMPLE SELECTION AND METHODOLOGY

C1 Data

In our study we apply a backward approach of sample selection, not only accepting, but also indeed imposing a high survivorship requirement. We start by identifying all German family-owned stock companies founded before 1913 and still in existence in 2003 with sales turnover of more than 50 million Euro. Companies are categorized as a large company (*Großunternehmen*) when they employ more than 250 people and generate turnover of more than 50 Mio Euro.⁴ We are well aware that the design of our sample selection considerably reduces cross-sectional variation in the data, which biases against finding statistical significance in our tests. However, empirical evidence shows that family firms on average have a higher probability of survival through time than non-family firms.⁵ Consequently, since our sample design assumes the survival probabilities of both types of firms to be equal, our results will even underestimate the true performance of family-firms relative to non-family-firms.

The data are assembled manually from the following sources found in archives and different libraries in Frankfurt and Berlin: Our main data source are the Hoppenstedt yearbooks, which include the annual reports, and list the name of the directors, supervisory board, voting rights, connection with banks, industry, nominal equity capital, earnings, total book assets, turnover, etc. Particularly in earlier volumes, sometimes the data of the year is incomplete and several variables are missing. Reasons for this are changes in the critical size of companies and/or the companies'

⁴ Classification as a large company as defined by the European Union in 2004.

⁵ See Handler (1994) or Stoy Hayward (1989) for survival rates of family firms.

names, or non-existing requirements for stock companies to disclose information (like ownership structure) in the early years of the last century. Because of limited data availability in earlier volumes of the Hoppenstedt Databases⁶ the number of available firms differs depending on the investigation period and the type of analysis.

Further details of the firms and their founding families could be found in the annual reports of the companies or in reports on the corporate history. Furthermore, individual research with newspaper and/or corporate archives has been done to document if a company is a family or non-family-owned firm. Finally, in order to verify and interpret our findings, we have conducted interviews with numerous individuals who are members of the founding family and active or former board representatives.

Our definition of family firm is restrictive in comparison to others in the literature. For example, Franks et al. (2004), Anderson and Reeb (2003) as well as Villalonga and Amit (2004) define as family-owned any firm where family ownership is greater than zero.⁷ We define a firm as family-owned only when there is a dominant influence of the *founding* family documented by a voting rights concentration of more than 50 percent.⁸ Under this definition, participation of family members in management is not essential for being classified as family-owned. More relevant is the family's potential to lead all strategic decisions through voting rights. In Germany, corporate power culminates in the supervisory board (*Aufsichtsrat*), whose members are elected by the shareholders. We trace founding family ownership from incorporation up until the family loses controlling influence, i.e., when their voting rights are less than 50 percent.

From the approximately 700 German companies that were founded before 1913, and were still in existence in 2003, we have compiled a family firm sample of 62 listed stock companies. We then constructed a matching sample of German stock companies that were not family-owned in 2003 and which were also founded before 1913 (see Table 1a). From the existing 97 non-family firms we had to eliminate 22 because of missing data, and we further delete 13 companies by matching industry membership to the distribution in the family sample. The resulting full sample con-

⁶ Großunternehmen Deutschland, 1952-2003; Hoppenstedt-Saling Aktienführer, 1903-2003.

⁷ Villalonga/Amit (2004) apply several definitions of which this is definition one.

sists of 62 family- and 62 non-family firms in 2003 and represents various industries, and sizes, operating throughout former West Germany. Furthermore, we go back a century and identify a balanced sub-sample of 14 firms, for which we are able to collect data for the 100-year period. In 1903, eight family firms and six non-family firms were already in existence (Appendix II). Throughout the 20th century, six of these family firms became non-family firms. Among these are companies like Stollwerck, Buderus, Dürkopp-Adler or VGT who are now owned by a new controlling shareholder, or companies like Siemens or Daimler-Benz, who are now owned by institutional investors and small shareholders. Because of differing data availability and time-varying sample sizes, for each analysis we always report results for the sample with the most complete data in a given period.

[Insert Table 1a about here]

C2 Descriptive Analysis

At the beginning of the last century, 85 percent of the stock companies in the full sample were family-owned firms. Just one third of today's stock companies were already stock companies back then. Tables 1a and 1b show how some family-owned firms have become non-family-owned firms over time. After World War II the number of stock companies increased rapidly.

[Insert Table 1b about here]

We investigate the samples over a time-span of 100 years, analysing a variety of variables like ownership, board control, industries, control transfers, performance, and bank relationships. Descriptive statistics for the year 2003 show that the family firms in our sample are similar in terms of age to the non-family firms, number of employees, and profitability. The non-family firms are significantly larger in terms of generated turnover and the number of bank relationships. Family ownership is not declining and remains very strong even for later generations: In 2003, the family still owns 83 percent of the voting capital on average, it holds a management board posi-

⁸ Under this definition, firms which were sold to other families are no longer classified as a family firm. This definition comes closest to Villalonga and Amit's (2004) *Definition 7*, but is more restrictive with respect to voting control.

tion in 84 percent of the cases, and it is represented in 59 percent of the supervisory boards; the median sample family firm is running in the 4th generation.

[Insert Table 2 about here]

We also analyze *control transfers* that happened through the sale of family stakes to new owners. To define *family control* we considered the participation of the founding family on the supervisory board and/or the board of directors. Because of limited data availability, our *operating performance* variable is the *return on assets*. We further look at stock market performance for several sub-samples. To find out more about size effects in family firms we look at the evolution of *sales turnover* and *nominal capital*. Also, to investigate information about financing constraints of family vs. non-family firms, we calculate the number and regional distribution of *bank relationships*.

Finally, in order to support our results and get meaningful interpretations of the data, we conduct interviews with members of some of the family firms in our sample. This survey is used to widen evidence and shed further light on the real issues of control and performance. The interviews are not statistically analyzed and most interviewees prefer to stay anonymous, but among them are members of prominent industrial families like, for example, Gütermann, Henkel, Merck, Schlenk, Wacker.

D RESULTS

D1 Evolution of Family Ownership and Family Control

Table 3a shows the evolution of voting rights of the founding family (declining) over time. The tables show a heavy concentration of voting rights in German family firms. Because voting rights were not disclosed in the Hoppenstedt database in Period I, we take the minimum number of voting rights from 1953 as the basis. When the founding family owns 100 percent of the firm in 1953 we can reasonably assume that they owned 100 percent in 1913 and 1903 as well (Period I).

We separate *family ownership* into (i) majority control with more than 50 percent, and (ii) supermajority control with more than 75 percent of voting rights. Table 3b shows family ownership and board participation for the three time periods, as well

as the cohort of the post-founder generation that effectively controls the firm. Still, even 100 years following our first investigation period, there is supermajority control of the founding family in many firms. Table 3b shows that 72 percent of the German family-owned firms are still controlled by a supermajority of the founding family in 2003 (Period III). In 1963 (Period II) the founding families owned in 87 percent of the cases a supermajority (more than 75 percent of the voting rights) of the company. In the time of strong economic growth in Germany, only 14 percent gave up 25 percent and 7 percent gave up to 50 percent of their voting rights. When families sell their companies, they typically sell their shares *en bloc* and no longer hold a significant number of shares. When the family has become a minority shareholder its ownership stake is diluted to less than 20 percent on average in 2003. The voting rights proportions of family firms suggest that it seems to be important to keep control by the post-founder generations.

[Insert Tables 3a and 3b about here]

We now look at family control through a proxy of management and supervisory board representation in the firms that remained family owned until 2003. With respect to control, family directors and family representation on the board are still quite prevalent: in 59 percent of the cases we still find family participation in the supervisory board and in 84 percent a family member serves as director on the executive board in 2003 (see Table 2). For example, in one of the still existing firms, Carl Schlenk, only family members control both the CEO and the supervisory board over a hundred years.

In German family-owned stock companies we see during all time periods a very low separation of ownership and control. In 1913 there is no family firm without a family member as an executive and/or member of the supervisory board.⁹ One reason is probably the intense family involvement during the founding stage of most firms of the sample. In the second period after World War II, there is an increased number of family firms with a separation of ownership and control. However, we interpret this as a result of soldiers dying in combat, taken as prisoners of war and the *denazification* process of family firms. Still, in 1963, we find that in 87 percent of the

⁹ On the other hand, we can hardly say that families with minority stakes are overrepresented on the board. There are only three companies with minority stakes of less than 25 percent which have a seat in the supervisory board: Rosenthal (voting stake: 21 percent), KarstadtQuelle (20 percent), and Sie-

cases the supermajority of voting rights is in the hand of the founding family. In 2003 the number of family firms with no family control in the management is again small with only seven percent.

Overall, German founding families keep a tight grip on the control of their firms over the whole century, which corresponds to their large ownership stakes. They even rebound in the last period in terms of board representation, following the short decline after WWII. We can therefore support verification of *Hypothesis 1a* but not necessarily *Hypothesis 1b*, since most ownership stakes lie above the critical thresholds. Thus, founding families hold more voting rights than they would need at any given level of control.

D2 Industry distribution and control transfers

We sort the firms in the sample by *industry* categories using Fama-French's 12-industry definitions, and further partition the sample based on the BE/ME ratio into *technology intensive* (bottom quartile) vs. *less technology intensive* firms.¹⁰

Table 4 gives some indication that many family-owned firms sold their firms after the sixties. Both the foundation of family businesses and subsequent transfers of control seem to be concentrated in certain industries. Throughout the whole century, family firms are less prevalent in technology-intensive industries. Family firms mostly operate in less technology-intensive industries (see Table 4). The industries where the founding families are most likely to sell control are business equipment (67 percent), chemical products (63 percent), and healthcare (60 percent). These industries can be assumed to be more capital-intensive than the others, which is possibly a reason for the exit of the founding family. Thus, in industries, where outside capital is needed to further expand the business, exit can be seen as an alternative to keeping family control. Over all industries, 38 percent of the family firms changed owners during the century.

[Insert Table 4 about here]

mens (4 percent). Except for the latter case this does not seem to violate the representativeness of ownership.

¹⁰The 12-Industry classification using Fama-French definitions: <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french>. We exclude industries eight (utilities) and eleven (finance).

We can therefore confirm the validity of *Hypothesis 2* that family firms only give up ownership in capital-intense industries, which are for the most part high-technology industries. Since ownership and control remains so concentrated in Germany, let us look at possible implications for the performance of firms.

D3 The impact of family ownership on performance and growth

D3.1 Family vs. non-family firms performance

The evidence in other countries suggests that strong family control can be (potentially) detrimental to firm performance (Pérez-Gonzales 2004, Franks et al. 2004ab). In conducting our empirical analysis, we investigate firm performance by looking at both operating and stock performance. We begin our analysis by using the return on assets for the years 1903 until 2003 to document the operating performance of family firms vs. non-family firms. However, we have to take into account that we can only compare surviving family firms vs. surviving non-family firms, a problem which similar studies face as well. If the decision to stay or give up the status as a family firm has an impact on the likelihood of survival (or default) the results would be biased accordingly (most likely in the direction of underestimating the true performance of family firms who supposedly have a higher survival probability).

Table 6a shows the operating performance results for our German sample. Calculations are based on financial reports compiled by the Hoppenstedt Aktienführer which contain detailed accounting information. The most striking feature of the table is that family firms seem to perform significantly better than non-family firms with statistical significance at the one percent level. In all periods – except for 1903 - it looks like the operating family firms performance is better than that of non-family firms. That is, the all period average (median) return on assets is 16.9 percent (3.8 percent) versus 7.5 percent (2.3 percent), respectively. Age seems to have a negative impact on performance, whereas other proxies like technology intensity, bank relationships, or location in a small town turn out to be irrelevant. This is evidence in support of *Hypothesis 3* that family firms are more profitable.

[Insert Table 5a about here]

To validate our operating performance results, we also compare the long-term stock performance of family vs. non-family firms. Unfortunately, such a long-term analysis is somewhat limited because historical stock data are rarely provided for the German capital market. One exception is the Stehle database at Humboldt University of Berlin that supplies monthly stock data from January 1947 until December 1995 for firms listed in the official market (Amtlicher Handel) at the Frankfurt stock exchange. Because stock returns from other exchanges and other market segments are not available for such time periods, our dataset comprises only 35 companies. The dataset includes 15 family and 15 non-family firms. In five companies the family shareholder sold its entire stake as a block. We classify these five companies as family (non-family) firms before (after) the control transfer.

For both the family and non-family firms (for all firms) we compute 587 equally-weighted monthly portfolio returns by using 13,377 monthly firm's stock returns. As shown in table 6b, family firms as compared to non-family firms have a slightly worse monthly average performance of -0.0013 percent. But this difference is too tiny to be statistically significant by using a paired t-test. Thus, our stock performance analysis does not indicate any significant differences in the performance of family vs. non-family firms.

[Insert Table 5b about here]

In sum, we use a variety of different measures for corporate performance. We are aware that results have to be taken with caution, but at least they do not show any support for an underperformance of long-term survival family firms. Although family firms seem to have a better operating performance, minority shareholders cannot take advantage of this in terms of abnormal stock returns by buying and holding a portfolio consisting of these family firms. This pattern of superior operating performance without a corresponding abnormal stock performance of family firms is also found in the study by Anderson and Reeb (2003). In sum, our analysis fails to find a significant relationship that ownership matters for the performance in long-term listed survival firms.

D3.2 Intergenerational control transfers and firm performance

The empirical evidence of Pérez-Gonzalez (2002) and Amit and Villalonga (2004) points to underperformance due to inefficient allocation of human resources because of family control and within-family succession of management positions. In line with this spirit we want to identify generational effects that may have an influence on firm performance. In this investigation we define the beginning of the second generation as the point in time when the founder transfers the operational control of the firm to members of his immediate family – usually the children or siblings. The second generation keeps control until it transfers it to the founders’ grandchildren and so on. A generation is thus counted each time a part of the founding family transfers the right to exercise control to the next family member. We receive information about the number of generations from the firms’ history reports and individual research in the Hoppenstedt Database or newspapers as well as through corporate archives.

Table 6a shows the number of generations running the family firm. Except for 1913, the firms are running in the post-founder generations. In our sample we analyse the impact of inherited control, and differentiate whether the firm is owned by the second, third, fourth, or fifth (and above) generation. To understand the evolution of ownership and control in German firms, it seems to be an interesting fact that mostly the post-founder generations, and particularly the third generation, are selling parts of the firms or exit completely (see Table 6a). But as we can see in Table 6a, even some owners within the founder generation were going public (11 percent of the cases).

[Insert Table 6a about here]

To investigate the generational impact we define performance as follows: First we measure the abnormal operating performance as the difference between the operating performance of the family firm and the operating performance of a matching portfolio of non-family firms. The matching portfolio contains all sample non-family firms in the same year. Finally, we aggregate the calculated abnormal operating performance for each generation. Therefore we construct this equation:

$$AR_{G,i,t}^{FF} = OP_{G,i,t}^{FF} - \frac{1}{S} \sum_{j=1}^S OP_{j,t}^{NFF}$$

$$\overline{AR}_G^{FF} = \frac{1}{N} \sum_{i=1}^N \sum_{t=1903}^{T=2003} AF_{G,i,t}^{FF}$$

$OP_{G,i,t}^{FF}$ = Operating performance of family firm i in the year t which is managed by generation G .

$OP_{j,t}^{NFF}$ = Operating performance of non-family firm j in the year t .

$AR_{G,i,t}^{FF}$ = Abnormal operating performance of family firm i in the year t which is managed by generation G .

Our performance measure is therefore a measure of normalized over-performance of non-family firms. When we separate the different post-founder generations from each other and assess the performance delivered by each generation, we find a performance gap in the third generation. In the founder generation there is a strong performance, and in the second generation a particularly stronger performance – which the third and fourth generations do not maintain. After the founder passes control to the second generation, they increase the performance by 8.6 percent. After the second generation, the third generation reduces the performance by 11.5 percent. The fourth and following generations perform slightly better than the third. However, we are not sure at the moment if this investigation shows a clear trend. In the entrepreneurship literature the second and third generations are often assumed to be confronted with conflicts about leading the company (Davis and Harveston, 1999, 2001; Sonfield and Lussier, 2004). In line with this, many exits of family members take place especially in this generation (see Table 6a). A family exit might reduce the firms' performance due to the high number of exit-expenses.

[Insert Table 6b about here]

However, we are unable to control for other individual determinants of firm performance in each family firm and industry. Therefore, from this simple analysis we cannot claim to make a clear statement about the causes of these performance differences and their relation to possible 'inefficient inheritance of control' effects. In a further step to expand the above analysis we regress operating performance on generations and a set of various control variables. Among all of the typical factors used to explain variation in firm performance, generations are the only variable that has a significantly (negative) impact, which for the most part supports the result from the former analysis. However, when we also control for age in the regression model, the generation effect seems to be absorbed by the (almost significant at the 10 percent

level) age variable. Thus, the decreasing impact of successive generations on performance appears to be nothing more than an age effect reflecting changing performance patterns in the life-cycle of the firm. Therefore we have to reject Hypothesis 4 that performance of family firms is a decreasing function of the generation running the firm.

[Insert Table 6c about here]

D3.3 Growth Patterns in Family vs. Non-Family Firms

As Fohlin (2004) points out: “German corporations generally performed well, but perhaps not as remarkably in terms of growth rates and profitability as one might imagine given the growth of the overall economy at the time”. In particular, family firms experienced remarkably slow growth - measured by sales or nominal capital – as compared to non-family firms during the 20th Century. Consequently, in Table 7 we see higher sales turnover for non-family firms. The all period average of family firm sales amount to 1,374 million Deutsche Mark (702 million Euro) versus a non-family firm turnover of 11,064 million Deutsche Mark (5,656 million Euro). Remarkable is the stronger increase of non-family firms’ turnover after 1965.

For the fourteen sample firms with complete panel data, we see that former family firms like Daimler-Benz, Siemens and Buderus have strong turnover growth. In these firms, non-family members contributed to the nominal equity capital through outside financing. Therefore, a possible reason for the smaller growth in size of the family firms could be the limited opportunity to finance through nominal equity capital. A confirming indicator for this ‘financial constraints hypothesis’ is the small size of nominal equity capital that family firms have compared to non-family-owned firms. Table 7 reports an average nominal capital of 56 million Deutsche Mark (29 million Euro) in family firms versus 187 million Deutsche Mark (96 million Euro).

[Insert Table 7 about here]

The average or median number of relationships with banks could give some further explanations for the lower growth in sales and equity capital for family-owned firms. As can be seen in Table 8, family-owned firms have, on average, 2.9 (median 3.0) connections with banks, as compared to the 4.0 (mean and median) connections

with banks for non-family-owned firms. Over time, family-owned firms decrease the average number of bank relationships. The geographical dispersion of banks gives further information on the importance of banks for the financing of the firm.

[Insert Table 8 about here]

Table 8 also investigates whether the sample firms have nationwide (vs. only regional) connections to banks. The idea here is that nationwide connections to banks are an indicator of the quality of financing relationships (main German banks are situated in Berlin, Düsseldorf, Frankfurt, Hamburg, Stuttgart and Munich) and of the financial independence from the *Hausbank* in town. However, Table 8 reports no evident differences between family- and non-family firms in this respect. So while bank relationships may be an important factor of corporate growth, we fail to verify this in a statistically significant way.

In sum, we cannot therefore reject but also cannot verify without doubt *Hypothesis 5* saying that family firms sacrifice growth in order to retain control and grow less than non-family firms.

E CONCLUSION

In Germany, families have been exerting power in family-owned corporations with more persistence compared to other countries. Today's founding successors still own and control their firms. Thereby they seem to prefer family ownership to stronger corporate growth, but in terms of operating performance they have not been performing worse (but rather better) than those firms that left the family path. Compared to Anglo-Saxon countries, the still small number of stock companies (and high number of private family firms), together with the high concentration of family ownership, constitutes an unchanged fact about the German capital markets.

In a nutshell, our research shows that German families give up ownership slowly and sometimes not at all, and control of family businesses remains strong even after several generations. Family businesses outperform non-family firms in terms of operating performance not in terms of stock market performance, but they also grow more slowly. The succession of ownership and control to subsequent generations seems not to have an adverse impact on performance, except for a general decline in profitability along the life-cycle of the firm.

The performance results of our study confirm validity of the families' strategic decisions. At the start of the last century, families could exercise control over extended periods as directors of their firms. The same firms keep the same control today and perform reasonably well according to the numbers. There are also private benefits for entrepreneurial families, such as a good reputation resulting not only from good management performance but also from philanthropic activities of their companies, when the families think of themselves as having a social responsibility. Therefore, we come to the conclusion that firms running in the family, almost one hundred years after their foundation, still look very much like the firms they used to be and fare quite well in Germany.

F LITERATURE

- Amlmeida, Heitor, and Daniel Wolfenzon** (2004): A Theory of Pyramidal ownership and Family Business Groups, Working Paper, New York University.
- Amoako-Adu, B. and B. F. Smith** (2001): Dual class firms: Capitalization, ownership structure and recapitalization back into single class. *Journal of Banking & Finance*, 25, 1083-1111.
- Anderson, Ronald C., and Reeb, David M.** (2003): Founding-Family Ownership and Firm Performance: Evidence from the S&P 500, *Journal of Finance*, 58, 1301-1327.
- Anderson, R., S. Mansi, and D. Reeb** (2003): Founding family ownership and agency costs of debt, *Journal of Financial Economics*, 68, 263-285.
- Bebchuk, Lucian A.** (1999): A Rent-Protection Theory of Corporate Ownership and Control. NBER Working Paper, No. 7203.
- Bertrand, Marianne, Simon Johnson, Krislert Samphantharak, and Antoinette Schoar** (2004): Mixing Family with Business – A Study of Thai Business Groups and the Families Behind them, Working Paper.
- Bhattacharya, Utpal and B. Ravikumar** (2001): Capital Markets and the Evolution of Family Businesses, *Journal of Business*, 74 (2001), 187-220.
- Bhattacharya, Utpal and B. Ravikumar** (2002): From Cronies to Professionals: The Evolution of Family Firms, Working Paper, Indiana University.
- Bjuggren, Per-Olof, and Lars-Göran Sund** (2002): A Transaction Cost Rationale for Transition of the Firm within the Family, *Small Business Economics*, 19, 123-133.
- Burkart, Mike, Panunzi, Faustro, and Shleifer Andrei** (2003): Family Firms, *Journal of Finance*, 58, 2167-2202.
- Chua, Jess H., Chrisman, James J., and Sharma, Pramodita** (2003): Succession and Nonsuccession Concerns of Family Firms and Agency Relationship with Nonfamily Managers, *Family Business Review*, 16, 89-108.
- Davis, Peter S, and Paula D Harveston** (1999): In the Founder's Shadow: Conflict in the Family Firm. *Family Business Review*, 12, 311-323.
- Davis, Peter S, and Paula D Harveston** (2001): The Phenomenon of Substantive Conflict in the Family Firm: A Cross-Generational Study. *Journal of Small Business Management*, 39, 14-30.

- Ehrhardt, Olaf and Nowak, Eric** (2003): Private Benefits and Minority Shareholder Expropriation (or what exactly are private benefits of control?), European Finance Association Conference Paper.
- Eube, Steffen** (1998): Der Aktienmarkt in Deutschland vor dem Ersten Weltkrieg. Frankfurt am Main: Knapp.
- Faccio, Mara L. and H.P. Lang.** (2002): The Ultimate Ownership of Western European Corporations. *Journal of Financial Economics*, 65, 365-395.
- Fohlin, Caroline** (2004), The Rise and Fall of the Mixed Financial System in Germany, in: Fohlin, C.: *Corporate Finance and Governance in the German Industrialization*, Cambridge University Press, forthcoming.
- Franks, Julian and Mayer, Colin** (2001): Ownership and Control of German Corporations. *Review of Financial Studies*, 14, 943-977.
- Franks, Julian, Mayer, Colin, and Stefano Rossi** (2004a): The Origination and Evolution of Ownership and Control of the Corporation, LBS Working Paper.
- Franks, Julian, Mayer, Colin, and Stefano Rossi** (2004b): Spending Less Time with the Family: The decline of Family Ownership in the UK, LBS Working Paper.
- Franks, Julian, Colin Mayer, and Hannes Wagner** (2004): The Origins of the German Corporation – Finance, Ownership and Control, LBS Working Paper.
- Gallo, Miguel A. and Vilaseca A. A.** (1998): Financial Perspectives on Structure, Conduct, and Performance in the Family Firm - An Empirical Study, *Family Business Review*, 11, 35-48.
- Goetzmann, William N., Roger G. Ibbotson, and L. Peng.** (2001): A New Historical Database for the NYSE 1815 to 1925: Performance and Predictability. *Journal of Financial Markets*, 4, 1-32.
- Hahn, Hans-Werner** (1984): *Geschichte des Deutschen Zollvereins*, Göttingen: Vandenhoeck & Ruprecht.
- Handler, Wendy C.** (1994): Succession in Family Business – A Review of the Research, *Family Business Review*, 7, 133-157.
- Henderson, William O.** (1939): *The Zollverein*. Cambridge University Press.
- James, Harvey** (1999): Owner as Manager, Extended Horizons and the Family Firm, *International Journal of the Economics of Business*, 6.
- Jenkinson, Tim and Alexander Ljungqvist** (2001): The Role of Hostile Stakes in German Corporate Governance. *Journal of Corporate Finance*, 7, 397-446.

- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Schleifer, and Robert Vishny** (1999): Corporate ownership around the world. *Journal of Finance*, 54, 471-517.
- Lehn, Kenneth, Sukesh Patro, Mengxin Zhao** (2004): Determinants of the Size and Structure of Corporate Boards: 1935-2000, Working Paper, University of Pittsburgh.
- McConaughy, Daniel L., and G. Michael Phillips** (1999): Founders versus Descendants: The Profitability, Efficiency, Growth Characteristics and Financing in Large, Public, Founding-Family-Controlled Firms. *Family Business Review*, 12.
- McConaughy, Daniel L., Charles H. Matthews, and Anne S. Fialko** (2001): Founding Family Controlled Firms: Efficiency, Risk, and Value, *Journal of Small Business Management*, 39, 31-49.
- Pérez-González, Francisco** (2002): Inherited Control and Firm Performance, Working Paper, Columbia University.
- Sonfield, Matthew C., and Robert N. Lussier** (2004): First-, Second-, and Third-Generation Family Firms: A Comparison. *Family Business Review* 17, 189-202.
- Stoy Hayward Consulting, and London Business School** (1989): *Staying the Course – Survival Characteristics of the Family Owned Business*, London: Stoy Hayward.
- Villalonga, Belen, and Amit, Raphael** (2004): How Do Family Ownership, Management and Control Affect Firm Value? Working Paper, Harvard Business School and Wharton School.
- Zingales, Luigi** (1995): Insider ownership and the Decision to Go Public, *Review of Economic Studies*, 62, 425-448.

Table 1a - Selection of family firms and matched sample

Panel A: Description of full Sample 2003	Companies
German Stock Companies (<i>Aktiengesellschaften</i>) founded in or before 1913, with turnover = 50 Mio Euro in 2003	159
of which Family Firms in 2003 where founding family owns more than 50% of voting rights	62
of which Non-Family Firms in 2003 (founding family owns less than 50%, new family owner, other Company, freefloat)	97
Deletion of Non-Family Firms (in 2003) by criteria:	-35
data availability (- 22 firms),	
elimination of non representative industries (- 1 Firm in the utility sector)	
elimination of one firm in each representative industry (- 10 firms in 10 industries)	
elimination of overrepresented industries(consumer durables and manufacturing) to get representative distribution (2 of 12 firms).	
Matched Sample of Non-Family Firms (in 2003)	62
Full Sample in 2003	124
<hr/>	
Panel B: Description of full Sample 1903	
Full Sample in 2003	124
German Stock Companies (<i>Aktiengesellschaften</i>) founded between 1903 and 1913, with turnover = 50 Mio Euro in 2003	17
Full Sample in 1903	106
of which Family Firms (FF) in 1903	90
of which Non-Family Firms (NFF) in 1903	16
of which already Stock Companies in 1903	34
of which Non-Stock Companies in 1903	73
no data because non quoted stock companies are not published in Saling Aktienführer 1903-2003	20
Full Sample of Stock Companies 1903-2003 (Final 14)	14

Sources: Hoppenstedt and Saling Aktienführer (1903-2003), Handbuch der Deutschen Großunternehmen (1953-2003), annual reports, corporate history reports, factiva Database and Frankfurter Allgemeine Zeitung archives.

Table 1b - Evolution of Sample Firms over time

This table reports all stock companies existing in 2003 who were founded before 1913 in Germany (All Firms). 62 companies still existing today are family firms (FF), a matched sample of 62 are non-family firms (NFF). The table reports when FF change to NFF. The table also reports the year when the companies incorporated as a stock company (Aktiengesellschaft). Furthermore, it reports the number of stock companies listed at Frankfurt Amtlicher Handel. Particularly in periods I and II, values are missing. This is due to the fact that only quoted stock companies or huge companies are published or the fact that some relevant figures of non-stock companies are not reported in the Hoppenstedt database.

Period		Family Firms		Non-Family Firms		All Firms			
		N	%	N	%	N	Stock Companies	No Data	Available Sample
I	1903	90	85%	16	15%	106	34	20	14
	1913	100	81%	24	19%	124	35	18	17
II	1953	94	76%	30	24%	124	58	27	31
	1963	83	67%	41	33%	124	71	26	35
III	1993	72	58%	52	42%	124	94	12	107
	2003	62	50%	62	50%	124	124	4	120

Table 2 - Descriptive Statistics for 2003

The table shows the descriptive data of 62 family and 62 non-family firms founded before 1913 and still in existence. Age is measured in years, and size of the turnover of 2003 in hundred thousand Deutsch Mark. Small town is when the corporate headquarter is located in a small town as defined by the German Federal Office (Bundesamt) for Statistics as not being 'Großstädte or 'Millionenstädte' (large towns with more than 100,000 inhabitants). Technology intensive industries are defined according to Fama and French (1985) as Business Equipment, Healthcare and Chemical Products (details see Table 4). Statistical significance is reported at usual levels (*10%, **5%, ***1%) levels. The z-value is measured by the two-sample Wilcoxon rank-sum (Mann-Whitney) test or two sample test of proportion. P-values are in brackets.

Panel A: Descriptive Statistics of Family Firms vs. Non-Family Firms in 2003

	All Firms		Family Firms (FF)		Non-Family Firms (NFF)		Difference FF/NFF	
	Mean	Median	Mean	Median	Mean	Median	t-value	z-value
Age	135.9	126	130.7	123	141.2	127	1.015 [0,312]	0.625 [0,532]
Turnover	8'780'000	1'130'000	2'200'000	784'000	21'300'000	2'240'000	2,233*** [0,028]	2,730*** [0,006]
Employee	12'334	2'014	5'684	2'014	18'750	2'183	1.381 [0,170]	0.986 [0,324]
Return on Assets	4.579	3.039	4.98	3.68	3.82	2.1633	-0.650 [0,518]	1,710* [0,087]
Bank relationships	3.4	3.0	2.8	3.0	4.0	4.0	2,951*** [0,004]	2,617*** [0,009]
<hr/>								
<i>Percentages of firms in/with:</i>	All Firms		Family Firms		Non-Family Firms		z-value	
Small town headquartered	61.3%		48.4%		29.0%		2.212 [0,027]	
Technology intensive industry	57.7%		38.7%		45.0%		-0.807 [0,4195]	
Non-regional bank relationship	57.3%		57.1%		57.4%		-0.026 [0,980]	

Panel B: Descriptive Statistics of ownership structures in Family Firms 2003

	Mean	Median
Family Ownership	83.0%	95.0%
Family in Supervisory Board	58.9%	-
Family in Executive Board	83.9%	-
Generation	3.7	4.0

Table 3a - Evolution of ownership

Because the Hoppenstedt Aktienführer in 1913 does not contain ownership data, we assume that the voting rights in 1953 are also the minimum voting rights in 1913. All 9 in 1913 existing family firms are completely controlled in 1953 with 100% by the founding families. For comparison, numbers from the largest available sample in each period are also reported, respectively.

	Period I 1913			Period II 1963			Period III 2003		
	N	Mean	Median	N	Mean	Median	N	Mean	Median
Voting rights of founding family	28	100%	100%	33	89%	100%	60	83%	95%
Minority voting stake of founding family	0	-	-	0	-	-	4	17%	20%
Voting rights of family firms which exist in 2003 and were family firms in:									
1913	9	100%	100%	9	84%	100%	9	77%	75%
1963				24	93%	100%	24	77%	75%

Table 3b - Family ownership and Family control through Generations

The table separates two types of family-ownership: Supermajority ownership is defined when the family owns more than 75% of the voting rights. If the family owns more than 50% of the voting rights the family has majority ownership. In 2003 for 58 of 62 family firms we have exact information on voting rights and generation. In two cases we have no information about the generation that owns the company in 2003. In 1963 for 31 of 83 family firms we have exact information on voting rights. In 12 cases we have no information about the generation that owns the company in 1963. In 1913 for 28 of 100 family firms we have exact information on voting rights. In 15 cases we have no information about the generation that owns the company in 1913. The table also shows whether the generation using ownership and control rights take active influence over the firm. Apart from the low in 1963 and 1913 it shows very strong family control. In Period II there seems to be increased separation of ownership and control. A possible explanation is the fact that after WW2 some family members did not return from the war.

Control structure												
	Period III 2003		Post-Founder Generation									
	N	%	2	3	4	5plus	N	n/A				
Supermajority Ownership	42	72%	1	100%	18	72%	15	68%	6	75%	40	2
> 75% of voting rights	40	100%	1	100%	18	72%	15	68%	6	75%	40	
Family in Executive Board	25	63%	1	100%	10	56%	9	60%	5	83%	25	
Family in Supervisory Board	32	80%	1	100%	14	78%	12	80%	5	83%	32	
Majority Ownership	16	28%	0	n/R	7	25%	7	32%	2	25%	16	0
50% < voting rights < 75%	16	100%	0	n/R	7	25%	7	32%	2	25%	16	
Family in Executive Board	8	50%	0	n/R	4	57%	3	43%	1	50%	8	
Family in Supervisory Board	15	94%	0	n/R	7	100%	7	100%	1	50%	15	
Separation of ownership/control in strong or very strong family-controlled firms	4	7%										
n/A	4											
All Family Firms	62		1		25		22		8		56	2

	Period II 1963		Post-Founder Generation									
	N	%	2	3	4	5plus	N	n/A				
Supermajority Ownership	27	87%	7	78%	5	71%	2	100%	1	100%	15	12
> 75% of voting rights	15	100%	7	78%	5	71%	2	100%	1	100%	15	
Family in Executive Board	8	53%	5	71%	2	40%	1	50%	0	0%	8	
Family in Supervisory Board	9	60%	5	71%	3	60%	1	50%	0	0%	9	
Majority Ownership	4	13%	2	22%	2	29%		n/R		n/R	4	0
50% < voting rights < 75%	4	100%	2	22%	2	29%		n/R		n/R	4	
Family in Executive Board	1	25%	1	50%	0	0%		n/R		n/R	2	
Family in Supervisory Board	2	50%	1	50%	1	50%		n/R		n/R	2	
Separation of ownership/control in strong or very strong family-controlled firms	2	11%										
n/A	52											
All Family Firms	83		9		7		2		1		19	12

	Period I 1913		Founder and Post-Founder Generation									
	N	%	1	2	3	4plus	N	n/A				
very strong family control	9	100%	5	100%	2	100%	1	100%	1	100%	9	0
> 75% of voting rights	9	100%	5	100%	2	100%	1	100%	1	100%	9	
Founder in Executive Board	4	80%	5	100%							5	
Founder in Supervisory Board	3	60%	3	60%							3	
Postfounder in Executive Board	3	75%			1	50%	1	100%	1	100%	3	
Postfounder in Supervisory Board	4	100%			2	100%	1	100%	1	100%	4	
strong family control	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Separation of ownership/control in strong or very strong family-controlled firms	0	0%										
n/A	91											
All Family Firms	100		5		2		1		1		9	0

Table 4 - Industries and Control Transfers

The table reports the distribution of the industries in which family firms operate over time. The industries are divided on the one hand in technology intensive industries like: Business Equipment and Healthcare and Chemical. On the other hand in less technology intensive industry like Consumer Durables and Non-Durables, Manufacturing, Telephone/Television/Electro, Wholesale, Oil/Gas and Other. According to Pérez-González (2002) we classify in technology intensive and less technology intensive industries. The classification is based by the Fama/French (1985) BE/ME Ratio where they define the three lowest quartiles of the BE/ME Ratio as growth intensive industries. Fama/French Industries are: 1. Non Durables as Food, Tobacco, Textiles, Apparel, Leather, Toys 2. Consumer Durables as Cars, TV, Furniture, Household Appliances 3. Manufacturing as Machinery, Trucks, Planes, Off Furn, Paper, Print 4. Energy as Oil, Gas, Coal Extraction and Products 5. Chemicals and Allied Products 6. Business Equipment as Computers, Software and Electronic 7. Telephone and Television Transmission 8. Utilities 9. Shops as Wholesale, Retail and some Services 10 Healthcare as Medical Equipment and Drugs 11. Finance 12. Other like Mines, Construction, Transport, Entertainment. The two industries Utilities and Finance are not used in our study.

Industry	BE/ME Ratio 1926-2003	Full Sample									
		All Firms		Family Firms			Non-Family Firms			Sold	
		N	%	1913	1963	2003	1913	1963	2003	N	%
<i>technology intensive</i>											
Healthcare, Medical Equipment	0.33	5	4%	5	4	2	0	1	3	3	60%
Chemical and Allied Products	0.46	10	8%	8	5	3	2	5	7	5	63%
Business Equipment	0.46	11	9%	9	7	3	2	4	8	6	67%
<i>All</i>		26	21%	22	16	8	4	10	18	14	64%
<i>less technology intensive</i>											
Telephone, Television, Electro	0.85	6	5%	6	5	4	0	1	2	2	33%
Manufacturing	0.87	43	35%	37	32	24	6	11	19	13	35%
Consumer Durables	0.63	12	10%	10	8	6	2	4	6	4	40%
Consumer Non-Durables	0.63	11	9%	8	7	7	3	4	4	1	13%
Wholesale, Retail, Services	0.54	10	8%	7	6	4	3	4	6	3	43%
Oil, Gas and Coal Extraction	0.99	2	2%	0	0	0	2	2	2	0	0%
Other	1.57	14	11%	10	9	9	4	5	5	1	10%
<i>All</i>		98	79%	78	67	54	20	31	44	24	31%
Total		124	100%	100	83	62	24	41	62	38	38%

Table 5a - Operating performance of family vs. non-family firms

The dependent variable is the operating performance of family and non-family firms measured by return on assets. As a dummy variable we apply our definition of family firm (see Table 1a) and non-technology intensive industries, firms in non urban agglomerations, nationwide bank relationships. *, **, *** Asteriks indicate significance at the 10% , 5%, and 1% confidence level. Standard errors of coefficients are in parentheses. Number of observations (firm-years): 165

<i>Variables</i>	OLS Regression	Random-effects
	with robust standard errors	GLS regression
	Coefficients	Coefficients
Dummy family firm	12,0064** [4,646]	12,0064** [5,5326]
Non-technology intensive industry	-4.8196 [5,5984]	-4.8196 [5,4664]
Small-town headquartered	0.1577 [4,9912]	0.1577 [5,7567]
Nationwide bank relationships	3.1480 [4,8035]	3.1480 [5,3893]
Age	-0,2182*** [0,0629]	-0,2182*** [0,0578]
Constant	30,9662*** [7,9356]	30,9666*** [11,241]
<i>R-square</i>	<i>0.1141</i>	<i>0.1193</i>

Table 5b - Stock Performance of Family vs. Non-Family Firms

The table compares monthly returns of 35 companies, listed on *Amtlicher Handel Frankfurt* from February 1947 until December 1995 (587 equally-weighted monthly portfolio returns using 13,377 firm-month observations). The all period average shows that family firms perform not significantly different from non-family firms. Further analysis shows that there is a slightly better performance of 0,0013 percent of non-family firms (not statistically significant at usual *10%, **5%, ***1% levels).

Variable	Months	Average monthly return	Difference (t value)	Number Listed Companies		
				1953	1963	1993
Family Firms	587	1.0108%		10	12	11
Non-Family Firms	587	1.0121%	-0.0013% [-1,007]	8	11	18

Table 6a - Generations in Family firms

The generation is identified through changes of family CEO or board members. In some cases, the exact generation is identified or cross-checked by information received from the companies' investor relations department, firm history reports or individual newspaper research (e.g., Frankfurter Allgemeine Zeitung). The table shows the number of family firms going public in relation to the generation.

Period		Generation running the Family Firm					N
		1st	2nd	3rd	4th	5 plus	
I	1913	8	9	2	0	1	20
		<i>40%</i>	<i>45%</i>	<i>10%</i>	<i>0%</i>	<i>5%</i>	<i>100%</i>
II	1963	0	12	13	3	1	29
		<i>0%</i>	<i>41%</i>	<i>45%</i>	<i>10%</i>	<i>3%</i>	<i>100%</i>
III	2003	0	0	29	21	10	60
		<i>0%</i>	<i>0%</i>	<i>48%</i>	<i>35%</i>	<i>17%</i>	<i>100%</i>
	1903-2003	8	21	44	24	12	109
		<i>7%</i>	<i>19%</i>	<i>40%</i>	<i>22%</i>	<i>11%</i>	<i>100%</i>

Period		Generation Going Public (IPO)					N
		1st	2nd	3rd	4th	5 plus	
I	1903-1913	5	0	0	0	0	5
II	1914-1963	0	5	5	1	1	12
III	1964-2003	0	3	13	10	3	29
	1903-2003	5	8	18	11	4	46
		<i>11%</i>	<i>17%</i>	<i>39%</i>	<i>24%</i>	<i>9%</i>	<i>100%</i>

Period		Generation selling partial control of the Family Firm					N
		1st	2nd	3rd	4th	5 plus	
I	1903-1913	n/A	n/A	n/A	n/A	n/A	n/A
II	1914-1963	0	1	6	4	0	11
III	1964-2003	0	6	15	11	3	35
	1913-2003	0	7	21	15	3	46
		<i>0%</i>	<i>15%</i>	<i>46%</i>	<i>33%</i>	<i>7%</i>	<i>100%</i>

Table 6b - Abnormal operating performance by generation

The table reports that in family firms the average annual return of non-family firms is outperformed in each generation. Firm-specific information on the generation is based on the time the family CEO changes from one family member to a family successor.

Generation	N	Mean	difference %	t-value Gen before
1	9	9.40		
2	27	18.03	8.62%	-0.4135
3	53	8.17	-11.49%	0.9674
4	33	8.63	0.46%	-0.0713

Table 6 c - Operating performance of family firms

The dependent variable is the operating performance of family firms measured by return on assets. Voting rights are the voting rights of the founding family. The family CEO dummy takes the value of one if a family member is in a management position. Founder CEO, descendant CEO, and hired CEO are dummy variables that are one if the CEO is the founder, a descendant or an external manager. The generation effect variable measures the alternation of generations. As further dummy variables we took nontechnology intensive industries, firms headquartered in small towns, nationwide bank relationships, and publicly listed firms. *,**,*** Asterisks indicate significance at the 10% , 5%, and 1% confidence level. Standard errors of coefficients are in parentheses. Number of observations (firm-years): 97.

<i>Variables</i>	OLS Regression with robust standard errors						Random-effects GLS regression					
	1	2	3	4	5	6	7	8	9	10	11	12
Voting Rights	39.6788 [31,7918]	34.7756 [30,7186]	39.6788 [31,7918]	34.7756 [30,7186]	35.1783 [25,6166]	28.0286 [25,3097]	39.9422 [30,8273]	35.1647 [30,6395]	39.9422 [30,8273]	35.1647 [30,6395]	35.1783 [29,0461]	28.0286 [29,2179]
Family CEO	9.1812 [6,8817]	12.0168 [8,2440]	-0.6125 [20,7358]	-3.9509 [21,1157]			9.1747 [9,4484]	11.8575 [9,5122]	-1.4130 [23,3139]	-5.6378 [23,1444]		
Founder CEO	-9.7938 [23,4674]	-15.9676 [-25,0380]					-10.5878 [22,0836]	-17.4952 [22,1528]				
Descendant CEO			9.7938 [23,4674]	15.9676 [25,0830]					10.5878 [22,0836]	17.4952 [22,1527]		
Hired CEO					-8.8485 [6,4151]	-11.2739 [7,4863]					-8.8485 [9,3771]	-11.2739 [9,4453]
Generation Effect	-9,6898* [4,9118]	0.3903 [6,7449]	-9,6899* [4,9118]	0.3902 [6,7449]	-8,6610** [4,1461]	1.2493 7.1023	-9,7945** [4,9523]	0.1429 [7,9549]	-9,7946** [4,9523]	0.1429 [7,9550]	-8,6610** [4,3476]	1.2493 [7,8268]
Age		-0.3152 [0,2000]		-0.3152 [0,2000]		-0.2912 [0,1789]		-0.3152 [0,1961]		-0.3152 [0,1962]		-0.2912 [0,1919]
Technology intensive industry	-7.4671 [9,8883]	-8.4064 [9,8341]	-7.4671 [9,8883]	-8.4064 [9,8341]	-7.5878 [9,8604]	-8.5258 [9,8143]	-7.3451 [9,7718]	-8.0872 [9,2575]	-7.3451 [9,2518]	-8.0973 [9,2576]	-7.5878 [9,1418]	-8.5259 [9,0966]
Small-town headquartered	2.4688 [7,4532]	-2.3999 [8,2686]	2.4688 [7,4532]	-2.3999 [7,412]	3.2817 [7,1956]	-0.7421 [7,6409]	2.3077 [9,7718]	-2.7534 [10,2257]	2.3077 [9,7718]	-2.7534 [10,2257]	3.2817 [9,4827]	-0.7421 [9,7802]
Nationwide bank relationships	5.9474 [8,8584]	3.0481 [8,5520]	5.9473 [8,8583]	3.0481 [8,2685]	6.4423 [9,2039]	4.0525 [8,9108]	6.1208 [9,2464]	3.4792 [9,3606]	6.1209 [9,2464]	3.4792 [9,3606]	6.4423 [9,1121]	4.0525 [9,1821]
Publicly listed	-0.8706 [9,7021]	-0.8891 [16,0827]	-0.8706 [16,2340]	-0.8890 [16,0823]	-2.7103 [14,9145]	-3.7986 [14,8108]	-0.7562 [12,0725]	-0.6756 [11,9564]	-0.7563 [12,0725]	-0.6756 [11,9564]	-2.7103 [11,2932]	-3.7986 [11,2343]

Table 7 - Growth of Sales and Capital in Family vs. Non-Family Firms

The table shows that non-family firms grow faster as measured by sales and nominal capital in period III than family firms. (Period I: in hundred thousand Reichsmark, period II and III: in hundred thousand Deutsche Mark). In period I and II it was unusual to find sales figures in the Hoppenstedt database.

Period		Sales Turnover (Size 1)						N	"Final 14"				N
		All Firms		Family Firms		Non-Family Firms			Family Firm		Non-Family Firm		
		Mean	Median	Mean	Median	Mean	Median		Mean	Median	Mean	Median	
I	1913	N/A	N/A	N/A	N/A	N/A	N/A	15	N/A	N/A	N/A	N/A	0
II	1963	180'903	41'701	200'218	46'850	77'891	14'874	19	15'633	15'633	21'697	21'697	3
III	2003	8'784'406	1'129'241	2'619'286	784'483	21'334'828	2'242'359	85	429'350	221'986	43'750'254	1'468'018	14
<i>All Period Average</i>		<i>4'482'655</i>	<i>585'471</i>	<i>1'409'752</i>	<i>415'667</i>	<i>10'706'360</i>	<i>1'128'617</i>		<i>222'492</i>	<i>118'810</i>	<i>21'885'976</i>	<i>744'858</i>	

Period		Nominal Capital (Size 2)						N	"Final 14"				N
		All Firms		Family Firms		Non-Family Firms			Family Firms		Non-Family Firms		
		Mean	Median	Mean	Median	Mean	Median		Mean	Median	Mean	Median	
I	1913	7'945	3'166	8'468	3'083	7'500	5'853	15	9'701	3'166	3'992'000	1'660'000	10
II	1963	60'234	8'500	76'780	9'745	13'906	6'300	39	54'047	19'515	104'422	6'600	13
III	2003	229'387	48'895	94'918	46'939	498'325	71'008	85	21'517	9'788	972'524	40'094	14
<i>All Period Average</i>		<i>99'189</i>	<i>20'187</i>	<i>60'055</i>	<i>19'922</i>	<i>173'244</i>	<i>27'720</i>		<i>28'422</i>	<i>10'823</i>	<i>1'689'649</i>	<i>568'898</i>	

Table 8 - Relationships with Banks

The table reports the quantity and geographical distribution of commercial banks dealing with the companies of the sample firms and reports if the sample companies have a bank relationships with banks in other towns than their headquarter. Differences between family- and non-family firms can be seen in the number of banks. In the first period family firms have more bank relationships than non-family firms. When family firms become more mature, the number of banks declines to less relationships than non-family firms.

Period		Number of Banks				Geographical Distribution of Banks						N
		Family Firms		Non-Family Firms		Family Firms			Non-Family Firms			
		Mean	Median	Mean	Median	Yes	%	No	Yes	%	No	
I	1913	5.8	5	3.6	3	5	63%	3	3	60%	2	14
II	1963	3.2	3.5	3.8	3.5	11	65%	6	2	25%	6	25
III	2003	2.8	3.0	3.9	4.0	32	56%	25	35	58%	25	117

Appendix I: Inheritance taxation around the world

Source: Japanese Ministry of Finance (MoF), 2004

International Comparison of Inheritance Tax

	Japan	U.S.A.	U.K.	Germany	France
Taxation method	Tax on legatee	Tax on bequest	Tax on bequest	Tax on legatee	Tax on legatee
Tax threshold (Spouse and 2 children (2 children))	80 million yen 70 million yen	163 million yen 81 million yen	92 million yen 47 million yen	115 million yen 58 million yen	25 million yen 13 million yen
Minimum tax rate	10 %	18 %	40 %	7 %	5 %
Maximum tax rate	70 %	55 %		30 %	40 %
Number of brackets	9	18	1	7	7

- (Notes) 1. If the inheritors are a spouse and her/his three children, taxable amount would be minimized if the spouse obtains half of the bequest and the children equally share the balance of the bequest. If three children inherit the bequest, this tax threshold is applied when the children share an equal amount of the bequest.
2. The tax rates for Germany and France in the table above are those applied when inheritors are the spouse or the children. The tax rate differs according to the relationship between the deceased and the inheritors. In case of the most distant relatives, the tax rate is 17 - 50 % in Germany and 60 % in France.
3. The figures in tax thresholds of foreign countries are converted into yen by the following exchange rates. U.S.A.: 1 dollar = 130 yen, U.K.: 1 pound = 215 yen, Germany: 1 mark = 72 yen, France: 1 franc = 21 yen.

Appendix II: Balanced sample with complete data from 1903-2003

Company Name	Town	Founded	Stock	Comp	Industry	Founder Stake		Founding Owner	Today's Owner
						1903	2003		
Carl Schlenk	Roth	1879	1897		Manufacturing	100%	75%	Carl Schlenk	Family von Schlenk-Barnsdorf
Deutsche Gelatine Fabriken	Stoes Eberbach	1875	1902		Consumer Non-Durables	100%	92%	Heinrich & Emil Mayer	Family Koepff-Mayer
VSM	Hannover	1864	1898		Manufacturing	100%	0%	Family Oppenheim	Family Starcke, Dresdner Bank
Mechanische Baumwoll Spinnerei	Bayreuth	1853	1853		Textile	0%	0%	Mutual of Fibre Traders	Family Claas Daun
Dürkopp Adler	Bielefeld	1860	1889		Consumer Durables	100%	0%	Family Dürkopp	FAG Kugelfischer
Dillinger Hüttenwerke	Dillingen	1685	1802		Oil, Gas and Cole Extraction	0%	0%	Mutual of Mining Companies	Saarstahl
Stollwerck	Köln	1839	1902		Consumer Non-Durables	100%	0%	Family Stollwerck	Family Imhoff
Löwenbräu	München	1383	1872		Consumer Non-Durables	0%	0%	Family Brey (until 1872)	Interbrew
Siemens	München	1847	1900		Electrical	100%	6%	Family von Siemens	Family Siemens, HVB, Munich Re
Daimler Benz	Stuttgart	1890	1904		Manufacturing	100%	0%	Family Benz	Deutsche Bank, Kingdom Kuwait
Züblin	Stuttgart	1898	1919		Construction	100%	0%	Family Züblin	Züblin Management
Buderus	Wetzlar	1731	1904		Manufacturing	100%	0%	Family Buderus	Bosch
BLG Logistic Group	Bremen	1877	1925		Wholesale, Retail, Service	0%	0%	Bremer Kaufmannschaft	Bremen Town, Sparkasse Bremen
VGT Industrie	Großalmerode	1887	1888		Manufacturing	0%	0%	Hessische Grubenbesitzer	Family Klingspor, Family Heller