

# **The Life Cycle of Family Ownership: International Evidence**

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# **The Life Cycle of Family Ownership: International Evidence**

## **ABSTRACT**

This paper studies the ownership of private and public firms, and their evolution over time. We show that in countries with developed financial markets, high M&A activity and strong investor protection (outsider countries) family control follows a life cycle: family firms evolve into widely held companies as they age. In countries with less developed financial markets, low M&A activity and weak investor protection (insider countries), family control is very persistent over time. Also, while family control in outsider countries is concentrated in industries with lower external financing needs, this is not so in insider countries where the presence of family control is unrelated to external financing needs. This suggests that where families are a dominant organizational form, the country's financial institutions are better shaped to serve their financing needs.

JEL Classification: G32, G34

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*“Parallel with the growth in the size of the industrial unit has come a dispersion in its ownership such that an important part of the wealth of individuals consists of interests in great enterprises of which no one individual owns a major part. A rapidly increasing proportion of wealth appears to be taking this form and there is much to indicate that the increase will continue.”*

Source: Berle and Means (1932)

## **1. Introduction**

According to the traditional view that can be traced back to Berle and Means (1932), firm ownership follows a life cycle. Firms start as family-controlled entrepreneurial entities, raise external capital to grow, and as a result dilute founding family ownership. This transition involves the firm becoming a public company with diffused ownership, run by a professional manager and subject to the market for corporate control.

While this is one of the most widely cited stylized facts about the firm, there is remarkably little evidence on it. There is some support for specific aspects of it from studies such as Helwege, Pirinsky and Stulz (2007) and Foley and Greenwood (2010) which show that insider ownership decays over time in firms that have recently been through IPOs but there is nothing that looks at the longer term development of firms and in particular how this differs across countries.

The life cycle view of family ownership suggests that the probability of a firm being family controlled should be negatively related to its age. We provide support for this proposition but show that the nature of this relationship varies significantly across countries with family control diminishing far more rapidly in some countries than others. We examine the determinants of this relationship and conjecture that the development of financial markets may have a critical bearing on it.

There are three principal ways in which financial markets may affect firm ownership – protection of investors, the financing of firms, and mergers and acquisitions. Shareholdings by outside investors are encouraged where regulation provides strong protection of their interests; family shareholdings will be diluted where firms need to raise substantial amounts of equity finance; and family control is more likely to be relinquished in the presence of active external markets for corporate control.

There are fragments of evidence for some of these assertions. For example, ownership concentration has been shown to decay over time in the UK and US, two countries with strong investor protection (Helwege, Pirinsky and Stulz (2007) and Franks, Mayer and Rossi (2009)),

while Aganin and Volpin (2005) find no evidence of decay of insider ownership over time in Italy, a country with weak investor protection. However, there has been no systematic attempt to determine the influence of minority shareholder protection, the external financing requirements of firms and markets for corporate control on the evolution of family ownership.

This paper attempts to do this for a broad sample of firms, both private and listed, in many countries. This poses significant data challenges. To provide as comprehensive an analysis as possible we have used three separate data sets of non-financial European firms - two detailed panels of four countries (the UK, France, Germany and Italy) and one cross-section which we use to examine the robustness of our results in a broader setting. The data refer to both private as well as listed companies and therefore avoid the sample selection biases of previous studies. By including private as well as listed firms, our paper avoids any sample selection bias due to conditioning on a firm being publicly traded. Furthermore, having access to private company data, we are able to trace ultimate ownership of private as well as listed firms.

Since the U.K. can be regarded as an outsider system and France, Germany and Italy as insider systems, we expect U.K. family firms to follow the life cycle theory of ownership more closely than their Continental European counterparts. Our results on the life cycle of family control are consistent with this prediction in two respects. First, we find a strong negative correlation between family control and firm age in the U.K. – the older a firm is, the less likely it is to be family controlled - whereas we find no such relation in the other three countries. Second, over the period 1996-2006, U.K. family firms have a significantly lower chance of remaining family-controlled than French, German and Italian family firms.

Conditional on survival, only 30% of listed U.K. family firms remain family-controlled over a decade, compared with 52% in Germany, 59% in France and 73% in Italy. These results hold for both private and public firms and controlling for the use of control mechanisms such as dual class shares, pyramids and wedges between cash flow and voting rights which are frequently used to enhance control by families (La Porta et al. (1999), Claessens, Djankov and Lang (2000), Faccio and Lang (2002)). The life cycle is faster for large and listed than small and unlisted firms.

We examine the influence of external financing and markets for corporate control on the life cycle. We exploit industry-level differences in the needs for external financing (Rajan and Zingales (1998)) and M&A activity (Andrade, Mitchell and Stafford (2001), Harford (2005)) to

test for how the life cycle is influenced by these two factors. Specifically, where external financing is a source of dilution of family ownership then family firms should be concentrated in industries with lower needs for external financing. Where selling family equity stakes is a source of dilution of family control then family firms should be concentrated in industries with a lower volume of M&A activity. In other words, if external equity financing and control are significant then the incidence of family ownership should not be random across industries (Villalonga and Amit (2009)). We test the robustness of these results in a cross-section of 27 countries by examining the relation between the life cycle of ownership and an index measuring the degree of outsider orientation of a financial system based on such measures as shareholder protection, stock market development, M&A activity and private benefits of control. We find a negative correlation between family control and firm age in countries that are outsider-dominated but no correlation in countries that are insider-dominated. We also confirm that the presence of family control is lower in industries with higher dependence on external capital and with higher M&A activity in outsider but not in insider countries.

Finally we analyze the relative performance of family and non-family firms in insider- and outsider-dominated countries. We find on average family firms are somewhat more profitable than non-family ones in insider countries, where legal and political considerations lend advantages to families, but not in outsider countries where they do not.

In summary, our evidence points to a life cycle of family control in outsider- but not insider-dominated countries. This life cycle stems from both external financing and corporate control requirements and is reflected in a higher level of profitability of family firms in insider but not outsider systems.

The structure of the remainder of the paper is as follows. Section 2 reviews the existing literature and develops the testable hypotheses. The data set and empirical methodology are described in Section 3. The evolution of ownership over the decade of the panel data is analyzed in Section 4; Section 5 describes the larger cross-sectional results; and Section 6 concludes that article.

## **2. Literature and Hypotheses**

In this section, we provide an overview of the existing literature on family ownership and develop testable hypotheses from the life-cycle view of ownership.

## **2.1 The Family Firm Literature**

There is now an extensive literature comparing the performance of family-controlled and widely-held companies (Morck, Wolfenzon, and Yeung (2005)). This literature concludes that the relation between family control and performance depends on the nature of the control. If control is held directly, i.e. without the use of cross-holdings, pyramids and non-voting shares, family-controlled firms out-perform non-family ones (Khanna and Palepu (2000); Anderson and Reeb (2003); Barontini and Caprio (2005), Sraer and Thesmar (2007)). However, where families control companies via cross-holdings, pyramids and non-voting shares, performance is worse than in widely-held companies (Morck, Strangeland and Yeung (2000); Claessens et al. (2002); Bertrand, Mehta and Mullainathan (2002)) because families are then able to extract private benefits of control.

These observations on the relation of performance to ownership raise questions about the evolution of ownership. According to Berle and Means (1932) and Chandler (1977), firms develop from family owned enterprises into managerially controlled ones with wide share ownership. De Marzo and Urosevic (2006) model this in a dynamic, general equilibrium model where a large shareholder (for example a family) decides whether to keep their stake (and retain an undiversified portfolio) or reduce it (and lower the value of the firm due to less monitoring in the presence of moral hazard). They show that ownership is diluted slower when the moral hazard problem is more serious.

Despite being one of the most widely “stylized facts”, there is remarkably little evidence on the life cycle theory of the firm. Previous papers have only analyzed selected samples of firms. For instance, Foley and Greenwood (2010) focus on ownership changes at the IPO stage across countries, and Franks, Mayer and Rossi (2009) study a 100-year panel of listed firms in the UK. Some papers have studied the process of succession and have observed that value is destroyed in the passing of active management from the founder to his/her descendants (Morck and Yeung (2003); Pérez-González (2006); Bloom and Van Reenen (2007); Villalonga and Amit (2006); Bennedsen et al. (2007); Bertrand et al. (2008)) and that country-specific legal institutions, like inheritance laws and norms, influence the likelihood of succession (Ellul, Pagano and Panunzi (2008)).

## 2.2 Life Cycle Propositions

We examine the proposition that there is a life cycle evolution of firms by looking at the relation of family control to firm age over cross-sections of firms at a particular point in time and changes in the probability of family firm survival over time. We hypothesize that:

**H1) Age:** *Firm age is negatively correlated with family control.*

and

**H2) Survival:** *The frequency of family firms decreases over time.*

We take an institutional financial market approach to the evolution of ownership and argue that firms' ownership structure reflects two main factors – financing and corporate control. Family ownership is relinquished more rapidly where firms finance their growth through external equity markets and control can be ceded to other investors through markets for corporate control.

There are well-known differences across industries in the external financing needs of companies (Rajan and Zingales (1998)) and the level of M&A activity (Andrade, Mitchell and Stafford (2001), Harford (2005)). We use these differences to relate dilution of family ownership to industry variations in external financing and corporate control. First, if family ownership is diluted in the primary market for raising external capital then family firms should be concentrated in industries with lower external financing needs:

**H3) External financing:** *Family ownership will be more concentrated in industries with less need for external capital.*

Second, if family ownership is diluted in the secondary market for corporate control then family firms should be concentrated in industries with lower volumes of M&A activity.

**H4) Mergers and Acquisitions:** *Family ownership will be more concentrated in industries with less M&A activity.*

### 2.3 Insider versus Outsider Systems

There are well known differences in the financing of firms across financial systems. In some countries, there is a stronger propensity for firms to use internal finance and to raise external finance in the form of debt rather than equity than in others. This depends on a number of factors including the relative importance of banks versus stock markets in a financial system (Mayer (1988)) and the legal protection of equity and debt investors (La Porta et al. (1997)). Hence, raising external finance is not therefore necessarily associated with the evolution of family into widely held firms.

Similarly, families are more likely to sell their stakes where private benefits of control are lower and they can sell them in efficient M&A markets. Since the development of the market for corporate control varies across countries (Rossi and Volpin (2004)), and private benefits of control are larger in countries with weaker investor protection (Dyck and Zingales (2004)), active M&A markets and lower private benefits of control should positively affect the decision of family shareholders to sell their equity stakes.

We capture these differences in the concept of insider versus outsider systems: the value of the private benefits of control is lower, new equity is less expensive and the market for corporate control is more efficient in “outsider” than “insider” systems.

**H5) Insider versus Outsider Countries:** *The life-cycle theories described above apply in outsider systems but not insider systems, i.e. (i) age is more negatively correlated with family control in outsider systems than in insider systems; (ii) family firms have a lower probability of survival in outsider than insider systems; and (iii) family ownership is more concentrated in industries with less need for external capital and less M&A activity in outsider systems.*

In other words, we examine differences across industries and financial systems, and “differences in differences” across industries and financial systems. In addition, we argue that institutions adapt to the needs of the dominant form of ownership. In insider countries (where family businesses are prevalent), institutions adapt to the needs of family ownership, through for example the development of relationship banking that provides alternative forms of financing to external equity and through family structures that provide alternative control mechanisms to M&A. Family businesses will then not be at a disadvantage to widely held companies even in

sectors with high dependence on external capital or intense M&A activity. In contrast, where family businesses are not dominant, institutions do not develop in this way and firms become widely-held particularly in industries with high external dependence and high M&A activity. One implication is that family firms should therefore be relatively more profitable than non-family firms in insider systems where institutions develop to their benefit but not in outsider countries where they do not.

**H6) Profitability:** *Family firms are more profitable than non-family firms in insider but not outsider systems.*

### 3. Data

We test the life cycle theory of the firm using three data sets of listed and private firms. Two of them are panels of firms that we trace over ten years from 1996 and the third is a large cross-section of firms in 2006.

The first data set comprises the 4,000 largest companies, private or listed, in France, Germany, Italy and the U.K.. We collected ownership data at December 1996 and ownership changes over the period 1996 to 2006. This uses hand-collected and carefully cleaned ownership data that accurately traces the evolution of ownership of all firms over the decade. We refer to this first data set as the *TOP 4,000* sample. The second data set comprises all listed family-controlled firms in France, Germany, Italy and the U.K. in December 1996. It is based on the data set of Faccio and Lang (2002) (henceforth FL), which we cross-check with alternative sources. An important refinement that we make to the data set is to establish the ultimate owner for every firm, including cases where the chain of control from the firm to its ultimate owner is via a private firm. We refer to this second data set as the *LISTED FAMILY* sample. The third data set comprises private and listed firms with sales greater than EUR 50 million in 27 European countries in December 2006. It contains 27,652 firms and is a cross-sectional data set of private and listed firms. We refer to this data set as the *ALL FIRM* sample. The structure of these three data sets is described in Figure 1.

In what follows, we describe in detail the ownership data of the three samples and the methodology used to obtain them.

### **3.1 TOP 4,000 Sample**

We collect data on the largest 1,000 firms in each of the four largest economies in Western Europe (France, Germany, Italy and the U.K.), using sales as our measure of size. Our starting point is the universe of companies covered by AMADEUS, a pan-European financial database produced by Bureau van Dijk (BvD), as of December 1996. From this data set, we obtain basic financial and ownership information for each of the 4,000 companies. We then trace whether the company survived from 1996 until 2006. If it did, we record its ownership and financial information in 2006; otherwise, we record the reason for non-survival and thereby produce a record of ultimate ownership at two points in time, in 1996 and 2006.

Generally, we find that ownership data in AMADEUS is of poor quality in 1996 but improves greatly by 2006. In 1996 AMADEUS provides data on direct and some indirect shareholdings only, and no data on ultimate ownership of firms. From 1997 onwards it starts to provide some data on ultimate owners, from 2000 onwards it provides basic information on the type of the ultimate owner (companies or individuals), and from 2002 onwards it provides detailed information on ultimate owners, including a detailed breakdown of different types of ultimate owners, such as families, financial investors and non-financial investors. We undertook extensive checking to ensure that the data were consistent over time. We use direct and total shareholding information from AMADEUS as a starting point to construct measures of ownership at the beginning of the period in 1996 and correct and supplement it with hand-collected information from a large number of sources as described below to trace control of every firm to their ultimate owner.

We classify a company's ultimate ownership in seven categories depending upon whether the company was (i) widely-held or held by: (ii) a family, (iii) the State, (iv) another widely held company, (v) several non family shareholders (referred to as a 'multiple block'), (vi) a foreign blockholder or (vii) other shareholder types (referred to as "other"). The category "foreign blockholder" is further broken down into foreign family, foreign State, or foreign widely held company. "Other shareholder" is a residual category of ultimate owners that includes private equity and non-family controlled foundations.

We define ultimate ownership as control of at least 25 percent of voting rights, where this stake is held directly or via a control chain whose links all exceed the 25 percent threshold. A widely held company is defined as one where there is no ultimate owner. The 25 percent

threshold definition of a controlling stake is used by AMADEUS in 2006 and thus allows a direct comparison with the *ALL FIRM* data, discussed below. Where there are two or more shareholders with individual blocks of 25 percent or more, this is counted as two or more controlling stakes. In the event that one of the blockholders is a family we classify the company as family-controlled. If none of the blocks are family-controlled we describe the company as controlled by multiple stakes. We trace controlling stakes through all layers of ownership until we identify the ultimate owner and define the ultimate owner's controlling stake as the minimum voting rights along the control chain.<sup>1</sup>

We have spent considerable efforts to ensure the accuracy of our data. First, for every firm in 1996 we manually trace controlling stakes through all layers of ownership until we identify the ultimate owner. As pointed out earlier, we cannot rely on AMADEUS for this, as it does not contain information about ultimate ownership in 1996. We therefore manually trace ultimate owners for all 4,000 firms, using the 25 percent voting rights threshold. To do this we combine the shareholding links reported in AMADEUS with a large number of alternative sources, including *Wer gehoert zu Wem* for Germany, the *London Share Price Data Base* for the U.K., *Consob* for Italy, and *DAFSA* for France, with the complete list of data sources provided in Appendix B.

Second, by 2006 AMADEUS data quality is considerably improved and in addition to direct shareholdings also contains ultimate ownership data. However, for a large number of firms in each country (roughly one quarter of all firms in the sample) AMADEUS does not contain information about the ultimate owner even in 2006. In most cases this does not mean that the firm is widely held, but that ultimate ownership is unclassified in the database. Not surprisingly, unclassified ownership is more frequent for private than for listed firms. For all these firms,

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<sup>1</sup> We apply the 25 percent threshold of voting rights for tracing ownership via the weakest link in all control layers between a firm and the ultimate owner in a pyramid structure. For example, if a family owns 25 percent of the voting rights of Firm A that owns 30 percent of the voting rights of Firm B, then we regard Firm B (and Firm A) as family controlled. If instead Firm A owns just 15 percent of Firm B, then we regard Firm B as controlled by a widely held parent firm (and Firm A as family controlled). Where there are multiple stakes held by individuals (or investment vehicles traced to individuals), we aggregate these stakes across individuals within the same family. Where there are two families within one firm, we aggregate these into one family holding. This is important because individual family members frequently hold small equity stakes when the aggregate family stake is above 25 percent. Our approach therefore distinguishes firms that are widely held from family controlled firms where individual family members do not hold controlling stakes but in aggregate they do.

which amount to roughly 25 percent of the sample in 2006, we manually trace control to the ultimate owner as we do for all firms in 1996.

Third, where one company has a block in another, that company may be classified by the database as the ultimate owner. This is clearly not the ultimate owner, unless the holding company is widely held itself. We identify the *true* ultimate owner by tracing the controlling stake to the final ownership layer, using the alternative sources already described.

Fourth, to study the evolution of ownership, we have traced the history of all our companies for a decade, from 1996 to 2006. Many companies that are present in 1996 are not present in 2006 because the database has incorrectly assumed that the company has died. The incorrect classification is due to reasons such as changes of name, of address of incorporation and of control. Such changes usually trigger a new company identifier in electronic databases, which make them observationally identical to the cases of firm death. To amend incorrect classifications we manually determine the reason for the disappearance for each company recorded in 1996 that does not reappear in AMADEUS in 2006. Incorrect classification of death has additional implications for identifying ownership of related firms; that is, if a company that is a shareholder of another company is reclassified then that reclassification may affect the related company. Where there are ownership connections between companies, reclassification presents complex challenges in data collection and, with the exception of identifying ownership of private firms, this process of tracing of public and private firms over time is the most time-consuming part of the data collection exercise in the paper.<sup>2</sup>

### **3.2 LISTED FAMILY Sample**

The most widely used sample of family controlled companies is the FL data set. This sample is a snapshot of the ultimate ownership of all *listed* companies in 13 European countries, taken around 1996. The FL data set contains information on the type of ultimate controlling shareholders. From the FL data set we select all firms classified as family-controlled and subject them to our methodology of tracing control through both public and private entities to identify the

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<sup>2</sup> We also account for a possible contraction in size of the company, i.e. we search among *all* companies in AMADEUS in December 2006 (not only the largest 1,000). In many cases we find that companies have survived, but have diminished considerably in size relative to other firms and therefore dropped out of the largest 1,000.

ultimate controlling shareholder, i.e. we subject every firm to the same identification process of identifying the ultimate owner as described in the previous section for the *TOP 4,000* sample.

We do this for two reasons: first, to classify family controlled companies and determine whether our profile of family controlled companies is similar to that of FL; and, second, to study the evolution of family firms and the role of the family *within the family firm*, such as board membership and effects of generational change over time. Sufficient information on these variables is only available for listed firms.

The sample of companies identified as family controlled companies by FL includes two types of family firms, those where the ultimate shareholder is unequivocally a family, and those where the ultimate owner is a private company whose shareholders are unknown, which are assumed by FL to be family controlled. Since we can trace the shareholders of private companies we are able to refine the classification of family controlled firms in regard to the latter category.

Using FL's list of 1,359 family controlled companies in 1996 for our four countries we find that our classification of family ownership is different from FL's in 32% of cases. The differences in classification mainly relate to companies that are controlled by a private company, which are assumed by FL to be family firms. We provide comparisons between FL and our dataset in Appendix C. Our final *LISTED FAMILY* sample contains 827 listed family-controlled firms. For this sample, we collect information over the subsequent decade, tracing changes in ownership, board membership, control transfers to other shareholders outside the family (both to other family and non family firms), survival, and effects of generational change. We combine these with data from FL on the use of preferred shares, the difference between cash-flow and voting rights and the presence of pyramids in these firms.

### **3.3 ALL FIRM Sample**

The starting point for the *ALL FIRM* sample is the firm coverage of AMADEUS. Our analysis is based on the December 2006 issue, which contains 1,633,308 firms from 41 countries.<sup>3</sup> The database contains firm-level data and covers a large range of data items, including company financials and ownership data. Availability of data items is very good for larger firms and

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<sup>3</sup> According to BvD, a firm must meet at least one of three criteria to be included in the database. i) Turnover must be greater than EUR 10 million. ii) Number of employees must be greater than 150. iii) Total assets must be greater than EUR 10 million. Banks and insurance companies are not included in the database.

generally decreases strongly with firm size. The median firm in the database is somewhat small—during fiscal year 2005, the median firm has 25 employees and sales of EUR 2.79 million, with data available for 748,003 firms—and consequently has few data items available.

In order to obtain a sample for which most basic data are available we extract only firms that meet the following requirements: i) firm status is active according to the database; ii) sales, assets, operating profit, incorporation year, and industry (US SIC code) are reported for fiscal year 2005; iii) sales are at least EUR 50 million and assets are at least EUR 25 million; and iv) the firm is incorporated in a country covered by Djankov et al. (2008). This screening yields 28,900 firms.

We exclude firms with SIC codes above 8900 (non-classifiable establishments and public administration-type firms) and firms in Fama-French industries with less than ten firms in total (but we check whether this affects our results). This leaves 27,652 firms from 27 countries as our final sample.

One caveat of the *ALL FIRM* sample is that the coverage of AMADEUS differs between countries, which is primarily due to differences in national reporting requirements and consequently the amount and types of data that BvD has available. AMADEUS therefore may not be representative of the universe of firms in a given country. A detailed discussion of this is provided in Klapper, Laeven and Rajan (2006). One solution is to impose unified restrictions on firms sampled from the database that exceed country-specific criteria for inclusion in the database. We take this approach and impose restrictions on sales (minimum EUR 50 million) and assets (minimum EUR 25 million) for our sample firms that exceed the minimum criteria for inclusion of a firm in AMADEUS (minimum EUR 10 million in both cases). The *ALL FIRM* sample therefore includes medium-size but not small firms. In unreported regressions we find that there is no evidence of an evolutionary path from family firm to widely held firm in small firms (below EUR 50 million in sales), independently of the country we focus on. One possible explanation is that small firms are less likely to raise external financing and to be subject to the market for corporate control. Another possibility is that the quality of data is particularly poor in smaller companies, particularly with respect to the equity ownership.

Key to our analysis is identification of whether a firm has an ultimate owner and if so, whether this owner is a family. In the simple case, the ultimate owner has a direct stake in the firm under investigation and basic data on direct shareholdings in a firm suffices to identify the

owner. AMADEUS contains such direct shareholding data that are comparable to WORLDSCOPE or Compact Disclosure. In the more complex cases, however, the ultimate owner has an indirect stake in the firm under investigation, and thus identification of the ultimate owner requires tracing controlling stakes through potentially many layers between the firm and its ultimate owner.

While we undertake this tracing manually using a large number of sources for all firms in our *TOP 4,000* and *LISTED FAMILY* samples, this approach is not feasible for the 27,684 firms in the *ALL FIRM* sample. We instead utilize a unique feature of AMADEUS, which provides summary metrics of ownership links for every firm.<sup>4</sup>

AMADEUS traces control by, first, calculating voting rights but not cash-flow rights. Second, it refers to entities as the ultimate owners of a firm if the entity controls the firm directly at a defined threshold or via a control chain whose links all exceed that threshold. The threshold in the December 2006 version of AMADEUS can be configured to be 25 or 50 percent, and we set it to 25 percent. Third, a company that is known to have *no* ultimate owner is referred to as widely held.

Using this threshold, we rely on AMADEUS to separate firms into the following four categories: (i) widely held; (ii) ultimately controlled by a family; (iii) ultimately controlled by a non-family owner; and (iv) ultimately controlled by an unknown type of shareholder. We apply several filters to the classification provided by AMADEUS (which is described in detail in Appendix D) to create a dummy variable for identifying family control.

### **3.4 Insider and Outsider Systems**

An important question is how to classify countries as insider or outsider dominated. First, let us compare France, Germany, Italy and the U.K. from a purely qualitative viewpoint.

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<sup>4</sup> The data set provider, BvD, has built up this database over several years, relying on a large number of public and semi-public sources. In October 2006 it contained 6.69 million ownership links. BvD maintains the link database dynamically, updating it with new information on ownership when it becomes available. Therefore the database represents snapshots of the international web of shareholder structures at relatively precise points in time. The database assigns identifiers to firms and shareholders, where shareholders can be virtually any type of legal person. The database identifies ownership by limited and unlimited liability firms, public and private firms, cooperatives, foundations, individuals and families, municipalities and states. Another feature is that links between firms and shareholders are traced internationally. For every firm in AMADEUS, BvD provides a large number of data items, designed to capture *all* ownership links that the firm has. The construction of these data items is typically complex and explained in a detailed technical document by BvD. To conserve space, we limit our discussion to two aspects: i) the way AMADEUS traces control, and ii) how we identify whether a firm has a family as its ultimate owner.

Corporate governance regulation was significantly different across the four countries in 1996. Only the U.K. had a corporate governance code of conduct with a comply-or-explain requirement. Since the 1992 Cadbury report, most companies have boards (and audit and compensation committees) with a majority of independent directors and a strict separation of Chairman and CEO. Directors in France, Germany and Italy were not subject to similar regulation.

In the U.K., shareholders have historically enjoyed substantial power vis-à-vis managers and directors. Black and Coffee (1994) argue that, as a result, the U.K. provides an ideal laboratory for shareholder activism. For example, shareholders must approve a large number of corporate actions, such as share buy-backs, dividend payments, and large acquisitions, while current shareholders have pre-emption rights in all new issues. Also, it is easier in the UK for minority shareholders to call an extraordinary general meeting and remove members of the board of directors. To illustrate, in the U.K. in 1996 only 10 percent of shareholders were required to call an extraordinary general meeting, compared with 20 percent in Italy. Finally, derivative suits were permitted in the UK but not in Germany and Italy; they were allowed in France, but rarely used.

Deviations from the one-share-one-vote principle were common in France, Germany and Italy, but were rarely observed in the U.K. In 1996, neither Germany nor Italy had a “mandatory bid rule” in place.<sup>5</sup> Executive compensation was disclosed only in the U.K. As a result we treat the U.K. as the only outsider country and France, Germany and Italy as insider countries. A quantitative measure of outsider versus insider characteristics described below shows that the U.K. has a significantly higher outsider score than the other three countries.

To help the analysis of the large, cross-sectional *ALL FIRM* sample, we develop a quantitative measure, the *Outsider* index, which aggregates measures of investor protection, financial development, M&A activity and private benefits for a larger number of countries. The *Outsider* index is reported for the 27 countries in our samples in Appendix A. The index is calculated as the equally-weighted sum of eight normalized indicators: Antidirector rights - a measure of the rights of minority shareholders against directors, as revised by Djankov et al. (2008); Anti-self-dealing - the indicator produced by Djankov et al. (2008) to measure the power

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<sup>5</sup> The mandatory bid rule requires that the acquirer of a control block must make an offer for all the remaining shares at a price equivalent to that paid for the block

of minority shareholders against self-dealing by managers and controlling shareholders; Stock market capitalization over GDP in 2006; the number of listed firms scaled by population (in millions) in 2006; M&A activity - the percentage of traded companies targeted in a completed deal between 2001 and 2006, computed using SDC Platinum; Hostile takeovers - the number of attempted hostile takeovers as a percentage of traded companies during the same period, computed using SDC Platinum; Voting premium - the average percentage difference in market value of voting shares compared to non-voting shares from Nenova (2003); Block premium - the difference between the price per share paid for the control block and the exchange price two days after the announcement of the control transaction, as a percentage of the exchange price two days after the announcement from Dyck and Zingales (2004). Each variable is normalized by subtracting the worldwide average and dividing by the worldwide standard deviation, the latter is computed using the 72 countries covered by Djankov et al. (2008).

The aggregate score ranges from a minimum of -0.9 to a maximum of 1.19, with a median of 0.01 and a standard deviation of 0.53. A higher score indicates more outsider system characteristics. Appendix A shows that there are significant differences across countries, with countries like the U.K. and Ireland scoring very high (1.19 and 1.02, respectively), and countries like Austria (-0.9) and Italy (-0.25) scoring very low. France and Germany are close to the average (0.1 and 0.02, respectively). This also confirms our prior qualitative assessment that the U.K. is different from the other three countries.

In addition to the above, the life cycle of family firms might be influenced by inheritance taxes. Tsoutsoura (2009), for example, shows that inheritance tax in Greece is associated with less family firm investment. We collect data on the maximum payable inheritance tax rate in all 27 countries of this study.<sup>6</sup> This inheritance tax measure is positively correlated with the *Outsider* index, with a correlation coefficient of 0.39, significant at the 5 percent level.

#### **4. Evolution of Ownership**

In this section we study the evolution of ownership over the period 1996-2006 in France, Germany, Italy and the UK. We first analyze the *TOP 4,000* sample and report summary statistics

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<sup>6</sup> We collect tax rates from the Deloitte International Tax and Business Guides and assign a zero percent rate for countries in which there is no inheritance tax or in which inheritance from parent to child is tax-exempt (Austria, the Czech Republic, Latvia, Portugal, Romania, the Russian Federation, Slovakia, Sweden, Switzerland, and Ukraine). Inheritance tax rates have a mean of 15.7% and standard deviation of 18%.

on ultimate ownership for the cross-section of firms in each country in 1996. Then, we analyze the evolution of ownership over the decade and test the predictions of the life cycle theory of family ownership by comparing survival rates of family firms in the four countries. We examine whether firm age is a determinant of family control, and we assess the explanatory power of external financing needs and M&A activity for family control.

We then turn to the analysis of the *LISTED FAMILY* sample, which includes 827 listed family firms and explore in greater detail the evolution of ownership in family firms. In the case of the *TOP 4,000* we know whether firms die over the ten-year period but we cannot identify the precise cause of death. For the *LISTED FAMILY* sample we can distinguish the causes of death - takeover, going private, sale of stake and insolvency - which allows us to evaluate why listed family firms in outsider countries evolve differently from those in insider countries. We also analyze how family characteristics such as the CEO being a family member affect survival rates for the *LISTED FAMILY* sample.

#### **4.1 Descriptive Statistics**

In Table 1 we describe the landscape of ultimate ownership for 1996 for the largest 1,000 companies in each country both listed and unlisted. While the ownership categories in the table are very detailed, in the discussion here we focus mostly on family-controlled and widely-held companies. Also, as we move through the table from Panel A to Panel C, we show different types of ownership aggregation. The final panel, Panel C, describes the sample we will use for the remainder of this section.

Panel A reports data on the full sample, which includes the largest 1,000 firms in each country with the exception of the few firms for which ultimate ownership cannot be identified. The actual numbers are 923 firms in Germany, 970 in France, 980 in the U.K. and 954 in Italy. Among these, family ownership is highest in Italy at 47.9% and lowest in the U.K. at 10.9%. Conversely, the percentage of widely held companies is highest in the U.K. at 27.4% and lowest in Italy at 5.6%. State ownership is significant and about 10% in all countries except the U.K. where it is 1%. A noticeable fact is that foreign control is the second most prevalent form of ownership in France, Germany and Italy at between 18 and 28 percent. In the U.K. foreign shareholders play the most significant role: a striking 34% of firms are controlled by a foreign blockholder. Finally, the fraction of companies that have a widely held parent is also significant,

although we show in Panel B that many of these companies are wholly owned subsidiaries, particularly in the U.K.

In Panel B we provide the most detailed breakdown that our data allow. For this we separate widely held firms from firms with a controlling shareholder and split the controlling shareholders into three groups – *domestic* block shareholders, *foreign* block shareholders and *parent with  $\geq 95\%$  control* shareholders. The ownership types for the first group (domestic block shareholders) are as in Panel A. The ownership types for the second group (foreign block shareholders) are foreign families, foreign states and foreign parent firms that are widely held. The third group (parent with  $\geq 95\%$  control shareholders) includes firms that are controlled at the 95 percent level or higher by a parent firm, which is itself included in our sample and therefore effectively are a wholly-owned subsidiary of another sample firm. As Panel B shows, many companies fall into this category, which in itself is a new finding: 22.6% in Germany, 29.9% in France, 36.6% in the U.K. and 24% in Italy. This raises the question of how to treat subsidiaries of firms that are already included in the sample. The 95 percent cutoff we are using is somewhat arbitrary; but it is a threshold that we can unambiguously identify for all firms in our data.<sup>7</sup> However, parent-subsidiary relationships may exist at lower threshold levels (for instance, 80% or 60%). Since we cannot systematically identify these relationships at thresholds between 50 and 95 percent, we keep all wholly-owned subsidiaries in the sample in order not to create any asymmetric treatment. However, our results are robust to excluding firms that are controlled by other firms at the 95% level.<sup>8</sup>

The split of foreign controlling shareholders into foreign families, foreign states and foreign widely held parent firms shows that foreign ownership in the U.K. is not only more prevalent than in the other three countries, its composition is also different. In the U.K., foreign blockholders control 22.4% of all firms compared with domestic blockholders who control only 13.8%. Thus, there are more foreign blockholders in the U.K. than domestic ones. Of the total of 22.4% of foreign ownership, 14.5% are controlled by widely held parents, and 7.4% are

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<sup>7</sup> Specifically, wholly-owned subsidiaries are identified as follows. If a firm A has a direct shareholder B with at least 95% of voting rights and that shareholder B is a firm included in our sample, we mark firm A as a wholly owned subsidiary of B. We also mark firm A as a wholly-owned subsidiary if firm B has an indirect stake in firm A, as long as the indirect stake is at least 95% of voting rights and the control level of B exceeds the 95% voting rights threshold at all ownership levels leading from A to B.

<sup>8</sup> We also perform the analyses reported in Tables 1 to 5 for a sample that excludes wholly-owned subsidiaries. All results remain qualitatively and quantitatively unchanged (and are available on request).

controlled by foreign families. Thus, foreign families control about the same proportion of U.K. firms as domestic families.

For the Continental countries the pattern is reversed; domestic blockholders are much more prevalent than foreign blockholders. In Germany, France and Italy domestic blockholders control about 50% of all firms compared with foreign blockholders who control only about 15%. Widely held parent companies control most of the latter companies (10.5% in Germany, 9.4% in France and 13.4% in Italy). Foreign families control much fewer firms in the three countries than in the U.K.: 2.6% of firms in Germany, 4.0% in France and 2.7% in Italy.

In what follows we do not distinguish between foreign and domestic ownership. Hence, in Panel C we report the ownership types that we will use for the remainder of the section. Since our main goal is to focus on the differences across ownership types (family, state, widely held parent firm) and not on the distinction between domestic and foreign-owned firms, we redistribute foreign-owned firms across ownership types. This raises the percentage of family controlled firms in the U.K. from 7.3% in Panel B to the final 21% in Panel C, half of which are foreign controlled.

Table 2 partitions the companies described in Panel C of Table 1 into listed and private firms. Panel A shows that 27.8% of U.K. companies are listed. The proportion of listed companies is much lower in the other three countries, 14.5% in Germany, 13.6% in France and 8.4% in Italy. The higher proportion of U.K. listed firms in part reflects the size and importance of the country's stock market.

In Panel B we describe the ownership characteristics of listed companies only. As documented by Barca and Becht (2001), listed firms in France, Germany and Italy are much less likely to be widely held than firms in the U.K. As many as 85% of U.K. listed companies are classified as widely held, compared with only 22% of German, 21% of French and 3% of Italian companies. The large controlling blocks in countries like Italy are held mainly by families, where 66% of all listed companies have a family blockholder; the corresponding proportions are 49% in France, and 34% in Germany. In the U.K. families control only 8% of listed companies.

In Panel C, we describe the ownership of private firms. Particularly for the U.K. we expect the proportion of family controlled firms to be much higher among private firms than among listed firms, because both mechanisms for the dilution of family control—the raising of external finance and M&A activity—are expected to be less important for private firms. The

results show that in the U.K. the proportion of family [private] firms is 26%, much lower than in Continental European countries, although considerably higher than for U.K. listed companies. This number declines to less than half if only domestic families are considered. In Continental Europe the proportion of family firms is strikingly similar to those for listed firms, at 39% in Germany, 43% in France and 52% in Italy.

Finally, a comparison of Panel B and C shows that by moving from listed to private firms, family ownership increases from 29.8 percent to 40.8 percent on average, confirming that family firms are generally more likely to be private than listed. At the country level however, with the exception of the U.K., the proportion of family firms among private firms is close to or, in the case of France and Italy, even lower than the proportion of family-owned firms among listed firms. The explanation is that while absolute numbers of family firms among private firms are high, there are also significant numbers of widely-held cooperatives (especially in France and Germany), state-owned firms (especially in Germany and Italy), firms with multiple blockholders and firms controlled by non-family foundations, depressing the relative share of family firms.

#### **4.2 Survival of Family Ownership, 1996 to 2006**

Having established differences between family firms across the four countries, we now examine the evolution of ownership structures to test the life cycle hypotheses. Do family firms have a lower chance of survival in outsider compared to insider systems?

For this purpose, we trace the history of each company from 1996 to 2006. We first determine whether a firm still exists in 2006 ('survivors') or whether the firm has exited ('exits'). In our classification of firms as survivors we do not require them to stay within the top 1,000 firms. For survivors we determine whether ownership has changed as of December 2006. If it has, we (re)classify companies into the ownership categories previously defined in Section 3. For exits the reasons for death include: (i) bankruptcy or liquidation and (ii) dissolution of the legal entity, for example through acquisition.

In Panel A of Table 3 we show that survival patterns differ across countries. The proportion of companies in our 1996 sample that survived as independent entities in 2006 was 52% in Germany, 70% in France, 65% in the U.K. and 63% in Italy. Of those that survived 35% remained in the top 1,000 in Germany, 49% in France, 41% in the U.K., and 35% in Italy.

Panel B reports the transition matrix from 1996 to 2006, conditional on the firm surviving as an entity. For tractability we aggregate ownership categories into family controlled, widely held, state controlled, and others. In the table, stability of control translates into high percentages on the matrix diagonals. The main conclusion is that, with the exception of family firms in the U.K., there is considerable stability of ownership across time in all countries. Stability of control means that firms do not switch from one form of control to another over the decade.

The largest change in family ownership occurs in the U.K. Of all family controlled firms in 1996 that survived until 2006, only 50% remain family firms in 2006. Family ownership in the Continental European countries by comparison is much more stable than in the U.K. By 2006, 75% of German family firms survive as family firms and survival rates are 66% and 77% in France and Italy, respectively. Family control in Continental Europe therefore is on average about one fifth more stable than in the U.K.

As regards widely held firms, in all four countries widely they predominantly stay widely held. The likelihood of remaining widely held in 2006 is lowest in Germany at 54%, and it is highest in Italy at 81%. Of the 46% that did not survive as widely held in Germany, a sixth were acquired by families, while the others were acquired by other blockholders, including private equity.

In summary, we find evidence in favor of the hypothesis that family firms have a significantly lower chance of survival as family-controlled firms in outsider compared with insider systems.

### **4.3 Influence of Firm Age on Family Ownership**

As discussed in the hypotheses section, a different way to test the life cycle hypothesis is to rely on cross-sectional differences in firm age across firms. Our hypothesis is that, as firms age, they are less likely to be family controlled, particularly in outsider systems. We therefore expect firm age to be negatively correlated with family ownership in the U.K., but not in the Continental European countries.

Table 4 reports probit regressions in Columns 1 and 2 where the dependent variable is whether a family controls the firm in 1996. The regressions control for Fama-French industry fixed effects. Coefficients are reported as marginal effects and standard errors are calculated by delta method, following Powers (2005), and clustered by country.

The results show that firm age is a significant determinant of the probability of family ownership. We measure firm age by the number of years (in hundreds) since incorporation. The results show that there is an important difference between the U.K. and Continental Europe. While in the U.K. older firms are less likely to be family controlled, there is no effect of age in Continental Europe. This is demonstrated by the interaction of the age variable with the U.K. dummy variable being negative and significant. To illustrate the economic effect, a 10-year increase in firm age in the U.K. (standard deviation of firm age is 36) decreases the probability of family control by 2 percent, a relatively slow speed. Age on its own is not significant and not an explanatory variable for the probability of family control in Continental Europe.<sup>9</sup> These results are confirmed by regressions in Columns 3 and 4, where the dependent variable is a dummy for survivorship over the 1996-2006 decade. In these regressions we restrict the sample to family firms so as to determine if the probability of survival of family firms is lower for older firms in the U.K., but not in the other three countries. The results confirm this to be the case. While firm age in Continental Europe in fact increases the probability of survival over the decade for family firms, in the U.K. the effect is reversed and older family firms are less likely to survive. The relevant coefficient again is the interaction between the U.K. dummy and firm age, which in Column 4 is negative and significantly different from zero.

Next, we examine what mechanism may lead to dilution of family ownership in outsider systems. We consider two mechanisms that have been studied in the literature: the need to raise external capital to finance growth and M&A activity.

#### **4.4 Cross-Industry Determinants of Family Ownership**

As discussed in Section 2, if raising equity to finance growth is the cause of the dilution of family ownership, we might expect family firms to be concentrated in industries with lower external financing needs in outsider systems, but not in insider systems. To test this we measure industry-level external dependence following Rajan and Zingales (1998). Using firm-level data from the U.S., they determine the ratio of capital expenditure that is not financed by retained earnings, using newly issued debt and equity. This measure is computed for each firm and then aggregated

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<sup>9</sup> This also rules out the possibility that the life cycle of family firms in Continental Europe may simply be longer than in the U.K. Even if a longer life cycle applied in Continental Europe, age would then be an explanatory variable for family control in Continental Europe. We allow for a different life cycle length by interacting U.K. with age, i.e. we allow for a different slope dummy.

at the industry level, and used across countries and industries as a measure of the natural level of dependence on external finance of the industry. We apply the same methodology using U.S. COMPUSTAT data from 1987 to 1996 and calculate an external dependence measure for all Fama-French industries in the *TOP 4,000* sample in the four countries. Then, we test whether family ownership is more common in sectors that are less dependent on external capital.

The results are reported in Table 5, Columns 1 and 3. The dependent variable is a dummy for whether the firm is family controlled or not in 1996. We find that in the U.K. external dependence (*Ext Dep*) is negatively correlated with family control, while no such correlation exists in the other three countries. This can be seen from the coefficient of the interaction between the U.K. dummy and external dependence, which is negative and strongly significant. The probit regressions include industry and country fixed effects. Since external dependence is an industry-level variable and the regression includes industry fixed effects, we include the interaction of external dependence with the U.K. dummy variable, but not *Ext Dep* itself. These results are confirmed by regressions reported in Columns 4 and 6, where the dependent variable is a dummy for survivorship over the 1996-2006 decade. In these regressions we restrict the sample to family firms so as to determine if the probability of survival of family firms is lower in sectors that have higher dependence on external capital in the U.K., but not in the other three countries. This prediction is confirmed by the regressions. The relevant coefficient again is the interaction between the U.K. dummy and external dependence, which in both Columns 4 and 6 is negative and statistically different from zero.

These results suggest that the external financing hypothesis only applies to the U.K. One reason might be that family businesses are so important on the Continent that they are able to shape institutions and overcome financial constraints without giving up control. Evidence consistent with this in Continental Europe includes the importance of relationship banking (Boot (1999)), the use of pyramids and business groups (Faccio and Lang (2002)), and families wielding political power (Bertrand et al. (2004), Faccio (2006)). Hence, unlike their U.K. counterparts, family firms are able to thrive even in industries with high external financing needs.<sup>10</sup>

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<sup>10</sup> An example of this might be the relative dominance of family ownership in the automotive sector in Continental Europe.

If selling the family equity stake is the cause of the dilution of family control, we expect family firms to be concentrated in industries with lower M&A activity. We test this prediction by developing an industry-level indicator of M&A activity based on US data, built in a similar fashion to the measure of external dependence used above. Using SDC data of acquisitions, we compute the total number of completed acquisition deals of listed companies over the 1987-1996 decade in the U.S. for each Fama-French industry. We scale this by the total number of listed firms over the same decade by industry (from CRSP), and thus obtain a measure of the degree of M&A activity in that industry. We then define a dummy variable that equals one for industries that have above-median M&A activity and zero otherwise, which is our final measure of M&A activity at the industry level. This measure is akin to a merger wave indicator, as developed by Mitchell and Mulherin (1996) and Harford (2005). The prediction is that family ownership should be lower in industries that have experienced a merger wave in the previous decade, and particularly so in outsider countries.<sup>11</sup>

The results are reported in Columns 2 and 3 of Table 5. The dependent variable is a dummy for whether the firm is family controlled or not in 1996. Consistent with our previous results, we find that in the U.K. M&A activity is negatively correlated with family control, while no such correlation exists in the other three countries. This can be seen from the coefficient of the interaction between the U.K. dummy and M&A activity, which is negative and strongly significant. The probit regressions include industry and country fixed effects. These results are confirmed by regressions reported in Columns 5 and 6, where the dependent variable is a dummy for survivorship over the 1996-2006 decade. The results show that the probability of survival is lower in sectors that have high M&A activity in the U.K., but not in the other three countries. The coefficient of the interaction between the U.K. dummy and M&A activity is negative and statistically different from zero.

In summary, we find that raising external capital and engaging in M&A activity is associated with dilution of family ownership in the U.K., but not in Continental Europe. While we find significant industry concentration of family firms in all countries, this industry concentration is unrelated to financing needs for family firms in Continental Europe, while in the

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<sup>11</sup> Our industry-level M&A activity measure on its own of course is a relatively crude test. M&A activity may not be a good proxy for the market for corporate control in family firms. For example, in Continental Europe the sale of smaller stakes might be an important part of the market for corporate control and would not be captured by our data. In Section 4.5 we analyze the source of control changes for the *FAMILY LISTED* sample in more detail.

U.K. high external financing needs reduce the probability of observing family control. Further, Continental European family firms do not exhibit slower growth than their U.K. peers over the 1996-2006 period, suggesting that family businesses are able to overcome financial constraints in Continental Europe without giving up control.<sup>12</sup>

#### 4.5 Listed Family Firms

In this section we study our second *LISTED FAMILY* sample of companies consisting of all family-controlled listed firms in 1996 in our four countries. We use this sample to explore in greater detail the evolution of ownership in family firms. Specifically, we can now be more precise about the reasons why a family firm does not survive over the decade, distinguishing between takeovers, going private, dilution of control and insolvency. This allows us to test more precisely the hypothesis that differences in the efficiency of the market for corporate control are at the source of the differences in the evolution of family firms in outsider and insider countries. We also analyze how family characteristics such as the CEO being a family member affect survival as a family firm.

For each of the 827 listed firms in the sample, we collected information on the name of the controlling family and whether it descended directly from the firm's founder. As shown in Panel A of Table 6, this is true for almost 70 percent of family firms across all four countries. There are interesting differences across countries: 91.2 percent of U.K. family firms are controlled by a descendant of the founder while in half of the cases German companies are controlled by a different family than the founding family. This suggests that families (or their

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<sup>12</sup> We reject the competing hypothesis that firms in Continental Europe in industries with high external financial dependence and high M&A activity simply avoid raising external financing or engaging in M&A activity and choose to stay small and grow less. We perform two types of tests. First, we run regressions as in Table 5 but with firm size (log of sales) as the dependent variable and the sample restricted to family firms. If Continental European family firms in industries with high external dependence avoid raising external financing or engaging in M&A activity, they should be smaller than their U.K. competitors in the same sectors. However, we find the opposite result, namely family firms in sectors with higher external dependence are larger in Continental Europe than their U.K. competitors, rejecting the competing hypothesis. Second, we use the relative size ranking of family firms that survive the 1996 to 2006 period. Firms that belonged to the largest 1,000 firms in 1996 may or may not belong to the largest 1,000 firms in 2006. If in Continental Europe family firms in industries with high external dependence or high M&A activity avoid external financing and mergers and acquisitions, we would expect surviving family firms to end up lower in the Top 1,000 ranking (or below the Top 1,000) in 2006 than surviving non-family firms. We find however that no such difference exists, again rejecting the hypothesis of lower growth in Continental European family firms.

firms) are very active as acquirers of other family companies in Germany (and in the rest of Continental Europe) but not at all in the U.K.<sup>13</sup>

We also identify the cases where the CEO is a family member, where control is divided among more than one individual, where the firm has dual class shares outstanding, where control is exercised via a pyramid, as well as the age of the firm and which generation of family members is in control of the company. We also record the ratio of cash-flow to voting rights of the family, the size of its stake as well as return on sales.

In the U.K. and in Italy, family firms are younger and are more often run by the founder than in France and Germany. Also, t-tests of equality of means between the U.K. and Continental Europe (whose p-values are reported in Panel A of Table 6) show that Continental European firms are less likely to have a family CEO, family stakes are held more often by several family members, more control is exercised via pyramids, and there are lower cash-flow to voting rights ratios and higher family voting stakes in 1996.

Furthermore, we have collected information on the history of each firm in the period 1996-2006. By 2006, a firm may still be in family control or may have been taken private by the controlling family. We classify these two outcomes together as no change of control. Alternatively, the firm may have become widely held, insolvent or may have been taken over or acquired. In Panel B these three outcomes are combined and classified as a change of control. We find that almost half of our companies have undergone a change of control. In the U.K., 70 percent of family firms went through a change of control (having become widely held or acquired) compared with only 27 percent of firms in Italy, 49 percent in Germany and 41 percent in France. The differences in the frequency of control changes confirm our life cycle results: family firms in the U.K. are significantly more likely to experience a change of control than their Continental European counterparts. The most common reason for family firms to change their form of ownership is a takeover. Selling the family equity stake is thus an important channel through which family control is diluted. The second most common reason for ownership changes in the U.K. is for family firms to become widely held, without a takeover: this happens in 37% of all control changes in the U.K., while it happens in only 10 to 20 percent of control changes in

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<sup>13</sup> As an example, in July 2008 Schaeffler Group, a private company owned by the German Schaeffler family, acquired a majority stake in Continental AG, a large German tire manufacturer that was previously widely-held, for about 12 billion Euro. Such a transaction by a family-controlled firm would be almost unconceivable in the U.K.

the other three countries. This confirms raising external capital as an important channel for dilution of family control in the U.K.

Having established the differences in family firm characteristics and control changes over time, we turn to a multivariate analysis of these control changes in family firms. Specifically, we investigate which family characteristics most influence the likelihood of survival of a family firm. These characteristics include whether family control involves a pyramid, the family that is in control in 1996 is the founding family, control is divided among family members, the size of the block held by the family, the CEO is a family member, there is a wedge between the family's cash-flow rights and voting rights, and which generation of the family is in control.

In Table 7, the dependent variable is a dummy for whether a change of control happened during the 1996-2006 period for firms that are family controlled and listed in 1996. In the first two columns, we find that the probability of a change of control for family firms is significantly higher in the U.K. than in Continental Europe (the coefficient for the U.K. dummy is positive and significant). As for the *TOP 4,000* sample in column 3 we find that the probability of a change of control for family firms increases significantly as firms age in the U.K., but not in Continental Europe. To illustrate the economic effect, a ten year increase in firm age in the U.K. increases the probability of a control change by 37 percent. The life cycle of listed family firms in the U.K. thus appears to be short.

Furthermore, changes of control are more likely if the family owns a small equity stake or if the controlling stake is divided between more family members. Founding family ownership matters: we find that firms still controlled by the descendants of the founder in 1996 have a significantly lower probability of experiencing a subsequent change of control.<sup>14</sup> Finally, we find that the age of the controlling family as measured by the generation from the founder does not matter in Continental Europe but reduces significantly the probability of survival of U.K. family firms.

Importantly, our result of a life cycle of family ownership applying in the U.K. but not in Continental Europe is robust to the inclusion of control-enhancing mechanisms such as pyramids and wedges between voting and cash-flow rights of the controlling family. Although, as shown in

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<sup>14</sup> Additional analysis shows that the higher likelihood of control changes away from family control in the U.K. relative to Continental Europe is not due to U.K. families holding smaller initial stakes. While Table 6 shows that U.K. families *do* hold smaller initial stakes in the firms they control, a U.K. dummy in all regressions in Table 7 (not reported) is positive and significant even when controlling for the size of the family voting block in 1996.

Table 6, pyramids and control wedges are used significantly more often in Continental Europe than in the U.K., they explain very little of the probability of a change of control from family to non-family in our sample. Both mechanisms have the expected negative sign, but the pyramids coefficient is never significant and the control wedge coefficient is marginally significant only in Column 4. This result matters, because the life-cycle result, that family ownership declines over time in the U.K. but not in Continental Europe, might simply be due to the greater use of such control mechanisms in Continental Europe relative to the U.K. Our results indicate that the survival of family firms in Continental Europe is not driven by the use of control-enhancing mechanisms.<sup>15</sup> As described in the literature review, previous results have recorded underperformance of firms employing control devices; even more strikingly, we now find that they do not even make family control more durable.

An interesting result is our finding that if the family stake is divided between at least two family members, there is a higher likelihood of a control transfer over the following decade. This may be an indication that dispersion of blocks among family members may lead to conflicts within the family over control and ultimately to a sale of the business itself: for instance, one family member may extract private benefits of control at the cost of the other family members and the minority shareholders. This is consistent with the finding for Thai business groups in Bertrand et al. (2008), where dividing the family business among more descendants leads to lower subsequent performance.

Our key result from Table 4 is that age is a good predictor of changes of control in the U.K. but not in Continental Europe. This result was obtained from the sample of the largest 1,000 private and listed firms from each country and, given that our selection criterion is size, we may be introducing a survivorship bias in our analysis. In this section, we can test the life cycle hypothesis on a different sample: the universe of listed family firms. In Columns 2 and 3 of Table 7, we check whether family generation and firm age have a differential impact on the probability of changes of control in the U.K. compared to Continental Europe. Our results confirm those in

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<sup>15</sup> These results are related to the growing literature on the relation between family characteristics within family firms and performance. We confirm the results in Anderson and Reeb (2003) and Barontini and Caprio (2005) that founding family control is positively related to performance. However, we do not find evidence that second or higher generations are associated with higher chances of control changes. This result is potentially in conflict with the existing evidence that passing control from founder to descendants is associated with a reduction in performance (Pérez-González (2006), Villalonga and Amit (2006), and Morck, Strangeland and Yeung, (2000)).

Table 4, changes of control are more likely in family firms after the first generation and in older firms in the U.K., whereas they are less likely after the first generation and in older firms in Continental Europe.

In Column 4, we add return on sales and firm size (as measured by the log of sales) to the specification estimated in Column 1. We find that changes in control are less likely in larger companies and that poorly performing companies are more likely to experience a change of control (although the result is not statistically significant).

## **5. Cross-Sectional Evidence from 27 Countries**

In this section we test the robustness of our results on a much larger number of countries using the ownership structure of private and listed firms in the *ALL FIRM* data set. First, we examine firm age as the determinant of family control. Second, we assess the explanatory power of external financing needs and M&A activity for family control. Third, we consider the differences in profitability between family and non-family firms, in outsider versus insider systems.

### **5.1 Life Cycle Hypothesis**

Our first hypothesis is that, as they age, firms are less likely to be family controlled in outsider systems versus insider systems. We therefore expect firm age to be negatively correlated with family ownership, particularly in countries with high scores of the *Outsider* index.

Table 8 reports descriptive statistics for each country in 2006 in Panel A. The median sample firm is private, 18 years old, with EUR 122 million sales, EUR 83 million assets and 370 employees. Panel B shows univariate correlations between the family control dummy variable and firm age, firm size as well as industry-level external dependence, M&A activity and the country-level *Outsider* index in Panel A.

Panel B reports probit regressions where the dependent variable is the family control dummy variable. The regressions control for country and Fama-French industry fixed effects. Coefficients are reported as marginal effects and standard errors (in square brackets) are calculated by delta method and clustered at the country level. External dependence and M&A activity are calculated at the Fama-French industry level as in Table 5. Because ownership information is for 2006, we compute external dependence using data from the 1997-2006 period (instead than the 1987-1996 period as done before).

In Column 1, we show that on average there is no correlation between firm age on its own and family ownership. However, we find that the coefficient on the product of (Firm age) x (*Outsider*) is negative and statistically significant. The effect is economically significant: an increase by 27 years (which is one standard deviation of firm age) in a country such as the U.K. (which has an *Outsider* score of 1.19) is associated with a 4-percent larger decline in the probability of family ownership than a similar increase in firm age in Austria (which has an *Outsider* score of -0.9).

In Column 2, we test whether family firms are more likely to survive in industries with lower dependence on external finance. Since external dependence is an industry-level variable and the regression includes industry fixed effects, we include the interaction of external dependence with the *Outsider* index, but not *Ext Dep* itself. As in Table 5, we again find a negative correlation between external dependence (*Ext Dep*) and family ownership in outsider countries: The negative interaction (*OUT*) x (*Ext Dep*) coefficient shows that family firms are less common in industries that are more dependent on external capital in countries with a higher *Outsider* index.

In Column 3, we test whether family firms are more likely to survive in industries with less M&A activity. As before, we find a negative correlation between M&A activity (*M&A Act*) and family ownership in countries with a higher *Outsider* index, as the interaction (*OUT*) x (*M&A Act*) has a significantly negative coefficient.

In Column 4 we include all three interactions terms. The results are unchanged and all coefficients remain negative and significant, showing that the effects of external dependence and M&A activity are distinct influences on family ownership.

As a robustness test, we also re-run all regressions in Table 8 without industry fixed effects and add external dependence, and M&A activity as industry-level variables, while keeping the interaction terms. The results (not reported) show that all three industry-level variables have negative coefficients and are significant at the 1 percent level or better, while coefficients of the interactions are unchanged. As a further test we also construct an interaction of firm age and our inheritance tax variable and include it in regressions similar to those in Columns 1 to 4. The coefficient of the interaction is always negative but never significant, suggesting that our measure of inheritance tax does not influence the life cycle of family ownership. Since our

proxy for inheritance tax is relatively crude, we cannot rule out that inheritance taxes shorten the life of family firms.

In Column 5, we investigate whether the relation between country characteristics and the life cycle is a linear one or whether it only applies to the most outsider-oriented countries. For this we split all 27 countries into quintiles based on their *Outsider* score and define dummy variables for three groups; the lowest quintile *OUTQ1* contains the most insider-oriented countries, the three middle quintiles *OUTQ2-5* contain the middle ranking countries, and the highest quintile *OUTQ5* contains the most outsider-oriented countries. We use the middle ranking countries as the base case and include the interactions of *OUTQ1* and *OUTQ5* with *Firm age*, *External Dependence* and *M&A Activity* in column 5. The results show that the relationship between country characteristics and the life cycle of family ownership is non-linear and driven by firms in the most outsider-oriented countries, as none of the *OUTQ1* interactions are significant, while the interactions of the *OUTQ5* dummy with *Firm age*, *External Dependence* and *M&A Activity* are all negative and significant.

The analysis of the determinants of family ownership among the 27,684 listed and private firms of the *ALL FIRM* sample supports the results we obtain for the smaller *TOP 4,000* and *FAMILY LISTED* samples of firms. Family firms are more likely to become non-family controlled firms as they age in outsider-dominated countries. The relation between ageing and country characteristics is nonlinear and limited to strongly outsider-oriented countries; there is no effect of firm age on family ownership in more insider-dominated countries. Further, the evidence suggests that in outsider countries both possible channels for the dilution of family ownership—the need to raise external financing as well as the family selling part of their controlling stake—contribute to this life cycle dynamic of family ownership. In these countries, family firms are more likely to disappear over time if they belong to industries where external financing requirements and M&A activity are high. In insider countries, family firms do not become non-family firms over time and there is no evidence of these channels influencing the likelihood of family control across industries.

### **5.3 Performance**

As an extension of our previous discussion and in order to test Hypothesis H6, we finally turn to the analysis of firm performance across financial systems in Table 9. We find evidence in support

of the view that the dominant form of ownership alters institutions to their own advantage: family firms are more profitable than non-family firms in insider countries but not in outsider countries. Related to our earlier results, higher profitability of family firms in insider systems in turn increases the availability of internal financing and may thus further reduce the importance of external financing on family control in insider countries. We test the hypothesis for the 27,652 firms in the *ALL FIRM* sample in Columns 1 to 3 and for the largest 4,000 firms in the *TOP 4,000* sample in Column 4.

We consider three measures of performance, return on equity, return on sales and return on assets. In Panel A, on average we find that family firms have a higher return on equity than non-family ones. This difference in performance disappears in countries with a higher *Outsider* index. This result is consistent with hypothesis H6, which states that family firms are more profitable in countries with lower *Outsider* index.

In Panel B, we use return on sales as the measure of profitability. In this case, we do not find any difference in profitability on average between family and non-family firms. However, in more outsider countries family firms are less profitable than other firms, which may be consistent with hypothesis H6. Results are weaker in Panel C, where return on assets is the performance measure.

To illustrate the economic effect of these results, compare the relative profitability of family versus non-family firms in Austria (with a low *Outsider* score of -0.9) and Ireland (with a high *Outsider* score of 1) in Column 1. In Austria, family firms are more profitable than non-family ones: the difference is 4.92 percent (ROE), 0.90 percent (ROS), and 0.59 percent (ROA). Conversely, in Ireland family firms are less or similarly profitable than non-family firms: the difference is -0.4 percent (ROE), -1.0 percent (ROS), and exactly +0.4 percent for ROA. These differences, based on all firms in Column 1, extend with similar coefficients to listed firms only in Column 2, private firms only in Column 3, and to the *TOP 4,000* firms in Column 4.

## **6. Conclusion**

The striking feature to emerge from this paper is that, while the life cycle theory is one of the most widely cited “stylized facts” about the firm, it receives little support from the extensive analysis of this paper. It applies in some countries, but in many it is weak and slow. Basically it reflects a dilution of family ownership where a large amount of external equity is raised or there

is an active market for corporate control. In industries or countries where these do not occur then family ownership persists, even in the absence of control devices such as pyramids and dual class shares.

What has made the emergence of these insights possible in this paper is a combination of three things. First, we have had access to data on private as well as listed companies. Since private firms account for more than 80 percent of the top 1,000 companies in France, Germany and Italy, their exclusion from previous analyses has been a serious omission. Second, we have been able to trace through ownership to its ultimate source, even in cases where it is held via private firms. The previous attribution of ownership in these cases to concentrated family holdings has been found to be frequently incorrect. Third, and perhaps most significantly, we have been able to supplement cross-section analyses of the nature of ownership at a particular point in time in a large number of countries with more detailed panels of evolution over time. This is important in light of the large amount of control changes that occur in some but not all circumstances in a relatively short space of time.

Previous studies have reported the superior performance of family controlled firms in the absence of such control mechanisms as pyramids and dual class shares. This paper has observed the superior performance of family relative to dispersed ownership firms in insider but not outsider systems. These observations combined with the conclusion that equity markets dilute and extinguish family ownership in some but by no means all countries and industries suggests the potential co-existence of different ownership and control structures. Where financing and control can be achieved without stock markets or special control devices then family ownership is a powerful and persistent arrangement. Where it cannot then family ownership is rapidly extinguished and superior equity market related ownership patterns emerge. Consistent with the previous literature, this paper suggests the more successful transfer of family ownership across generations in some, namely insider, systems than other outsider systems. Whether overall one system dominates another and convergence on one system in preference to another is to be expected still remains to be answered.

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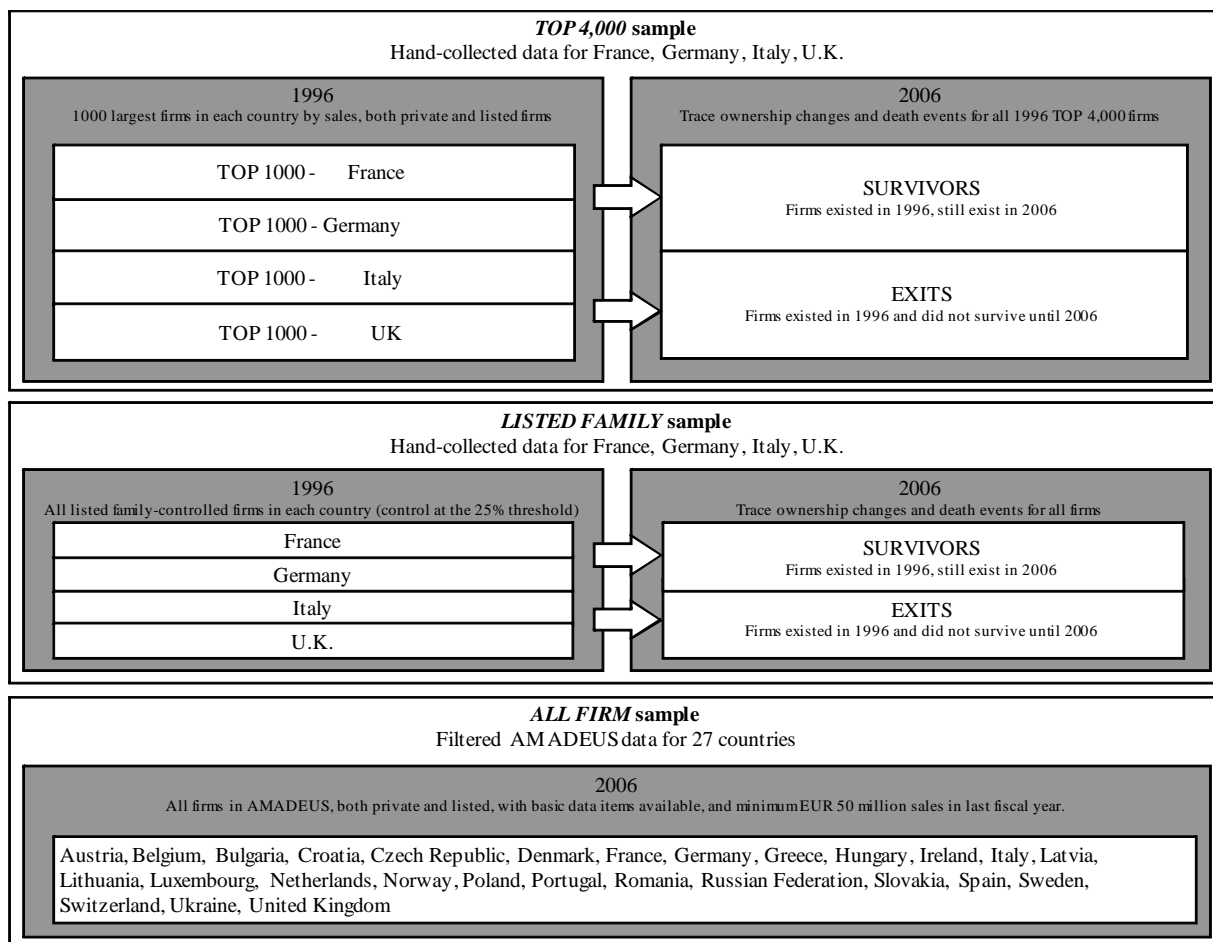
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**Figure 1. Firm Samples**

**Table 1. The Landscape of Ownership**

This table reports percentages of ownership types for the largest 1,000 firms by sales in France, Germany, Italy and the U.K. in 1996, i.e. the *TOP 4,000* sample. Panel A reports all firms with available ownership data. Panel B reports all firms that meet the criterion of Panel A and splits domestic and foreign block shareholder categories. In Panel C foreign ownership is redistributed into the other ownership categories. Numbers may not add to 100 percent due to rounding.

<b>Panel A: Ownership status of largest 1,000 firms</b>					
Ownership types (in percent)	Germany	France	U.K.	Italy	Total
Multiple blocks	4.4%	2.0%	0.3%	2.0%	2.1%
Family	35.9%	38.4%	10.9%	47.9%	33.1%
Foreign	18.4%	20.6%	33.9%	27.6%	25.2%
Other	2.1%	3.2%	2.8%	2.2%	2.6%
State	12.1%	8.8%	1.0%	12.5%	8.5%
Widely held	9.9%	8.9%	27.4%	5.6%	13.0%
Widely held parent	17.2%	18.2%	23.7%	2.3%	15.4%
TOTAL number of firms	923	970	980	954	3827
<b>Panel B: Ownership status of largest 1,000 firms, domestic and foreign blockholders separated</b>					
Ownership types (in percent)	Germany	France	U.K.	Italy	Total
<b>Domestic block shareholder</b>					
<i>Multiple blocks</i>	3.9%	1.9%	0.3%	1.7%	1.9%
<i>Family</i>	30.6%	28.7%	7.3%	40.5%	26.6%
<i>Other</i>	1.4%	2.6%	1.7%	2.2%	2.0%
<i>State</i>	10.0%	6.8%	0.8%	8.2%	6.4%
<i>Widely held parent</i>	8.2%	7.5%	3.7%	1.7%	5.3%
<b>Total</b>	<b>54.1%</b>	<b>47.5%</b>	<b>13.8%</b>	<b>54.3%</b>	<b>42.2%</b>
<b>Foreign block shareholder</b>					
<i>Family</i>	2.6%	4.0%	7.4%	2.7%	4.2%
<i>State</i>	1.1%	0.6%	0.5%	0.1%	0.6%
<i>Widely held parent</i>	10.5%	9.4%	14.5%	13.4%	12.0%
<b>Total</b>	<b>14.2%</b>	<b>14.0%</b>	<b>22.4%</b>	<b>16.2%</b>	<b>16.8%</b>
<b>Parent with ≥95% control</b>	<b>22.6%</b>	<b>29.9%</b>	<b>36.3%</b>	<b>24.0%</b>	<b>28.3%</b>
<b>Widely held</b>	<b>9.1%</b>	<b>8.7%</b>	<b>27.3%</b>	<b>5.6%</b>	<b>12.8%</b>
TOTAL number of firms	923	970	980	954	3827
<b>Panel C: Ownership status of largest 1,000 firms, foreign and domestic blockholders combined</b>					
Ownership types (in percent)	Germany	France	U.K.	Italy	Total
Multiple blocks	4.4%	2.0%	0.3%	2.0%	2.1%
Family	38.6%	43.8%	21.0%	53.1%	39.0%
Other	2.1%	3.2%	2.8%	2.2%	2.6%
State	13.5%	10.1%	2.0%	12.7%	9.5%
Widely held	9.9%	8.9%	27.4%	5.6%	13.0%
Widely held parent	31.5%	32.1%	46.4%	24.4%	33.7%
TOTAL number of firms	923	970	980	954	3827

**Table 2. Ultimate Control of Listed Versus Private Firms**

This table reports statistics for the largest 1,000 firms by sales in France, Germany, Italy and the U.K. in 1996 (the *TOP 4,000* sample) after combining domestic and foreign block shareholder types as in Table 1, Panel C. Panel A reports the percentage of listed firms in each of the four countries. Panels B and C describe the ownership structure of listed firms and private firms, respectively.

<b>Panel A: Frequency of listed firms among largest 1,000</b>					
	Germany	France	U.K.	Italy	Total
Listed firms, percent of all firms	14.5	13.6	27.8	8.4	16.1
<b>Panel B: Only listed firms among largest 1,000</b>					
Ownership types (in percent)	Germany	France	U.K.	Italy	Total
Multiple blocks	4.5%	0.8%	0.4%	3.8%	1.8%
Family	34.3%	48.5%	7.7%	66.3%	29.8%
Other	1.5%	8.3%	1.5%	0.0%	2.8%
State	12.7%	8.3%	0.4%	18.8%	7.1%
Widely held	21.6%	20.5%	85.3%	2.5%	46.9%
Widely held parent	25.4%	13.6%	4.8%	8.7%	11.7%
TOTAL number of firms	134	132	272	80	618
<b>Panel C: Only private firms among largest 1,000</b>					
Ownership types (in percent)	Germany	France	U.K.	Italy	Total
Multiple blocks	4.4%	2.1%	0.3%	1.8%	2.2%
Family	39.3%	43.1%	26.1%	51.9%	40.8%
Other	2.2%	2.4%	3.2%	2.4%	2.5%
State	13.7%	10.4%	2.7%	12.1%	10.0%
Widely held	7.9%	7.0%	5.2%	5.8%	6.5%
Widely held parent	32.6%	35.0%	62.4%	25.9%	38.0%
TOTAL number of firms	789	838	708	874	3209

**Table 3. Firm Survival and Transition of Ultimate Ownership**

This table reports data on the life cycle of family ownership for the largest 1,000 firms by sales in France, Germany, Italy and the U.K. in 1996 (the *TOP 4,000* sample). Panel A reports survival rates of firms over the decade. Panel B reports transition matrices for ownership types over the decade. The reported percentages are conditional survival probabilities. To illustrate reading the table: Conditional on the firm surviving the decade 1996 to 2006, in Germany out of all 166 firms that are family controlled in 1996, 124 (75%) are still family controlled in 2006.

<b>Panel A: Survival of the firm</b>									
	Germany	France	U.K.	Italy	TOTAL				
Number of firms in the TOP 1,000 in 1996	923	970	980	954	3827				
<i>Survival as entity:</i>									
Firm is among TOP 1,000 in 1996 and still exists as an entity in 2006 (%)	52.3	70.2	64.6	62.8	62.6				
<i>Survival at the TOP:</i>									
Firm is among TOP 1,000 in 1996 and still exists as an entity among the TOP 1,000 in 2006 (%)	34.7	48.6	40.8	35.4	40.0				
<b>Panel B: Transition of ownership - transition matrices</b>									
Germany									
	Family in 2006		Widely held in 2006		State in 2006		Other in 2006		No of firms
Family in 1996	124	<b>(75%)</b>	17	(10%)	0	(0%)	25	(15%)	166
Widely held in 1996	5	(9%)	29	<b>(54%)</b>	1	(2%)	19	(35%)	54
State in 1996	7	(9%)	7	(9%)	39	<b>(51%)</b>	23	(30%)	76
Other in 1996	29	(18%)	5	(3%)	5	(3%)	123	<b>(76%)</b>	162
France									
	Family in 2006		Widely held in 2006		State in 2006		Other in 2006		No of firms
Family in 1996	187	<b>(66%)</b>	19	(7%)	5	(2%)	74	(26%)	285
Widely held in 1996	7	(10%)	51	<b>(74%)</b>	0	(0%)	11	(16%)	69
State in 1996	11	(14%)	4	(5%)	41	<b>(53%)</b>	22	(28%)	78
Other in 1996	48	(20%)	8	(3%)	7	(3%)	177	<b>(74%)</b>	240
U.K.									
	Family in 2006		Widely held in 2006		State in 2006		Other in 2006		No of firms
Family in 1996	68	<b>(50%)</b>	11	(8%)	2	(1%)	56	(41%)	137
Widely held in 1996	11	(6%)	106	<b>(62%)</b>	1	(1%)	53	(31%)	171
State in 1996	3	(21%)	0	(0%)	7	<b>(50%)</b>	4	(29%)	14
Other in 1996	53	(17%)	5	(2%)	6	(2%)	247	<b>(79%)</b>	311
Italy									
	Family in 2006		Widely held in 2006		State in 2006		Other in 2006		No of firms
Family in 1996	243	<b>(77%)</b>	18	(6%)	6	(2%)	49	(16%)	316
Widely held in 1996	5	(14%)	29	<b>(81%)</b>	0	(0%)	2	(6%)	36
State in 1996	18	(28%)	4	(6%)	41	<b>(64%)</b>	1	(2%)	64
Other in 1996	25	(17%)	2	(1%)	7	(5%)	117	<b>(77%)</b>	151

**Table 4. Firm Age and Family Ownership**

This table reports probit regression results with the dependent variable being whether a firm is ultimately family-controlled (1) or not (0) in columns 1-3 and whether a firm survives the decade 1996-2006 (1) or not (0) in columns 4-6. It uses the *TOP 4,000* sample, i.e. the largest 1,000 firms by sales in France, Germany, Italy and the U.K. in 1996, both private and listed. Ultimate control is traced manually for all firms using the sources described in Appendix A. Coefficients are reported as marginal effects. Firm age is measured in hundreds of years. Foreign control equals one if the firm is ultimately controlled by a shareholder located in a different country from the firm itself. All regressions include industry fixed effects (not reported). U.K., France, and Italy are country-level dummy variables, with Germany as the base case. Robust standard errors of the marginal effects are calculated by delta method and clustered by country. \*, \*\* and \*\*\* indicate a coefficient significantly different from 0 at the 10%, 5% and 1% confidence level, respectively.

Dependent variable Sample	Firm is family controlled (1) or not (0)		Firm survives the decade (1) or not (0)	
	All firms (1)	All firms (2)	Family firms (3)	Family firms (4)
Firm age	0.012 [0.047]	0.055 [0.046]	0.092*** [0.020]	0.107*** [0.021]
(U.K.) X (Firm age)		-0.254*** [0.040]		-0.158*** [0.018]
France	-0.012 [0.013]	-0.005 [0.010]	0.111*** [0.006]	0.113*** [0.004]
U.K.	-0.145*** [0.021]	-0.039 [0.027]	0.143*** [0.016]	0.202*** [0.012]
Italy	0.076*** [0.027]	0.087*** [0.024]	0.124*** [0.017]	0.128*** [0.018]
Listed firm	-0.104* [0.056]	-0.106* [0.059]	0.110 [0.075]	0.109 [0.076]
Foreign ultimate control	-0.184 [0.126]	-0.190 [0.122]	-0.019 [0.022]	-0.021 [0.022]
Log (Sales)	-0.040*** [0.010]	-0.039*** [0.010]	0.005 [0.011]	0.005 [0.011]
Industry fixed effects	YES	YES	YES	YES
Observations	3732	3732	1359	1359
Pseudo R2	0.138	0.142	0.0574	0.0583

**Table 5. External Financing and M&A Activity as Determinants of Family Control**

This table reports probit regression results with the dependent variable being whether a firm is ultimately family-controlled (1) or not (0) in columns 1-3 and whether a firm survives the decade 1996-2006 (1) or not (0) in columns 4-6. It uses the *TOP 4,000* sample, i.e. the largest 1,000 firms by sales in the France, Germany, Italy and the U.K. in 1996, both private and listed. Firms in Fama-French industries with less than ten firms are excluded. Coefficients are reported as marginal effects. *Ext Dep* is a measure of external financial dependence computed at the industry level following Rajan and Zingales (1998) using all U.S. COMPUSTAT firms. *M&A Act* is an industry-level merger wave dummy that equals 1 if the number of successful takeovers (from SDC) scaled by number of listed firms (NYSE, AMEX and NASDAQ from CRSP) in a Fama-French industry is above the sample median, zero otherwise. *Ext Dep* and *M&A Act* are based on data from 1987-1996. Firm age is measured in hundreds of years. U.K., France, and Italy are country-level dummy variables, with Germany as the base case. Foreign ultimate control equals one if the firm is ultimately controlled by a shareholder located in a different country than the firm itself. All regressions include industry fixed effects (not reported). Robust standard errors of the marginal effects are calculated by delta method and clustered by country. \*, \*\* and \*\*\* indicate a coefficient significantly different from 0 at the 10%, 5% and 1% confidence level, respectively.

Dependent variable	Firm is family controlled (1) or not (0)			Firm survives the decade (1) or not (0)		
	Sample	All firms	All firms	All firms	Family firms	Family firms
	(1)	(2)	(3)	(4)	(5)	(6)
Firm age	0.016	0.012	0.014	0.109***	0.105***	0.108***
	[0.046]	[0.047]	[0.045]	[0.011]	[0.014]	[0.011]
(U.K.) x ( <i>Ext Dep</i> )	-0.064***		-0.078***	-0.168***		-0.178***
	[0.021]		[0.023]	[0.007]		[0.005]
(U.K.) x ( <i>M&amp;A Act</i> )		-0.128***	-0.135***		-0.163***	-0.169***
		[0.028]	[0.028]		[0.022]	[0.022]
U.K.	-0.151***	-0.077**	-0.075**	0.152***	0.265***	0.257***
	[0.023]	[0.036]	[0.036]	[0.013]	[0.024]	[0.026]
France	-0.011	-0.013	-0.013	0.113***	0.111***	0.113***
	[0.011]	[0.013]	[0.012]	[0.010]	[0.008]	[0.010]
Italy	0.056***	0.055**	0.056***	0.134***	0.132***	0.133***
	[0.021]	[0.022]	[0.021]	[0.021]	[0.017]	[0.020]
Listed firm	-0.116**	-0.114**	-0.115**	0.107	0.097	0.106
	[0.055]	[0.054]	[0.054]	[0.074]	[0.081]	[0.075]
Foreign control	-0.189	-0.191	-0.192	0.001	-0.005	-0.003
	[0.126]	[0.125]	[0.125]	[0.026]	[0.028]	[0.026]
Log (Sales)	-0.038***	-0.038***	-0.037***	0.007	0.007	0.007
	[0.007]	[0.007]	[0.007]	[0.012]	[0.010]	[0.012]
Industry fixed effects	YES	YES	YES	YES	YES	YES
Observations	3,371	3,384	3,371	1,280	1,289	1,280
Pseudo R2	0.135	0.138	0.138	0.0653	0.0649	0.0679

**Table 6. Family-Controlled Listed Firms**

This table is based on the population of 827 family-controlled listed firms in France, Germany, Italy and the U.K. in December 1996, i.e. the *LISTED FAMILY* sample. In Panel A, controlled via pyramids indicates that the firm has an ultimate owner that indirectly controls the firm through another corporation that the ultimate owner does not wholly control. Controlled via pyramids and average ratio of cash-flow to voting rights are from Faccio and Lang (2002) and calculated at the 20% control threshold. All reported values are country averages, unless otherwise noted. Firm age is measured in years. Panel B reports whether and how the status of the firm changed from being a listed family-controlled firm in 1996 over the decade. No change indicates the firm is still a listed firm controlled by the same family as in 1996. Went private indicates the firm delisted. Widely held in 2006 indicates the family no longer holds a controlling stake in 2006 but the firm was not subject to a takeover. Takeover indicates the firm was subject to a takeover. Default indicates the firm went into liquidation. Unknown status indicates the firm's ultimate owner in 2006 or the exact reasons for its disappearance over the decade are unknown. *p*-values indicate if the U.K. and the Continental European countries are significantly different using a t-test (rank sum test for return on sales).

<b>Panel A: Summary statistics for listed family firms in 1996</b>						
	Germany	France	U.K.	Italy	Total	<i>p</i> -value
Founding family still in control	49.0%	72.3%	91.2%	60.4%	69.7%	0.000
CEO is a family member	59.0%	80.8%	81.1%	74.5%	74.1%	0.001
Control divided among family members	63.4%	81.0%	47.0%	61.3%	58.5%	0.000
Dual class shares	23.7%	0.8%	16.6%	43.4%	17.4%	0.710
Controlled via pyramids	15.8%	13.1%	2.3%	22.6%	12.3%	0.000
Founder in control	15.8%	44.6%	56.2%	57.5%	40.5%	0.000
3 <sup>rd</sup> generation in control	45.5%	19.9%	15.2%	22.6%	26.8%	0.000
Ratio of cash-flow to voting rights	88.2%	98.1%	96.1%	73.6%	91.4%	0.000
Voting rights	68.1%	62.1%	41.8%	58.7%	57.9%	0.000
Return on sales (median)	2.3%	11.5%	6.9%	2.2%	4.0%	0.122
Firm age	91.5	71.7	38.6	48.6	66.2	0.210
<b>Panel B: Evolution of ownership from 1996 to 2006</b>						
	Germany	France	U.K.	Italy	Total	<i>p</i> -value
NO CHANGE	104	113	50	56	323	
Went private	17	34	15	21	87	
Widely held in 2006 (A)	13	17	56	6	92	
TAKEOVER (B)	75	81	79	15	250	
DEFAULT (C)	26	6	17	8	57	
Unknown status	18	0	0	0	18	
Total	253	251	217	106	827	
Frequency of changes in control (A+B+C)	48.5%	41.4%	70.0%	27.4%	48.3%	0.000

**Table 7. Ownership Changes in Listed Family Firms**

The table reports the estimates of a probit model for the *LISTED FAMILY* sample, i.e. all family-controlled listed firms in 1996 in France, Germany, Italy and the U.K. The dependent variable is whether the firm experiences a change of control during the period 1996 to 2006 (1) or not (0). A change of control is defined as a case where a family-controlled firm in 1996 is widely held in 2006, was taken over or defaulted between 1996 and 2006. Control wedge is a dummy for whether the family's voting rights differ from its cash-flow rights (1) or not (0). All other variables are from Table 6. Firms in column 4 satisfy the additional requirement of having financial data available on COMPUSTAT Global for 1996. Robust standard errors are in brackets. \*, \*\* and \*\*\* indicate a coefficient significantly different from 0 at the 10%, 5% and 1% confidence level, respectively.

Sample	Change of control from 1996 to 2006			
	All firms		Inc. year known	COMPUSTAT coverage
	(1)	(2)	(3)	(4)
Pyramids	-0.224 [0.171]	-0.128 [0.171]	0.098 [0.212]	-0.288 [0.243]
Control wedge	-0.107 [0.129]	-0.168 [0.129]	-0.185 [0.168]	-0.313* [0.173]
Founding family in control in 1996	-0.690*** [0.123]	-0.773*** [0.124]	-1.089*** [0.159]	-0.977*** [0.187]
Control divided among family members	0.200* [0.110]	0.205* [0.111]	0.282* [0.147]	0.384** [0.156]
Voting rights (%)	-0.018*** [0.003]	-0.014*** [0.003]	-0.011*** [0.004]	-0.020*** [0.004]
CEO is family member	-0.03 [0.124]	-0.058 [0.124]	-0.163 [0.164]	-0.081 [0.180]
1st generation in control	-0.159 [0.126]			-0.003 [0.170]
3rd generation in control	-0.147 [0.135]			-0.055 [0.185]
>=2nd generation		-0.139 [0.119]		
(>=2nd generation) x (U.K.)		0.887*** [0.176]		
Firm age			-0.009* [0.005]	
(U.K.) x (Firm age)			0.046** [0.019]	
Return on sales				-0.169 [0.796]
Log(sales)				-0.128*** [0.042]
Industry and country fixed effects	YES	YES	YES	YES
Observations	722	722	428	422
Pseudo R-squared	0.102	0.126	0.157	0.178

**Table 8. Life Cycle Hypothesis in 27 Countries**

This table reports results for the *ALL FIRM* sample, i.e. all firms in the AMADEUS database in December 2006, both private and listed, that meet the following requirements: i) Firm status is active according to the database, ii) sales, assets, operating profit, incorporation year, and industry are reported. iii) Net sales are at least EUR 50 million. Firms incorporated in countries not covered by Djankov et al. (2008) are excluded. Also excluded are firms in Fama-French 48 industries with less than ten firms in total. Panel A reports descriptive statistics and Panel B reports probit regressions, with the dependent variable being whether a family is family controlled (1) or not (0). Coefficients are reported as marginal effects. Firm age is measured in hundreds of years. *OUT* is the *Outsider* index from Appendix A. *OUT Q1* and *OUT Q5* are dummy variables for the lowest and highest quintiles of the *Outsider* index. *Ext Dep* is a measure of external financial dependence computed at the industry level following Rajan and Zingales (1998) using all U.S. COMPUSTAT firms. *M&A Act* is an industry-level merger wave dummy that equals 1 if the number of successful takeovers (from SDC) scaled by number of listed firms (NYSE, AMEX and NASDAQ from CRSP) in a Fama-French industry is above the sample median, zero otherwise. *Ext Dep* and *M&A Act* are based on data of U.S. firms from 1997-2006. All regressions include country and industry fixed effects (not reported). Robust standard errors of the marginal effects are calculated by delta method and clustered by country. \*, \*\* and \*\*\* indicate a coefficient significantly different from 0 at the 10%, 5% and 1% confidence level, respectively.

<b>Panel A: ALL FIRM sample descriptive statistics</b>										
Country	Austria	Belgium	Bulgaria	Croatia	Czech R.	Denmark	France	Germany	Greece	
Sample firms	39	1,499	14	87	311	1,127	4,801	2,189	319	
Family firms	11	59	4	34	24	115	1,097	527	107	
Median assets	91	60.8	74.2	84	69.1	77.6	77	105.2	97.9	
Median sales	186.1	113.3	94.1	107	115.6	119.2	115.2	149.8	112.4	
Median age	16	21	13	15	13	15	21	18	23	
Median employees	703	212	209.5	477	375	390	336	607	250	
Country	Hungary	Ireland	Italy	Latvia	Lithuania	Luxemb.	Netherl.	Norway	Poland	
Sample firms	175	122	2,716	13	16	7	1,373	979	133	
Family firms	3	35	567	4	10	1	28	127	31	
Median assets	52	91.2	84	22.1	44.4	77.4	92.2	86.7	59.3	
Median sales	126.5	125.5	105.6	82.7	91.5	255.6	145.7	119.5	99.2	
Median age	13	17	25	10	13	15	20	15	15	
Median employees	456	140	249	110	138.5	0	368	156.5	360	
Country	Portugal	Romania	Russia	Slovakia	Estonia	Sweden	Switzerl.	Ukraine	United K.	
Sample firms	350	155	507	50	1,039	1,568	219	272	7,604	
Family firms	56	43	17	1	157	65	26	44	1,687	
Median assets	101.1	62.8	81.3	19.4	87.1	80.8	337.1	79.5	87.4	
Median sales	111.8	96.9	129.8	100.3	112.2	121.1	312.7	118.9	130.9	
Median age	23.5	10	14	11.5	20	24	46	11.5	17	
Median employees	474	943	2315	375	332	378	1242	2175.5	465	

<b>Panel B: Probit regressions</b>					
Dependent variable:	Firm is family controlled (1) or not (0)				
	(1)	(2)	(3)	(4)	(5)
Sample	All firms	All firms	All firms	All firms	All firms
Firm age	0.012	-0.012	-0.013	0.010	0.012
	[0.012]	[0.018]	[0.019]	[0.011]	[0.009]
Listed firm	0.041	0.043	0.041	0.042	0.042
	[0.039]	[0.039]	[0.039]	[0.039]	[0.039]
Size	-0.044***	-0.044***	-0.044***	-0.044***	-0.044***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
( <i>OUT</i> ) x (Firm age)	-0.063***			-0.060**	
	[0.024]			[0.024]	
( <i>OUT</i> ) x ( <i>Ext Dep</i> )		-0.016***		-0.018***	
		[0.002]		[0.002]	
( <i>OUT</i> ) x ( <i>M&amp;A Act</i> )			-0.022*	-0.026**	
			[0.012]	[0.012]	
( <i>OUT Q1</i> ) x (Firm age)					-0.008
					[0.049]
( <i>OUT Q5</i> ) x (Firm age)					-0.067*
					[0.037]
( <i>OUT Q1</i> ) x ( <i>Ext Dep</i> )					0.046
					[0.037]
( <i>OUT Q5</i> ) x ( <i>Ext Dep</i> )					-0.025***
					[0.005]
( <i>OUT Q1</i> ) x ( <i>M&amp;A Act</i> )					-0.038
					[0.036]
( <i>OUT Q5</i> ) x ( <i>M&amp;A Act</i> )					-0.045***
					[0.010]
Observations	27684	27684	27684	27684	27684
Pseudo $R^2$	0.102	0.102	0.102	0.103	0.103
Country and industry fixed effects	YES	YES	YES	YES	YES

**Table 9. Comparison of Performance of Family versus non Family Firms**

This table reports OLS for the *ALL FIRM* and the *TOP 4,000* samples, where the dependent variable is return on equity in Panel A, return on sales in Panel B and return on assets in Panel C. Accounting items are lagged and as of December 2005. Performance is calculated by dividing operating profit (AMADEUS item *Operating P/L*) by book equity (item *Shareholder funds*), net sales (item *Operating revenue/turnover*) and total assets (item *Total assets*). All regressions include industry and country fixed effects. Robust standard errors are clustered by country and reported in brackets. \*, \*\* and \*\*\* indicate a coefficient significantly different from 0 at the 10%, 5% and 1% confidence level, respectively.

Sample	<i>ALL FIRM</i> sample			<i>TOP 4,000</i> sample
	All firms (1)	Only listed (2)	Only private (3)	All firms (4)
<b>Panel A: Dependent variable - return on equity</b>				
Family control	0.024*** (0.009)	0.020 (0.018)	0.025** (0.010)	0.033 (0.042)
( <i>OUT</i> ) x (Family control)	-0.028*** (0.011)	-0.009 (0.020)	-0.030*** (0.011)	
(U.K.) x (Family control)				-0.037 (0.040)
Log (sales)	0.003 (0.002)	0.024*** (0.009)	-0.001 (0.004)	0.020*** (0.008)
Listed firm	-0.124*** (0.016)			-0.081*** (0.031)
Adj. R <sup>2</sup>	0.0340	0.0273	0.0324	0.0398
<b>Panel B: Dependent variable - return on sales</b>				
Family control	-0.000 (0.002)	-0.005 (0.005)	-0.000 (0.002)	0.012 (0.009)
( <i>OUT</i> ) x (Family control)	-0.010*** (0.002)	0.001 (0.004)	-0.011*** (0.002)	
(U.K.) x (Family control)				-0.019* (0.010)
Log (sales)	0.000 (0.001)	0.005*** (0.001)	-0.001 (0.001)	0.002** (0.001)
Listed firm	0.025*** (0.003)			0.007 (0.008)
Adj. R <sup>2</sup>	0.134	0.135	0.119	0.110
<b>Panel C: Dependent variable - return on assets</b>				
Family control	0.005 (0.004)	0.006 (0.005)	0.005 (0.004)	0.013 (0.009)
( <i>OUT</i> ) x (Family control)	-0.001 (0.003)	0.002 (0.005)	-0.002 (0.003)	
(U.K.) x (Family control)				-0.011 (0.010)
Log (sales)	-0.001 (0.001)	0.005*** (0.001)	-0.002** (0.001)	0.005*** (0.001)
Listed firm	0.006 (0.004)			0.001 (0.012)
Adj. R <sup>2</sup>	0.0414	0.104	0.0385	0.0932
Industry and country fixed effects	YES	YES	YES	YES
Observations	27652	2058	25594	1911

### **Appendix A. The *Outsider* Index**

The table reports country-level data for the *Outsider* index and its components. Higher values of *Outsider* indicate more outsider-oriented financial systems. The index is calculated for all countries that are covered both by AMADEUS in December 2006 and by Djankov et al. (2008). Antidirector rights measure the rights of minority shareholders against directors, as revised by Djankov et al. (2008). Anti-self-dealing is the indicator produced by Djankov et al. (2008) to measure the power of minority shareholders against self-dealing by managers and controlling shareholders. Stock market capitalization over GDP is the ratio of the stock market capitalization to GDP for 2006. The number of listed firms is scaled by population (in millions) in 2006. M&A activity is the percentage of traded companies targeted in a completed deal between 2001 and 2006. Hostile takeovers is the number of attempted hostile takeovers as a percentage of traded companies during the same period. Both measures are from SDC Platinum. The voting premium is the average percentage difference in market value of voting shares compared to non-voting shares from Nenova (2003), Table 4. The block premium is the difference between the price per share paid for the control block and the exchange price two days after the announcement of the control transaction, as a percentage of the exchange price two days after the announcement from Dyck and Zingales (2004), Table 6. Both private benefits of control indicators are multiplied by minus one to capture that higher values indicate weaker governance. For each variable we compute the worldwide average and standard deviation using 72 countries. *Outsider* index is calculated as the equal-weighted sum of the eight normalized indicators. Indicators are normalized by worldwide average and standard deviation.

Country	Investor protection		Financial development		Market for corporate control		Private benefits of control		Aggregate indicator <i>Outsider</i> index
	Antidirector rights	Anti-self-dealing	Stock market capitalization / GDP (%)	Listed firms / population	M&A activity (%)	Hostile takeovers (%)	Voting premium (%)	Block premium (%)	
Austria	2.5	0.21	16.4	12.1	16.2	0	.	-38	-0.90
Belgium	3	0.54	67.2	15.5	18.7	2.5	.	.	0.33
Bulgaria	3	0.65	5.5	61	2.2	0	.	.	-0.18
Croatia	2.5	0.25	16.5	14.2	15.6	1.6	.	.	-0.27
Czech Republic	4	0.33	20.2	10.4	22.6	0	.	-35	-0.53
Denmark	4	0.46	58.6	39.4	16.8	0	-0.8	-4	0.27
France	3.5	0.38	89.5	13.7	22.7	0.7	-28.1	-1	0.10
Germany	3.5	0.28	54.7	10.6	19.9	0.9	-9.5	-11	0.02
Greece	2	0.22	91.4	29.7	12	0.6	.	.	-0.29
Hungary	2	0.18	24	5.5	39.8	0	.	.	-0.22
Ireland	5	0.79	67.7	17.9	29.2	2.8	.	.	1.02
Italy	2	0.42	52.8	4.9	23.9	1.1	-28.9	-16	-0.25
Latvia	4	0.32	8.5	26.7	6.5	0	.	.	-0.33
Lithuania	4	0.36	12.8	14.5	24.9	0	.	.	-0.04
Luxembourg	2	0.28	144.6	113.3	15	1.9	.	.	0.44
Netherlands	2.5	0.2	131.7	12.3	25.7	1.5	.	-3	0.27
Norway	3.5	0.42	39.7	40.2	36.3	1.6	-6.3	-1	0.55
Poland	2	0.29	16.7	5.7	14.5	0	.	-12	-0.45
Portugal	2.5	0.44	46.2	8.8	15	2.1	.	-20	-0.18
Romania	5	0.44	5.5	234.3	0.3	0	.	.	0.60
Russia	4	0.44	33.2	1.5	23	0	.	.	0.00
Slovakia	3	0.29	5.3	79.4	0.7	0	.	.	-0.4
Spain	5	0.37	79.9	45.9	2.1	0.5	.	-2	0.27
Sweden	3.5	0.33	112.3	31.4	30.5	1.8	-1	-3	0.59
Switzerland	3	0.27	249	36	16	4.1	-5.6	-7	0.76
Ukraine	3	0.08	5.9	3.6	0.6	0	.	.	-0.84
United Kingdom	5	0.95	157.7	33.1	22.8	3.3	-9.6	0	1.19
Worldwide average	3.4	0.44	59.4	27.7	13	1	-14	-11	0.00
Worldwide stdev	1.1	0.24	62.9	43.2	10.2	1.2	-14.6	-12.9	0.63

**Appendix B. Data Sources for Hand-Collected TOP 4,000 Sample**

Source name	Date range used	Data items
<b>Panel A: Electronic sources</b>		
Bureau van Dijk OSIRIS	2006-2007 various snapshots	Ownership and financial data, listed status, name changes
Bureau van Dijk AMADEUS	1996 CD-ROM issue, 2006 DVD issue	Ownership and financial data, listed status, name changes, survival, family CEO, founding family, family ownership structure
CAPITAL IQ	2007 snapshots	Ownership data, listed status of companies, name changes, survival, reasons for non-survival, family CEO, founding family
London Stock Price Database LSPD	1995-2007	Listed status of companies, survival, death reasons
FACTIVA	1980-2008	Ownership data, listed status of companies, survival, reasons for non-survival, family generation, family CEO, founding family, family ownership structure
Faccio and Lang (2002)	1996	Ownership data, listed status of companies
DATASTREAM	1996, 2006	Financial data
WORLDSCOPE	1996, 2006	Financial data
Google	2006-2008	Ownership data, listed status, name changes, survival, reasons for non-survival, family generation, family CEO, founding family, family ownership structure
CONSOB	1994-2007	Ownership data, listed status, name changes, survival, family CEO, family ownership structure
COMPUSTAT GLOBAL	1987-1996	Financial statements for listed firms
<b>Panel B: Hardcopy sources</b>		
Hoppenstedt Aktienfuehrer	1994-2007	Ownership data, name changes, survival, reasons for non-survival
Company Register	1994-2007	Ownership data, name changes
Calepino dell'Azionista	1994-2007	Ownership data, name changes, survival, reasons for non-survival
Dafsaliens annuaire de sociétés	1994-2007	Ownership data, name changes, survival, reasons for non-survival
Commerzbank, Wer gehoert zu wem	1984-2007	Ownership data, name changes, survival, family ownership structure

## Appendix C. Comparison of Ultimate Ownership Identification with Faccio and Lang (2002)

In what follows, we compare our ownership classification of listed family companies with the classification of Faccio and Lang (2002), henceforth FL. The data set provided by FL is the most widely used ownership data set for European firms. The main methodological difference between FL's and our approach to identify ultimate owners is that FL do not have information on the ownership of private firms, while we do.

The ownership of private firms affects the ultimate ownership of a public firm if a private firm appears anywhere in the chain of control that leads to the firm's ultimate shareholder. This is frequently the case. Our approach is to identify the controlling shareholder of all private firms in the control chain. FL's suggested solution for all such cases is to assume that the controlling shareholder is a family.

We begin with FL's sample of 1,359 listed companies, classified as family-controlled around 1996. We subject these 1,359 firms to our methodology of tracing controlling stakes to the ultimate controlling shareholder. According to our analysis, only 827 of the 1,359 firms can unequivocally be classified as controlled by families as of December 1996. We do not classify as family firms the remaining 532 firms — or 39% of the FL sample of family firms — because of clear-cut misclassifications (28%), ambiguous listing status of firms (4.3%) and cases where we have no information on the ultimate owner to confirm or reject the FL classification (7.6%).<sup>16</sup>

The table below shows in detail the source of these differences in classification. In Panel A we report the numbers of family firms in the FL sample and compare them with our classification. FL report 417 listed family firms in Germany, 395 in France, 425 in the U.K. and 122 in Italy. FL explicitly distinguish between two types of family firms. The firms that are classified as 'controlled by a family' are unambiguously identified as family firms by FL. The others are *assumed* to be family firms but FL can only show that they are 'controlled by an unlisted company,' which may or may not be a control vehicle of a family. Roughly half of the firms (652) have a family as their ultimate owner and the other half (707) have an unlisted company as their ultimate owner. We believe that only 827 (about 60 percent) of the 1,359 companies are in fact family-controlled firms.

Panel B breaks down the differences in classification according to the FL methodology. We use the numbers for Germany to illustrate the results. For Germany we disagree with FL's classification for 164 cases (417 original family firms in FL minus 253 family firms in our study). Out of these 164 cases, 32 are firms that according to FL are unambiguously identified as family controlled, and 132 are firms that are *assumed* to be family controlled because they are controlled by a private company. Hence, the large majority of cases with a conflicting classification (132 out of 164) originate from the sub-sample of firms controlled by an unlisted company in FL. This pattern is very similar in the three other countries. In France, 98 out of 144, in the U.K. 154 out of 208 and in Italy 11 out of 16 misclassifications are from the sub-sample of firms controlled by an unlisted company according to FL. This strongly indicates that *the assumption that firms controlled by an unlisted company are family controlled is not appropriate*: overall, in the four countries, it is wrong in 55% of cases (395 misclassifications out of 707 firms controlled by a private company).

Finally, Panel C provides the three reasons for the disagreement between FL's and our classifications, for all 532 firms or 39% of the original FL sample of family firms. First and most importantly, for 28% of the original FL firms we find evidence that they are not really family controlled. The importance of this misclassification varies across countries, with Italy being the country with the lowest number of misclassifications (13% of the original sample), and the U.K. being the country with the highest number of misclassifications (33%). Second, for 4.3% of the original FL sample we do not find any evidence that the company was listed in 1996. There are three possible reasons for this inconsistency: FL may be sampling the company at a later date, including some (large) unlisted companies or firms listed on a minor stock exchange. This happens only in the U.K. and Germany. Third, for 7.6% of the original FL sample we were not able to identify the ultimate

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<sup>16</sup> Another reason for differences in classification could be that the threshold for control is 25% of voting rights throughout our paper and 20% in FL. We found only a few listed companies where the controlling family owns between 20% and 25% of voting rights.

controlling shareholder. Hence, we can neither confirm nor reject the classification as a family firm for these cases.

<b>Panel A: Family firms according to FL and this study</b>					
	Germany	France	U.K.	Italy	Total
Number of family-controlled firms according to FL	417	395	425	122	1,359
Of which:					
- Controlled by a family	184	163	224	81	652
- Controlled by an unlisted company	233	232	201	41	707
Number of family-controlled firms according to our study	253	251	217	106	827

<b>Panel B: Differences in classification of family firms between FL and this study</b>					
	Germany	France	U.K.	Italy	Total
	164				
Number of family-controlled firms according to FL that we classify as non-family controlled	[= 417-253]	144	208	16	532
Of which:					
- Controlled by a family according to FL	32	46	54	5	137
- Controlled by an unlisted company according to FL	132	98	154	11	395

<b>Panel C: Reasons for inconsistent classification</b>					
	Germany	France	U.K.	Italy	Total
1) Firm is not family controlled according to our sample (%)	25.2%	29.9%	33.4%	13.1%	28.0%
2) Firms is not a listed firm in 1996 according to our sample (%)	8.4%	0.0%	5.5%	0.0%	4.3%
3) Unknown ownership in our sample (%)	5.8%	6.6%	12.7%	0.0%	7.6%

## Appendix D. Ownership information for the ALL FIRM sample

To classify firms, we rely on seven AMADEUS data items:

1. *Independence Indicator*: Classifies the degree of independence of the firm. Ranges from A+ (highest independence) to D (lowest independence), also takes value U (unknown independence).
2. *Shareholder type*: Classifies shareholder types. Types include, but are not limited to, “Bank”, “Financial company”, “Insurance company”, “Industrial company”, “Public authorities”, “One or more known individuals or families”, “Employees/managers/directors”, “Self ownership”.
3. *Direct Ownership*: Percentage of voting rights held by the shareholder directly.
4. *Total Ownership*: Percentage of total voting rights held by the shareholder where the path through which ownership is held may be direct *and* indirect.
5. *Ultimate Owner type*: Classifies the entity identified as the ultimate owner of a firm. Types include, but are not limited to, “Bank”, “Financial company”, “Insurance company”, “Industrial company”, “Public authorities”, “One or more known individuals or families”, “Employees/managers/directors”.
6. *Ultimate Owner Direct Ownership*: Percentage of voting rights held by the ultimate owner directly.
7. *Ultimate Owner Total Ownership*: Percentage of total voting rights held by the ultimate owner where the path through which ownership is held may be direct *and* indirect.
8. *Ultimate Owner BvD number*: Unique identifier of the ultimate owner

We proceed by cleaning the raw data in several steps: *Independence Indicators* are grouped into five categories, A, B, C, D, U, eliminating subcategories A+, A-, etc. Then, *Ultimate Owner BvD numbers* are extracted for known ultimate owners and merged with data taken from OSIRIS, an additional BvD database. OSIRIS covers firms globally and therefore allows identification of ultimate owners outside of the geographical coverage of AMADEUS, i.e. outside Europe. Next, special cases of *Direct Ownership* and *Total Ownership* are translated into numeric values. Examples of this are “wholly owned” is translated into 100% ownership, “majority owned” is translated into 51% ownership. Then, for both *Ultimate Owner* and for *Shareholder*, aggregate the reported stakes by using the *Total Ownership* stake and replacing it with the *Direct Ownership* stake if *Total Ownership* is missing. Next, remove blocks of unaffiliated shareholders that for reporting purposes have been grouped together by AMADEUS in categories such as “Public”, “Small shareholders”, “Unnamed private shareholders” etc.

After this initial cleaning, we apply seven filters to assign each firm to one of the previously described four ownership categories:

- Filter 1: Classify a firm as being widely held if the firm is known not have any shareholder with a stake larger than 25 percent, i.e. a firm that is classified as independent. [Classifies 2,768 firms]
- Filter 2: Classify a firm as ultimately controlled by a family if it is reported to have a family as its ultimate owner. [Classifies 4,274 firms]
- Filter 3: Classify a firm as ultimately controlled by a non-family owner if the firm’s ultimate controlling shareholder is a firm that itself is widely held, i.e. does not have an ultimate controlling shareholder. [Classifies 4,866 firms]
- Filter 4: If information about the type of the ultimate owner is missing classify but the firm is not widely held, classify the firm as having a family as ultimate owner if there are shareholders listed that are classified as “Individual(s) or family member” and one shareholders owns at least 5 percent and all family type shareholders together own at least 25 percent. [Classifies 560 firms]
- Filter 5: If the firm is reported to have an ultimate controlling shareholder that is a bank, an insurance company, another type of financial company, a foundation or an industrial company, classify the firm as having a family as its ultimate controlling shareholder if there are family-type shareholders of the firm that hold at least a 5% stake. If the firm has no family-type shareholder who owns at least a 5% stake classify the firm as having a non-family ultimate controlling shareholder. [Classifies 5,719 firms]

- Filter 6: If the ownership status of the firm is unknown and the independence of the firm is unknown according to AMADEUS, classify the firm as having an unknown ownership status. [Classifies 6,929 firms]
- Filter 7: If the firm is known to have a shareholder that holds at least a 25% stake but the type of the ultimate controlling shareholder is unknown, classify the firm as family-controlled if there are family-type shareholders reported that own at least a 25% stake. If there is no family-type shareholder reported that owns at least a 25% stake, but there are other types of shareholders with stakes of 25% or higher, classify the firm as controlled by a non-family ultimate shareholder. If there are no shareholders with stakes of at least 25% classify the firm as having an unknown ownership status. [Classifies 2,568 firms]

Collectively, the filters assign each of the 27,684 sample firms to one of the ownership categories.