Family Ownership and the Stock Market

The effects of family ownership on stock returns, analyst coverage, and M&A activity in Switzerland

Thesis

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Preface

“About half the businesses I have bought are family businesses and there are different families in every case.”

“Family-owned businesses share our long-term orientation, belief in hard work, and a no-nonsense approach and respect for a strong corporate culture.”

Warren Buffett (Lausanne, 2008)

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“Soyons reconnaissants aux personnes qui nous donnent du bonheur ; elles sont les charmants jardiniers par qui nos âmes sont fleuries.”

Marcel Proust

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Finalement, ma dernière pensée va à mes deux grands-pères qui s'en sont allés pendant mon doctorat et qui auraient été fiers de cet accomplissement.

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List of abbreviations

ADR	American depositary receipt
AR	Abnormal return
CAR	Cumulative abnormal return
CEM	Coarsened exact matching
CEO	Chief executive officer
CHF	Swiss Franc
EPS	Earnings per share
FMB	Fama and MacBeth (1973) approach
ICB	Industry classification benchmark
M&A	Mergers and acquisitions
OLS	Ordinary least squares
POLS2C	Pooled panel regression with double clustered standard errors
RBV	Resource-based-view
ROA	Return-on-assets
ROE	Return-on-equity
SATT	Sample average treatment effect on the treated
SIC	Standard Industrial Classification
SPI	Swiss Performance Index

Introduction

1. Ownership structures across time and location

Based on the work of Berle and Means' (1932), academics and practitioners in finance argued up until the late 70's that firms in the U.S. were widely held. This means that the ownership of their capital was dispersed among many small shareholders, whereas control was mainly concentrated in the hands of the managers.[1] Berle and Means' (1932) book was the starting point of a body of research on firm management and the costs of the separation of ownership and control. One of the most influential research papers is that of Jensen and Meckling (1976) on the conflict of interest between small shareholders and professional managers. They use theoretical models to suggest that managers fail to maximize shareholder wealth because they are too tempted to extract private benefits of control[2]. One solution to this conflict of agency is to align the interests of managers with those of shareholders by giving the managers a significant number of company stocks.

However, since the beginning of the 80's, this view of all firms being widely held began to be challenged by several academics. Demsetz (1983) argues that this observation is relevant only for the largest U.S. firms and shows that generally board members and managers own a large proportion of the shares.[3] Holderness and Sheehan (1988) find similar results and identify over 650 listed companies in the United States in 1984 with a majority shareholder holding more than 50% of the votes. According to Holderness et al. (1999), this difference with Berle and Means (1932) is partially explained by the evolution of the modern company. They compare a sample of U.S. firms listed in 1935 with a comparable sample listed in 1995 and find that ownership by managers has increased considerably.

The ownership structure of firms has also been analyzed outside the U.S., and academic results support the hypothesis of concentrated ownership for several markets. Franks and Mayer (2001)[4] find that over 85% of German companies in the year 1990 have a large shareholder holding more than 25% of the firm's shares, and that this proportion remains above 50% when the threshold is increased to 50%. Gorton and Schmid (1996) find for their

[1] The term 'widely held firm' used in the rest of this thesis refers to this definition.

[2] Benos and Weisbach (2004, p.3) define private benefits of control as "benefits that accrue to managers or shareholders that have control of the corporation, but not to the minority".

[3] In a random sample of 50 *Fortune500* firms, board members and managers own, on average, 17.5% of the shares, compared to 32.5% in a random sample of small firms not included in the *Fortune500* ranking.

[4] The first unpublished version of this article dates from 1994.

1974 sample of German firms that 70 companies out of 88 have a major shareholder holding more than 25% of the shares, compared to 46 out of 57 for their 1985 sample. By analyzing a sample of 734 Japanese companies in 1984, Prowse (1992) finds that the percentage of shares held by the five largest shareholders of each company is, on average, 33.1% (compared to 25.4% in the USA) and that financial institutions are the main largest shareholder. Gerson and Barr (1991) analyze the South African market in 1989 and point out that the majority of the analyzed firms have a large shareholder holding more than 50% of the voting rights. Finally, Xu and Wang (1999) find that, out of a sample of 316 Chinese companies listed in 1995, about 30% are controlled by the state, 30% by institutional investors, and 30% by private investors.

Following these studies, La Porta et al. (1999) provide the first systematic and comparable study on ownership structure. They analyze the ownership structure of the 20 largest listed firms in 27 developed countries around the world. Except for some countries with high shareholder protection, such as the USA, the U.K., or Japan, most of the economies analyzed show concentrated ownership. These large shareholders[5], usually the state or the founding family, generally have voting rights in excess of cash-flow rights via pyramids or multiple share classes, and often actively participate in the management of the firm. Finally, their power is rarely contested by another large shareholder. Becht and Barca (2001) provide an even more comprehensive image of ownership concentration in Europe by analyzing the ownership structure of eight countries using larger samples. Again, the only exception is the U.K., where widely held firms are predominant. Claessens et al. (2000) provide another systematic study on the ownership structure of nine countries in East Asia. They find that about two-thirds of the largest firms in the year 1996 are controlled by a family or an individual. Carney and Child (2013) replicate the Claessens et al. (2000) study for the year 2008. They find that family firms remain the most dominant form of publicly traded company in East Asia; however, widely held ownership dominates in Japan and Taiwan. Barontini and Caprio (2006) confirm the results of concentrated ownership in Continental Europe, and their decomposition-per-type of large shareholder indicates that families are usually the main shareholder (52.6%), followed by another widely held firm (17%), and then by a financial institution (15.1%). Using almost all listed companies in 13 European countries, Faccio and Lang (2002) conclude that two types of ownership structure prevail: widely held firms (36.93%) and family firms (44.29%).

[5] They define a large shareholder as: an entity holding, either alone or in a group, more than 20% of the voting rights.

While academics agree almost unanimously on the presence of an ownership concentration throughout the world (except for a few countries like the U.S., the U.K., or Japan), recently some researchers, such as Anderson et al. (2003), Anderson and Reeb (2003a), Gadhoum et al. (2005), Villalonga and Amit (2009), and Holderness (2009), challenge this point of view. They argue that the ownership structure in the United States differs very little from that of other countries and that about 30-40% of U.S. firms also have a family as the main shareholder. This contradiction with past literature comes mainly from the definition and the threshold various authors have chosen to define a blockholder and/or a family firm, as well as from their firm sample. Anderson et al. (2003), Anderson and Reeb (2003a), and Villalonga and Amit (2009) define a firm as 'family owned' when the founder or a member of their family is a blockholder, a board member, or an officer. Contrary to La Porta et al. (1999) they do not use any threshold. Holderness (2009), who claims that 96% of U.S. firms have blockholders who hold, on average, 39% of the stocks, also uses a low threshold (5%) and aggregates the holdings of different blockholders in the same firm. When looking only at the largest shareholder in the firm, he finds that he/she owns, on average, 26% of the stocks. Contrary to the four studies cited above, which use small samples and low thresholds, Gadhoum et al. (2005) analyze a large number of U.S. firms (3,607 firms in 1996) and use both a 10% and 20% threshold of voting rights to define a blockholder. When using a 10% threshold, they find that almost 60% of U.S. firms have a controlling shareholder (36.60% family-controlled); however, when using a 20% threshold, this proportion decreases to 28.11% (19.82% family-controlled), which corresponds to the results obtained by La Porta et al. (1999). To conclude, although U.S. firms have blockholders (usually families) who hold a substantial number of shares, these proportions remain largely below those of European or Asian companies.

2. Fundamentals of family firms

The previous section shows that family firms are the most prevalent form of business entity in most nations (Morck and Yeung (2004); Astrachan and Shanker (2003)). Gersick et al. (1997) estimate that 65-80% of all businesses (both listed and unlisted) in the world are owned by a family, whereas Colli (2003) mentions that this is the case for around 90% of all businesses in the United States. Among listed public firms, Villalonga and Amit (2010) find that founding families have significant control over more than 50% of all U.S. public companies; this is also the case in about one-third of the largest U.S. public firms (Anderson and Reeb (2004)). In Western Europe, almost half of the listed firms are considered family firms (Faccio and Lang (2002)), while in East Asia the figure is about two-thirds (Carney and

Child (2013); Claessens et al. (2000)). Furthermore, family firms operate in almost all industries (Chen et al. (2008)).

The following sections review the fundamentals of family firms. First, various common definitions of family firms are presented. Then, explanations for the distinctiveness of family firms are discussed.

2.1. Definition

Both the managerial and the financial literature agree that there is no unique definition of the family firm (Harms (2014); Kraus et al. (2011); Miller et al. (2007); Chrisman et al. (2005)). Based on Westhead and Cowling (1998) and Diéguez-Soto et al. (2015), the variety of definitions can be categorized in the following ways:

(1) family ownership, based on the share of voting and/or cash-flow rights held by family members. According to Pindado and Requejo (2015) this is the more common definition used in the family business literature (57.3% of all studies and 66.7% of finance papers). However, no consensus exists across studies with regard to the voting rights threshold. Claessens et al. (2000) use a threshold of 5% of the voting rights to define a family firm, whereas Barontini and Caprio (2006) and Maury (2006) place it at 10%. La Porta et al. (1999), in probably the most influential study on ownership structure, designate a threshold of 20% to define the ultimate owner[6], later supported by Faccio and Lang (2002). Other studies take an even more conservative point of view featuring higher thresholds, such as 33% (Barth et al. (2005)), 50% (Ang et al. (2000)), 50.1% (Holderness and Sheehan (1988)), and even 60% (Donckels and Fröhlich (1991)).

(2) family management, based on whether the family is involved in the management of the firm. For Fahlenbrach (2009), a firm is a family firm if the CEO is the founder or co-founder. Some researchers broaden their definition to include a member of the founder's family as CEO (McConaughy et al. (1998)) or to include family members among the top two officers (Morck et al. (1988)). For Daily and Dollinger (1992), including only one individual is not enough to characterize a firm as a family firm; there must be two or more individuals with the same last name listed as officers.

[6] The ultimate owner is the major shareholder of the final link in a chain ownership structure. For example, when the major shareholder of a firm is itself a corporate entity, the ultimate owner is the major shareholder of the final firm.

(3) inter-generational ownership transition. Bennedsen et al. (2007) define a firm as family-owned whenever an incoming CEO is related by blood or marriage to the outgoing CEO. Key determinants include the transfer of power between family members (Churchill and Hatten (1987)) and the transfer of control and management to the next generation (Ward (1988)). For Handler (1990), a firm is defined as a family firm when members serving in the management or on the board influence the major operating decisions and plans for leadership succession.

(4) family involvement in a business perceived to be a family business. For Binder (1994), the CEO or chairman perceiving their company to be a family business, or the directors of the company being related to each other (but not necessarily to the founding family) is sufficient to define a firm as a family firm. In the same way, firms dominated by members of an 'emotional kinship group' are considered family firms by Carsrud (1994). Diéguez-Soto et al. (2015) determine whether a firm is a family firm by considering a firm's self-perception, or 'familiness' (Sageder et al. (2016)).

(5) multiple conditions. Some definitions are based on a combination of two conditions, such as a minimum threshold and board representation (Gomez-Mejia et al. (2003); Allen and Panian (1982)). Others are less restrictive and allow either condition, such as Anderson and Reeb (2003a, 2004)[7] or Villalonga and Amit (2006)[8]. Yet others are more restrictive, requiring combinations of several conditions. For example, Channon (1971) requires a family member to be CEO, at least two generations of family control, and the family must hold a minimum of 5% of the voting rights, to allow a firm to be classified as family firm.

This overview of the main definitions used in previous academic work shows that there are almost as many definitions as studies on that subject. As mentioned by Arregle et al. (2007), the heterogeneity of family firms is one of the biggest challenges in developing a general definition of the family firm. Family firms are, indeed, a unique group, but they also differ a lot within that group (Kraiczy (2013)). The specific definition is critical for each unique study and depends on the research perspective. As shown by Miller et al. (2007) in the context of firm performance, results can be highly sensitive to the definition used.

[7] Fractional equity ownership by the founding family and/or presence of family members serving on the board.
[8] Founder or member of the family is an officer, director, or owns 5% of the firm's equity.

2.2. Uniqueness of family firms

As mentioned by several academics (Bennedsen and Fan (2014); Cheng (2014); Chrisman et al. (2005); Anderson and Reeb (2004)), families are a unique type of shareholder. According to Anderson et al. (2003, p.267), they have “unique incentive structures, a strong voice in the firm, and powerful motives to manage one particular firm”. They are different from other shareholders or blockholders in at least three respects: they hold an undiversified portfolio, they seek the firm’s long-term survival, and they face more reputation concerns.

The majority of the wealth of family members is invested in their company. Anderson et al. (2003) estimate that founding families in the U.S. have, on average, more than 69% of their wealth invested in their firm. They cannot diversify their capital as a normal investor might if they want to keep control of their company. This poorly diversified portfolio generates strong incentives for the family to monitor the firm (Anderson et al. (2003)), which increases firm value (Cheng (2014)).

Also, families have potentially longer investment horizons than other shareholders (Cheng (2014)) and prefer investing in long-term projects over shorter managerial horizons (Anderson and Reeb (2003a)). Their long-term orientation manifests itself in longer CEO tenures and consideration of future generations (Zellweger et al. (2012); Le Breton-Miller and Miller (2006)). According to Casson (1999) and Chami (1999), founding families view their firm as an asset to pass on to the next generation rather than wealth to consume during their lifetime, suggesting that family firms invest more efficiently than nonfamily firms (James (1999)). Firm survival is thus an important concern for families, and firm value maximization is preferable to shareholder value maximization (Anderson et al. (2003)).

In addition, families face reputation concerns in several ways. Usually family firms enjoy long histories and strong commitment from family members. This family involvement contributes to the creation of a family firm’s identity (Deephouse and Jaskiewicz (2013); Zellweger et al. (2010)) and family members will consider the firm an extension of themselves (Dyer and Whetten (2006)). This drives families to create a unique image and to maintain a good reputation (Sageder et al. (2015); Zellweger et al. (2013); Danes et al. (2008)). For example, they are more focused on customer loyalty and building long-term relationships with stakeholders (Zellweger et al. (2012)). This strong identification with the firm can turn into a competitive advantage and have longer-lasting economic consequences (Anderson and Reeb (2003a)), such as a lower cost of debt financing compared to other firms (Anderson et al. (2003)), which in the end supports firm performance. Moreover, as pointed out by Craig et al. (2008), a family firm’s name is often linked to the family name itself. Family members

will continue to be identified with the company even if they are no longer running it (Westhead et al. (2001)). Family members are thus highly motivated to protect both the firm and the family reputation (Block (2010); Cooper et al. (2005)).

Considering the aforementioned arguments, it seems reasonable to posit that family firms are different from nonfamily firms. However, family firms are not a homogenous group (Arregle et al. (2007)).

The first distinction that can be made among them is the generation of the family firm (Isakov and Weisskopf (2014a); Villalonga and Amit (2006); Barontini and Caprio (2006); Perez-Gonzalez (2006)). Family firms at the founder stage, with the founder still running the company and bringing unique and value-adding skills, might be different from family firms at the descendant stage, where descendants might be criticized for being spoiled brats and less skilled (Cheng (2014)). According to researchers, about 70% of family firms do not survive the first generation (American Management Services (2011); Beckhard and Dyer (1983)), 10-15% pass the reigns as far as the third generation (Applegate (1994)), and only 3% continue to exist through the fourth generation (American Management Services (2011)). Descendants typically run well-established firms—with a long history, strong experience, and a good reputation—that have survived several successions, whereas founders typically run new and more risky firms where mistakes might be fatal.

The second distinction that can be made among family firms is the involvement of the family in the management of the firm (Isakov and Weisskopf (2014a); Sraer and Thesmar (2007); Villalonga and Amit (2006); Barontini and Caprio (2006); Anderson and Reeb (2003a)). Families that have an active role in management ensure that their preferences are reflected (Cheng (2014)), whereas conflicts or misaligned interests between managers and the family could arise when the family is not involved. On the one hand, the family may have better control over outside managers, which would decrease Agency Costs I. On the other hand, the family might extract private benefits of control, which would increase Agency Costs II (Isakov and Weisskopf (2014a)). Barontini and Caprio (2006) find that family firms perform worst when the family is not involved in the management at all. Yet, they perform best not when families manage the firm (i.e. the CEO is a family member), but when families limit themselves to monitoring (i.e. the family sits on the board as a non-executive member). Family control seems beneficial for the firm only when family involvement is moderate.

The third distinction is the number of family members involved in the firm (Isakov and Weisskopf (2014a); Miller et al. (2009); DeAngelo and DeAngelo (2000)). If there is just one person, he or she will be able to run the firm as he or she believes is appropriate. However,

in the case of multiple family members, conflicts may arise regarding how to manage the firm, and decisions could be made to satisfy family members rather than other shareholders. Cheng (2014) mentions the example of the Georgina Rinehart family, one of the richest families in Australia. Before his death, founder Lang Hancock named his daughter Georgina Rinehart trustee of the Hope Margaret Hancock Trust, with his four grandchildren as beneficiaries. However, a few years after he passed away, three of the grandchildren sued their mother to remove her as sole trustee due to a commercial conflict. Conversely, Bennedsen and Fan (2014) offer the Mulliez family as a good example of how a company with a large number of descendants can do very well. Their small French textile manufacturing company, founded circa 1900, has become one of the largest retail distribution groups in the world—including well-known companies such as Auchan, Decathlon, and Leroy Merlin—all begun by relatives of the founder. As of 2011, the group were in their fourth generation with 780 direct descendants. To prevent conflicts between heirs, the Mulliez family implemented a unique governance structure, the *Association Famille Mulliez* (AFM)[9], which controls the family's business interests.

Finally, all these different classifications can interact together and create other categories—each one distinct—such as founder-CEO firms or descendant-CEO firms (Cheng (2014); Fahlenbrach (2009); Villalonga and Amit (2006)), or firms with a lone founder or multiple founders (Miller et al. (2007)).

The unique features of family firms described in this section have motivated researchers to investigate their impact on firm behavior.

2.3. Theoretical explanations for the differences between family firms and nonfamily firms

Research has shown that family firms behave differently than other firms, and several theoretical explanations have been provided to explain these differences. However, Chrisman et al. (2005) emphasize that there is no unique and fully accepted theory explaining the distinctiveness of family firms. Nevertheless, according to the reviews of Pindado and Requejo (2015) and Villalonga et al. (2015), agency theory is the most widely used in empirical family research (56% of all studies and about 70% of finance studies), followed by

[9] 550 of the 780 descendants belong to the AFM.

other theories such as the stewardship theory, the social capital theory, and the resource-based-view (RBV) approach.

As mentioned above, scholars, particularly in finance, typically suggest the agency conflict framework as a theoretical explanation for the difference between family firms and nonfamily firms, where there are two main conflicts: one between managers and shareholders (Type I) and one between majority and minority shareholders (Type II) (Cheng (2014)).

The first type of agency conflict occurs when managers and shareholders become separated, and managers act in their own best interest rather than the best interest of the shareholders (Jensen and Meckling (1976)). However, this kind of conflict is rather uncommon in family firms for several reasons. First, family members are often involved in the management of the firm. They might hold top executive positions, such as CEO, or be represented on the board of directors. Thus, there is no incentive misalignment in this case (Cheng (2014)). Second, even if families are not involved in management, they have strong incentives to monitor managers. Their undiversified portfolio, their long-term view with regard to passing the firm to the next generation, and their reputation concerns lead to better control and more monitoring of managers. Ownership concentration—particularly family ownership—serves as a mechanism to mitigate the first agency problem (Villalonga et al. (2015)).

The second agency conflict arises when majority shareholders seek to expropriate minority shareholders (Shleifer and Vishny (1986)). This may occur with family firms where the family holds a large stake and the other shareholders hold small stakes. Families may expropriate other shareholders by extracting private benefits of control (Grossman and Hart (1980)). Such benefits could be monetary, e.g. excessive compensation, related-party transactions, or special dividends (Burkart et al. (2003)), or non-monetary, e.g. hiring or keeping an incompetent CEO because he is the son of the founder. Families may also expropriate minority shareholders if they have disproportionate control over the firm. This might be done through the use of dual class shares or pyramidal structures to dissociate voting rights and cash-flow rights (Villalonga and Amit (2009); Faccio and Lang (2002); Claessens et al. (2000)), or through obtaining disproportionate board representation (Villalonga and Amit (2009); Shleifer and Vishny (1986)). This could lead to suboptimal corporate decisions which serve the family (to the detriment of minority shareholders) and aggravate the second type of agency conflict (Villalonga et al. (2015)).

In summary, compared to nonfamily firms, family firms face both the more severe Type II agency problems (between majority and minority shareholders) and the less severe Type I agency problems (between managers and shareholders).

Based on this agency cost theory, some researchers propose altruism (Schulze et al. (2003); Schulze et al. (2001)) and entrenchment as the main forces that explain the difference between family and nonfamily firms (Chrisman et al. (2005)).

Schulze et al. (2003) explain this difference by citing the parent-child relationship which sometimes characterizes altruism. For the authors, "Altruism compels parents to care for their children, encourages family members to be considerate of one another, and fosters loyalty and commitment to the family and firm. Altruism, however, has a dark side in that it can give both parents and children incentive to take actions that can threaten the welfare of the family and firm alike" (Schulze et al. (2003, p.474)). Altruism creates agency costs for family firms. For example, like parents with a biased perception of a child's performance, families are usually more generous in terms of perquisite consumption and have more difficulty enforcing a contract (Chrisman et al. (2005)). On the other hand, altruism can have positive consequences, as pointed out by Eaton et al. (2002), who show that with reciprocal altruism[10], family firms might have lower reservation prices for certain business opportunities (e.g. low overheads and less bureaucratic processes), which leads to competitive advantages in pursuing those opportunities.

Initially, entrenchment arises when managers with increased ownership are able to extract private benefits from owners, thereby decreasing firm value (Morck et al. (1988)). However, Gomez-Mejia et al. (2001) show that the effects of entrenchment may be worse in family firms than in nonfamily firms. Family ownership entrenchment may occur, for example, when succeeding generations try to obtain competitive advantages by using their wealth and influence rather than by innovating (Morck and Yeung (2003, 2004)), or when families engage in tunnelling[11]. However, ownership entrenchment of families can also have positive effects (Chrisman et al. (2005)), and when compared to nonfamily firms, incentives and monitoring can have advantages as well (Pollak (1985)). This is particularly the case in countries where minority shareholders are poorly protected by law (Burkart et al. (2003)). In such cases, families provide protection for minority shareholders against expropriation (Shleifer and Vishny (1997)).

As an alternative to agency theory, some scholars propose the stewardship theory. According to Davis et al. (1997, p.24) it is a theory that "has its roots in psychology and sociology and

[10] Both family owner and family manager are altruistic toward each other.

[11] Chrisman et al. (2005, p.562) define tunnelling in family firms as follows: "In tunnelling, family owners use cost allocation to push expenses down toward subsidiaries in which they have the lowest beneficial ownership, and use transfer pricing to pull revenues up toward the holding company in which they have the highest beneficial ownership."

was designed for researchers to examine situations in which executives as stewards are motivated to act in the best interests of their principals". Managers are more likely to pursue organizational objectives rather than personal ones if they identify with their organization and its values (Poutziouris et al. (2006)). Applied to family firms, stewardship theory views family managers as stewards who act in the best interests of the firm and/or the family rather than serving their own self-interest (Miller and Le Breton-Miller (2006)), because they are emotionally connected to their companies and motivated by higher-level needs such as firm success or the satisfaction of the family (Donaldson and Davis (1991)). This identification creates trust in and loyalty to the organization (Menéndez-Requejo (2005)). According to this theory, board members might be viewed as mentors who help family managers generate value (Huse (2000)) and provide expert advice and counsel, rather than control the family's actions (Anderson and Reeb (2004)). This attitude is especially prevalent in earlier generations (Poutziouris et al. (2006)), in firms where leaders are family members or are closely tied to the family (Miller and Le Breton-Miller (2006)), and in firms with multiple family members involved (Miller et al. (2008)). The benefits for firms associated with stewardship are lifelong commitment to the firm and assiduous management of organizational resources (Davis et al. (1997)), favourable relations with stakeholders (Miller et al. (2008); Arregle et al. (2007)), and satisfaction of the need for affiliation, self-actualization, generosity, and legacy (Le Breton-Miller and Miller (2009)).

Some studies on family firms propose the social capital theory as explanation for the distinctiveness of family firms. Adler and Kwon (2002, p.23) define it as follows: "Social capital is the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor." In this theory, the crux is the interaction and exchange between individuals (Kraiczy (2013)). Social capital can be defined through three dimensions (Nahapiet and Ghoshal (1998)): structural (network linkages between actors), relational (nature of connections), and cognitive (shared representations, language, interpretations, or systems of meanings between actors). Because of relationships among family members which are based on trust and a shared language (Kraiczy (2013)), family is "a source, builder and user of social capital" (Bubolz (2001, p.130)). This can translate into several benefits for the firm, such as: the creation of intellectual capital and product innovation (Adler and Kwon (2002)); the reduction of transaction costs, facilitation of information flows, and improvement of creativity (Arregle et al. (2007)); or successful alliances (Ireland et al. (2002)).

Finally, in addition to the aforementioned theories, scholars in the strategic management field try to explain the differences between family and nonfamily firms with a resource-based-view

approach. This approach tries to identify the resources and capabilities that make family firms unique and allow them to develop competitive advantages (Habbershon and Williams (1999); Barney (1991)). This theory is based on the assumption that firms within an industry are heterogeneous and that their resources are not moveable across firms (Barney (1991)). To create a competitive advantage and increase firm performance, these resources must be valuable, unique, inimitable, and non-substitutable (Kraiczy (2013)). Habbershon and Williams (1999, p.1) posit that family involvement creates "a bundle of resources that are distinctive to a firm" which are "identified as the familiness of the firm". The interaction between family members and their unique capabilities generate firm value (Chrisman et al. (2003)). According to Sirmon and Hitt (2003), family firms use some resources in different ways than nonfamily firms, which allows them to develop competitive advantages. The authors distinguish between the following five sources: social capital[12], human capital[13], patient capital[14], survivability capital[15], and the 'governance structures' attribute[16]. For example, in the case of human capital, family firms might benefit from extraordinary commitment (Donnelley (1964)), intimate and friendly relationships (Horton (1986)), and deep firm-specific tacit knowledge (Sirmon and Hitt (2003)), whereas these characteristics are not as prevalent in nonfamily firms.

3. Motivation and aim of the thesis

Literature regarding the impact of family firms on corporate and financial decisions is still incipient. However, according to Villalonga et al. (2015), family firms have emerged as one of the leading research subjects in the last 10-15 years. Several scholars address this topic by looking at the differences between family and nonfamily firms, usually regarding a specific feature. The following are some of the areas covered by academics.

Anderson and Reeb (2004) look at the board composition of U.S. founding families and the link between firm performance and board independence. They find that families hold, on average, 20% of all board seats, and that less than half of the directors are independent; while in nonfamily firms more than 60% of directors are independent. Furthermore, they find

[12] Burt (1997) defines social capital as the relationships between individuals or between organizations.

[13] Coleman (1988) defines human capital as the acquired knowledge, skills, and capabilities of an individual.

[14] Dobrzynski (1993) defines patient capital as financial capital that is invested without threat of liquidation over the long term.

[15] "Survivability capital represents the pooled personal resources that family members are willing to loan, contribute, or share for the benefit of the family business" (Sirmon and Hitt (2003, p.343)).

[16] Sirmon and Hitt (2003) define the governance structure attribute as the costs associated with control of the firm (incentives, monitoring, and controls, for example).

that family firms with high levels of board independence perform better than nonfamily firms or family firms with insider-dominated boards, highlighting the potential role of independent directors in moderating the family's power. Black et al. (2010), after researching the Brazilian market, and Gonzáles et al. (2012), after researching the Colombian market, find that family firms tend to have less professional boards with high family presence, a low number of independent directors, and longer directorates reflecting long-term family commitment.[17] However, both family directors and outside directors can have a positive impact on firm performance. Villalonga and Amit (2009) confirm the overrepresentation of family members on the board in 60% of U.S. family firms but find no significant impact of disproportionate family representation on firm value.

Concerning dividend policy, results are rather varied. On the one hand, some scholars find that family firms are more generous towards shareholders. Studies of several markets, such as Australia (Setia-Atmaja et al. (2009)), Japan (Yoshikawa and Rasheed (2010)), nine Eurozone countries (Pindado et al. (2012)), Germany (Schmid et al. (2010)), and Switzerland (Isakov and Weisskopf (2015)) come to the conclusion that family firms have higher pay-outs than nonfamily firms. The latter explain this finding mainly by way of family need for income, and, to a lesser extent, family firms' willingness to build a good reputation. On the other hand, some academics, such as Villalonga and Amit (2006) and Gonzáles et al. (2014), studying the U.S. and Colombian market respectively, find that family firms pay significantly lower dividends than nonfamily firms.

As far as diversification is concerned, Anderson and Reeb (2003b) look at the sales made outside a firm's primary Standard Industrial Classification (SIC) and find that family firms are less diversified than nonfamily firms. Contrary to their initial hypothesis that families may use corporate diversification to mitigate risk levels and preserve wealth, they explain their findings with the notion that families seek to maximize the value of their stake by minimizing diversification discounts. Schmid et al. (2015) analyze the business segment diversification of listed German firms, and differentiate family-owned firms from family-managed firms. They find that family-owned firms are more diversified than all other kinds (20% more diversified), but family-managed firms have less diversification (20% less diversified). They explain their different finding from Anderson and Reeb (2003b), citing that U.S. firms are less concentrated than German firms and are more likely to be family-managed than family-owned. In line with

[17] Board turnover is 6% in family firms while it is 20% in nonfamily firms (Gonzáles et al. (2012)).

this positive relationship, Miller et al. (2010) find that when family firms do acquire, they tend to buy firms in different sectors to allow the family to diversify their wealth portfolio.

Chen et al. (2010) study the behavior of public family firms with respect to taxation. They find that public family firms are less tax-aggressive than public nonfamily firms and care less about tax benefits, mainly due to fear of reputation damage in case of tax-related lawsuits. Steijvers and Niskanen (2014) find a similar pattern for private family firms when compared to private nonfamily firms.

Some academics also look at the differences regarding corporate opacity and the informativeness of earnings and stock prices. Except Anderson et al. (2009), who rank founder- and heir-controlled firms lower in their opacity index and classify them as less transparent, the vast majority of studies find a positive link between family firms and transparency. Wang (2006) finds that founding family ownership is associated with higher earnings quality and greater earnings informativeness. Ali et al. (2007) find that family firms make more informative financial disclosures, report better quality earnings, and are more likely to warn of bad news. The increased disclosure of earnings warnings by family firms is corroborated by Chen et al. (2008). Isakov and Weisskopf (2014b), by looking at idiosyncratic risk, conclude that family firms issue more information and are more transparent. All these results are consistent with the hypothesis that family firms want to address litigation and reputation concerns and release more accurate information in order to comfort minority shareholders that they are not being expropriated.

Concerning the financial structure and the indebtedness of family firms, with the exception of Anderson and Reeb (2003b) who argue that family ownership has little effect on capital structure choices, most studies find a negative relationship between family ownership and level of debt. McConaughy et al. (2001) find that U.S. family firms use less debt—particularly short-term debt—than nonfamily firms. Gallo et al. (2004) estimate that the leverage ratio for Spanish family firms is 48% smaller than for their nonfamily counterparts. Ampenberger et al. (2013) show that this negative relationship is typically driven by the presence of a founder-CEO. Molly et al. (2010) focus solely on family firms and look at the impact of succession on leverage. They find that the transfer from the first to the second generation decreases debt ratio, whereas transfers to latter generations increase it. Diéguez-Soto et al. (2015) argue that family firms rely more strongly on internally generated funds and are averse to debt so as to avoid losing control over the firm (Allouche et al. (2008)). Finally, according to Anderson et al. (2003), founding family firms face a lower cost of debt because they have incentive structures that decrease agency conflicts between equity and debt holders.

Firm performance, which is a good indicator of organizational success, has probably received the most attention by researchers on family firms (Mazzi (2011)). Agency theory and other perspectives, such as stewardship or RBV, suggest family ownership's positive and negative impact on firm value. Which of these two impacts is dominant and what the consequences are in terms of firm performance are empirical issues and remain open questions. Results vary widely between studies. A large number find a positive effect of family ownership on performance, such as Isakov and Weisskopf (2014a), Villalonga and Amit (2006), Maury (2006), Anderson and Reeb (2003a), La Porta et al. (2002), Claessens et al. (2000), or Xu and Wang (1999)). However, some authors also observe a negative influence ((Lemmon and Lins (2003); Morck et al. (1998)) or no significant relationship (Barontini and Caprio (2006); Holderness (2003); Himmelberg et al. (1999); Craswell et al. (1997)). Furthermore, some scholars find a non-monotonic relationship, that is, a positive relationship to certain percentages of ownership and a negative relationship to other percentages (Claessens et al. (2002); McConnell and Servaes (1990); Morck et al. (1988)). As family firms are not a homogenous group, some studies also focus on characteristics of family firms. Villalonga and Amit (2006) and Anderson and Reeb (2003a), among others, highlight the role of the founder in explaining the higher performance of family firms. A similar positive result is also found with family involvement, as pointed out by Stewart and Hitt (2012) in their literature review on that topic. The large majority of these studies use profitability (return-on-assets, or ROA[18]) or relative valuation (Tobin's Q) to measure firm value and performance. Only a few scholars take the perspective of the investor and look at stock returns (Lilienfeld-Toal and Ruenzi (2014); Miralles-Marcelo et al. (2013); Fahlenbrach (2009); Cella (2009); Corstjens et al. (2006)). Results usually show higher stock performance among family firms, however these results are not always significant.

In addition to the varied results evidenced in academic literature on the financial behavior of family firms, family firms have attracted the attention of various market participants.

For example, media regularly report stories involving families, such as the case with Sika[19] in Switzerland in 2014, or with Adelphia Communications[20] in the USA in 2002. In both cases,

[18] To a lesser extent, the return on equity (ROE).

[19] Sika is controlled by the heirs of the founder through a holding company (SWH holding) which holds 16% of the capital and 52% of the voting rights. In December 2014, the SWH holding company decided to sell its stake to a French competitor (Saint-Gobain) with a premium of 80%, where only the SWH holding company would benefit from the premium. Not only do other shareholders not benefit from the premium but they are at risk with this change of control. Sika's stock price fell dramatically after this announcement and minority shareholders sued the company for this decision.

[20] Adelphia Communications, founded in 1952 by John Rigas, was a cable television company in the USA which filed for bankruptcy in 2002 due to internal corruption. The Rigas family, who were the majority shareholder, extracted benefits of control by financing their extravagant lifestyle at the expense of the minority shareholders.

families extracted private benefits of control to the detriment of minority shareholders and were sued. However, these cases are the exception rather than the rule, and media opinion seems largely positive, as shown in these next examples. David Larrabee, director of corporate and member products at the CFA Institute, reports in the *Financial Times* (Larrabee (2013)) that "Founding families, […], tend to exert a positive influence on companies, […]. Family-controlled groups are more inclined to have a long-term perspective, a strong corporate culture and conservative financial management, all attributes conducive to long-term share outperformance". Randall (2009) cites in *Forbes* the example of Frank Martin, who is a stock picker focusing only on founding families and whose portfolio "has returned 6.6% a year, far outpacing the S&P 500's 3.5% in annual losses during that time". In its "Wealth Adviser" section of April 2010, *The Wall Street Journal* (2010) even describes family-owned businesses as an antidote to corporate short-termism. *The Economist* (2014), in an article on family firms, claims that "companies controlled by founding families remain surprisingly important and look set to stay so".

Warren Buffett, probably the most influential and followed investor in the world, is known for investing in family-owned businesses (*The Wall Street Journal* (2010)). For example, in 2006, he purchased a large stake of Iscar, an Israeli family-owned cutting-tools company and, in 2008, a majority stake in Marmon Holdings, a U.S. family-owned industrial company (Smith (2008)). More recently, he bought the Van Tuyl Group, America's largest family-owned car dealership chain (*The Economist* (2014)).

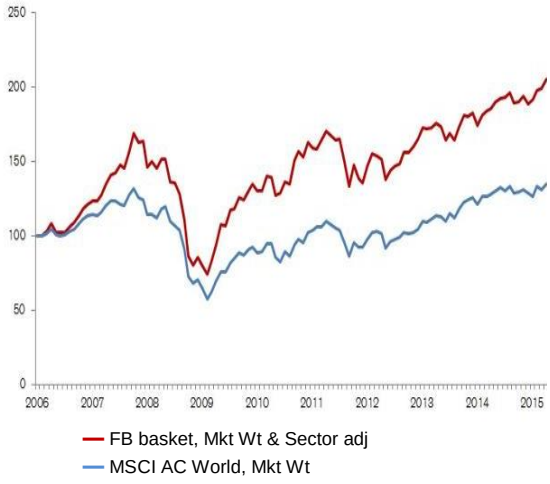
Recently, banks have also begun to be interested in family firms. UBS (2016) and Credit Suisse (2015), the two largest banks in Switzerland and major financial actors in the world, have published reports on investing in family firms. Their index investing in large family firms around the world[21] has largely outperformed their benchmark (as shown in Figures 1 and 2 below), and both banks suggest such investment as an opportunity to customers.

These examples emphasize the interest of practitioners in the market performance of family firms. However, the academic literature on these issues is scarce. This thesis tries to fill this gap and aims to analyze from a financial point of view three different aspects associated with the stock market perception of family firms in Switzerland: stock market performance, analyst coverage, and mergers and acquisitions activity.

Both John and his son were convicted of conspiracy, bank fraud, and securities fraud after the firm filed for bankruptcy (Larrabee (2013)).

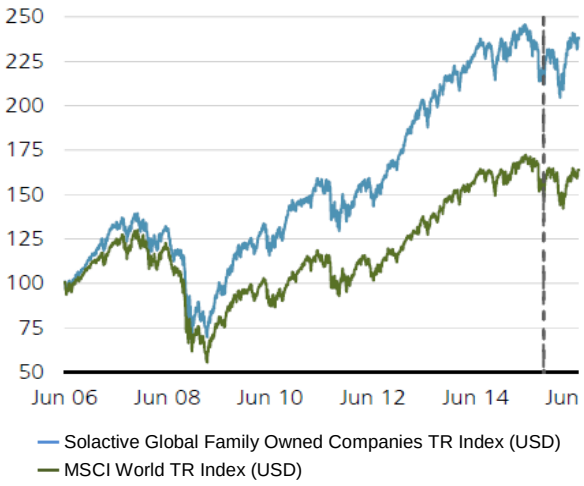
[21] 900 firms for Credit Suisse and 500 firms for UBS.

Figure 1: CS Global Family 900 universe (Credit Suisse) compared to the benchmark MSCI ACW1 Index



Source: Credit Suisse (2015)

Figure 2: Solactive Global Family Owned Companies TR Index (UBS) compared to the benchmark MSCI World TR Index



Source: UBS (2016)

There are several reasons for analyzing the Swiss market. First, in comparison to other countries, especially the U.S., families in Switzerland have a very high level of firm ownership. Families own, on average, about 50% of the voting rights in Switzerland, whereas they own only 17.88% in the U.S. (Anderson and Reeb (2003a)). Families have more than 50% of the voting rights in more than half of Swiss family firms, and more than 80% for a few firms (8%). Moreover, there is seldom a second large shareholder to counterbalance family power. This creates a unique and interesting setting in which families are very powerful and expropriation and entrenchment might arise. Second, even though it has a smaller number of listed firms (221 domestic companies in 2016), Switzerland is one of the largest financial centers in the world in terms of market capitalization. The majority of international studies (Barontini and Caprio (2006); Faccio and Lang (2002); La Porta et al. (1999); La Porta et al. (1998, 2002)) include it in their samples, but almost no one focuses on the Swiss market with deep insight.[22] Minority shareholders are poorly protected by law,[23] however Swiss companies voluntarily adopt good governance practices to attract foreign investors and to expand their business internationally. Furthermore, the stability of the economy, the quasi-nonexistent corruption, and compliance with laws and regulations increase the country's attractiveness.[24] Third, since 2003 and the Swiss Exchange's adoption of a corporate governance directive (Directive

[22] Exceptions are: Gardiol et al. (1997), Ledentu (2008), Schmid (2009), and Isakov and Weisskopf (2014a).

[23] La Porta et al. (1998) attribute a score of 2 out of 5 to Switzerland for their anti-director rights index and Djankov et al. (2008) attribute a score of 3 out of 5 for Switzerland's revised anti-director index and 0.27 out of 1 for the country's anti-self-dealing index.

[24] See La Porta et al. (1998), Kaufmann et al. (2009), or Schwab and Sala-i-Martin (2012).

Corporate Governance (2002)), all listed firms in Switzerland have to include a corporate governance report in their annual report. Precise data on ownership structure[25] and on board and executive composition are provided in the report and are available for research purposes. Holderness (2009) stresses the importance of using hand-collected data rather than commercial databases when working on ownership structure. Only a close reading of proxies allows for the correction of problems such as double counting, preferred stock, or unreported blocks in the customary ownership table. Thanks to the relatively small number of listed companies in Switzerland, it is possible to collect reliable data that cover the entire market. This allows for working with the entire population of firms, rather than a limited sample of companies as in most other studies. For the reasons mentioned above, Switzerland provides an interesting setting for investigating the stock market perception of family firms.

The literature usually defines Switzerland as a country with a high ownership concentration. La Porta et al. (1999) find that 60% of the 20 largest Swiss firms are widely held, 30% are family firms, and 5% are held by another widely held financial firm, when using a threshold of 20% of the voting rights. When using a threshold of 10%, the proportion of family firms increases to 40% and that of widely held firms decreases to 50%. By using a sample of 10 medium-sized firms, the results differ slightly, with a proportion that is shared equally between widely held firms (50%) and family firms (50%) for the 20% threshold. By using a larger sample,[26] Faccio and Lang (2002) find that 48.13% of the firms have a family as the main shareholder,[27] 27.57% are widely held, 9.35% are held by another widely held financial firm, and 7.32% are held by the state. Furthermore, small and medium firms are more commonly held by a family. Both studies also find a high discrepancy between voting rights and cash-flow rights in Switzerland. This is mainly due to the use of multiple share classes. On average, having about 15% of the cash-flow rights is enough to control 20% of the voting rights. Schmid (2009) further finds that the majority of firms using multiple share classes are family firms. Ownership concentration in Switzerland is also highlighted by Barontini and Caprio (2006). They add that family firms in Switzerland positively influence the market value of the firms, but negatively influence their accounting performance. Finally, Isakov and Weisskopf (2014a) analyze all non-financial listed companies in Switzerland between 2003 and 2010 and find that, on average, 36% of the firms are held by the founding family, 37% are widely held, and 27% are held by another blockholder.[28] Contrary to Barontini and Caprio (2006), they find

[25] All Swiss listed firms have to divulge any sole or group shareholders holding more than 3% of the voting rights of the company (Directive Corporate Governance (2002) and Stock Exchange Act (2013)).

[26] 214 Swiss listed firms at the end of the 90s'.

[27] They use a threshold of 20% of the voting rights to define the majority shareholder.

[28] They use a threshold of 20% of the voting rights to define the majority shareholder.

that there is a positive influence of family firms on accounting performance (measured by ROA) and no influence of family firms on market value (measured by Tobin's Q).

4. Structure of the thesis

As mentioned in Section 2 of this introduction, defining a large shareholder as well as a family firm is the first step in researching ownership structure. For the three studies conducted in this thesis, a 20% threshold of ultimate voting rights is used to define the majority shareholder for each firm. This definition is common in the finance literature (for example, Barontini and Caprio (2006); Faccio and Lang (2002)) and ensures that the largest shareholder has enough power to influence company decisions. To insure accuracy, data on ownership structure are hand-collected from the annual reports of companies, Swiss stock guides, firm homepages, or the commercial register when needed.[29] Firms are then classified by 'type of owner' as family firms, widely held firms, and firms held by another blockholder[30]. A firm is classified as a family firm if one or more individuals have founded the company, or if one or more individuals are descendants of the founding family (or founding families, if there are several founders). A family firm further includes individuals or families who are neither founders of the company nor descendants of the founding family, but who have been involved with the firm for a long time and have significantly influenced the company.[31] This definition allows for the distinguishing of firms held by a family from those held by a private investor, which was not typically done in previous studies (exceptions are Isakov and Weisskopf (2014a) and Andres (2008)). Private investors are defined as one or more individuals who have neither founded nor inherited the company, nor shaped it in a substantial way over the years. Their motivations are thus potentially different from those of a founding family. This might bias the results when these investors are included in the category of family firms. Several distinctions are therefore also made for family firms according to their generation, their involvement in management, or the number of family members involved.

The first part of this thesis explores the relationship between founding family ownership and stock market performance for a sample of 195 companies listed on the Swiss Exchange for

[29] The database on ownership structure for the period 2003-2010 originates with Isakov and Weisskopf (2014a). This database has been extended through hand-collection of additional information for the period 2011-2013 and for 10 new listed firms.

[30] The group of firms held by another blockholder is then subdivided as owned by: the state, a private investor, another widely held corporation, another widely held financial firm, and miscellaneous (blockholders not classified into any other group).

[31] For example, this is the case with the Hayek family and the Swatch Group. The Hayek family did not found the company but for decades has owned a large part of the shares and has held several management positions.

the period 2003-2013. It seeks to empirically find out whether family firms exhibit higher stock returns than other types of firms, and provide some explanations based on the increase in the risk of expropriation faced by investors. First, a univariate setting is used to determine whether there are differences in terms of stock returns according to the ownership structure. Then, a portfolio approach is used to determine the abnormal returns earned in excess of the Fama-French (Fama and French (1992, 1993)) and Carhart (1997) risk factors. Finally, a multivariate analysis is performed to address other firm characteristics that might drive outperformance. To provide some explanation, the percentage of voting rights and the involvement of the family in management are analyzed, as well as the surprise and abnormal returns surrounding earnings announcements.

The second part examines the relationship between ownership structure, analyst coverage, and forecast error. By using a sample of 160 non-financial companies listed on the Swiss Exchange for the period 2003-2013, it seeks to empirically provide evidence of the lack of attractiveness of family firms as seen by analysts when compared to widely held firms or those owned by another blockholder. To study this relationship, the paper looks at analyst coverage representing the number of analysts issuing nine-month-horizon earnings per share (EPS) estimates for a particular firm and year. The precision of their forecasts is then studied by analyzing the forecast error of their EPS predictions, and some conclusions about the quality of the information released are derived. Lastly, for both analyses, different firm characteristics such as the generation, the active involvement in management, the use of dual class shares, and the excess control of the largest shareholder are also tested using the subsample of family firms. Univariate and multivariate frameworks are used in all analyses.

The third part investigates the relationship between ownership structure and mergers and acquisitions (M&A) decisions. By using a comprehensive sample of 195 companies listed on the Swiss Exchange for the period 2003-2013 it examines whether different ownership structures influence the probability of engaging in M&A, and the characteristics of such deals. It further analyzes the value creation (or destruction) of these operations for shareholders around the announcement date. The study focuses on family firms and looks at the influence of several characteristics (such as generation, involvement in management, or the presence of just one family member as shareholder) on M&A. It first analyzes the number of completed deals per firm per year and the probability of engaging in at least one M&A during the year for a given firm. It then looks at the probability of having a deal paid with equity, as well as an undiversified deal. Finally, it calculates abnormal returns around the announcement date by using an event study methodology, and investigates whether investors value the M&A decisions differently depending on the ownership structure of the firm. Again, in all analyses,

univariate and multivariate frameworks are used to empirically answer the research questions.

The last part of this thesis presents a summary of the main results found in all three studies and provides an overall conclusion.

Part 1: Founding Family Ownership, Stock Market Returns, and Agency Problems[32]

Co-written with Prof. Dr. Isakov, University of Fribourg, Switzerland

Abstract

This paper explores the relationship between founding family ownership and stock market returns. Using the entire population of non-financial firms listed on the Swiss stock market for 2003–2013, we find that the stock returns of family firms are significantly higher than those of nonfamily firms after adjusting the returns for different risk factors and firm characteristics. Family firms generate an annual abnormal return of 2.8% to 7.1%. Moreover, family firms potentially having more agency problems earn higher abnormal returns than other firms and markets participants are regularly positively surprised by the economic outcomes produced by these firms around earnings announcements. The evidence suggests that outside investors earn a premium for bearing the high expropriation risk of family firms.

[32] The first version of this paper, entitled 'Ownership Structure and Stock Returns: Analysis of the impact of family shareholding' was presented by Nicolas Eugster at the 13ème Conférence International de Gouvernance (CIG) in May 2014 in Dijon (France), at the World Finance & Banking Symposium (WFBS) in December 2014 in Singapore (Singapore), and at the 27th Australasian Finance & Banking Conference (AFBC) in December 2014 in Sydney (Australia). This version was presented by Dusan Isakov at the EHL Finance & Real Estate Seminar in July 2016 in Lausanne (Switzerland), at the 16ème Conférence Internationale de Gouvernance (CIG) in May 2017 in Lausanne (Switzerland), and at the 34th French Finance Association Conference (AFFI) in June 2017 in Valence (France). The authors thank the participants of these conferences for many helpful suggestions and comments, and are especially grateful to Naoki Kamiyama (Nikko Asset Management, Japan), Simiao Zhou (Shanghai University of Finance and Economics, China), Xavier Giroud (Columbia Business School, USA), Christophe Pérignon (HEC Paris, France), and Jean-Philippe Weisskopf (Ecole Hotelière Lausanne, Switzerland) for their relevant discussion.

1. Introduction

For over a decade, the impact of family ownership and control on the performance of publicly listed companies received extensive attention in the academic literature. This is important, since family firms represent a large fraction of listed firms worldwide (Carney and Child (2013); Faccio and Lang (2002); La Porta et al. (1998)). Most of this literature focuses on performance metrics related to profitability (return-on-assets, ROA) or valuation ratios (Tobin's Q) (e.g. Anderson and Reeb (2003a); Villalonga and Amit (2006)). However, the evidence on the stock market performance of these firms is more limited, although it is of prime importance for the minority shareholders of these firms and investors in general. Our paper fills this gap by proposing a detailed analysis of the stock returns of family-owned firms compared to the rest of the market. Using the entire population of non-financial firms listed on the Swiss market, we find that family ownership has a beneficial impact, and that these firms deliver higher stock market returns than nonfamily ones. The outperformance of the former ranges between 2.8% and 7.1% per annum, depending on the way risk is adjusted.

The stock returns of family-owned firms might have received little attention so far possibly due to the strong belief in market efficiency. Characteristics such as ownership structure, and particularly the identity of the controlling shareholder, if any, is public information that should be integrated into stock market prices, and there is no reason to believe that choosing stocks based on this information might lead to superior returns. However, recent literature shows that strategies using public information can offer superior returns on the stock market. For instance, Edmans (2011) shows that a strategy based on a publicly disclosed index of employee satisfaction (Forbes 100 best companies to work for) leads to positive abnormal returns. Moreover, Lilienfeld-Toal and Ruenzi (2014) document that choosing stock of companies with high CEO ownership also leads to significant outperformance. The common explanation here is that the market does not fully value these features, as they are difficult to appraise quantitatively.

The positive impact of family ownership on stock returns could also be related to an improperly assessed effort of family members by market participants, since the concentration of ownership in family hands may both have positive and negative effects on economic efficiency. Family ownership can thus have various implications on the agency problems in a corporation and, hence, on its profitability and perception by market participants. On one hand, family control reduces the conflicts of interest between managers and shareholders (agency problem I), as families tend to seek the long-term sustainability for their companies and, from their dominant position, can challenge any decision not in their interest. This

behavior can be value creating for the company and its shareholders. On the other hand, the presence of a large shareholder generates conflicts of interest between minority and majority shareholders (agency problem II). The controlling shareholder can use its power to extract private benefits, which reduces company value. For family firms, these problems are not likely to materialize as pure wealth expropriation, since the own wealth of family members would be negatively impacted. However, agency problems may take the form of non-value maximizing decisions, because the family is pursuing objectives that increase its own utility (e.g. firm growth, reputation, or survival) and do not enhance shareholder value. Moreover, these firms can suffer from specific problems, such as family feuds or nepotism, which would also lead to firm value reduction. These two opposing effects of family control vary by company and depend on the different firm characteristics, such as the level of family control. Morck et al. (1988), McConnell and Servaes (1990), and Anderson and Reeb (2003a) have documented a nonlinear relationship between firm performance and the stake of the largest shareholder. They show there is an incentive effect at lower levels of control, and that performance increases with family holdings. However, this relation changes to an entrenchment effect with negative consequences on performance at higher levels of control. For family firms, other factors, such as the generation the firm is at or the active involvement of the family in the management, play an important role on performance.

This paper investigates the stock market performance of Swiss family firms from January 2003 to December 2013 for a sample of 195 companies listed on the SIX Swiss Exchange. The Swiss market represents an ideal laboratory for studying the relationship between family ownership and stock returns for two reasons. First, La Porta et al. (1999) document that, in most markets worldwide, ownership is concentrated, frequently in the hands of families, with investors being relatively poorly protected by law. In this respect, Switzerland is a representative market, as it is characterized by the presence of numerous family firms and low investor protection. Compared to the US, the levels of ownership by the largest blockholders are higher, which potentially makes agency problems between majority and minority shareholders more severe. Anderson and Reeb (2003a) document an average holding of 17.88% of the voting rights for families in the US, while Isakov and Weisskopf (2014a) report an average stake of 55% for families in Switzerland. In addition to the high control levels, Switzerland ranks poorly in international comparisons of minority shareholder protection according to the studies of La Porta et al. (1998) and Djankov et al. (2008). These Swiss market features facilitate the potential extraction of private benefits by the controlling shareholder. Second, this market has a relatively small number of listed firms. As emphasized

in the literature[33], most commercial databases on ownership contain inaccuracies or are unable to identify correctly the ultimate owner of a firm. Therefore, hand collecting data on ownership structures from different sources overcomes this problem and allows documenting accurately the different aspects of ownership. This process is only possible with a reasonable number of firms, as is the case of the Swiss market. Another advantage of the limited number of firms is that it allows us to work with the entire population of listed firms. This contrasts with other markets, where the large number of listed firms forces researchers to work on subsamples, exposing the reported results to potential sample selection bias.

The main results of this paper show that (1) family firms have higher stock returns than widely held firms and those with another blockholder; (2) considering a number of different risk factors, family firms outperform nonfamily firms in terms of risk-adjusted stock market returns; (3) the superior performance of family firms is associated with specific features of family firms, such such as the level of control, the generation, or the active involvement in management; (4) family firms have larger earnings surprises than other firms; (5) these earnings surprises translate into stronger market reactions to earnings announcements; and (6) the behavior around earnings announcement is related to family firm characteristics. Overall, our results show that family firms with potentially more agency problems have higher abnormal returns than other firms. We also find that investors appear to be regularly (positively) surprised by the economic outcomes of these firms around earnings announcements. This suggests that outside investors earn a premium for bearing the high expropriation risk of family firms.

This paper contributes to the existing literature as follows. First, it adds to the literature on the link between ownership structure and stock market returns by proposing a detailed investigation of the impact of founding family ownership on stock market returns, an aspect that hitherto received limited attention.[34] Besides documenting the difference in returns between firms with different types of controlling shareholders, this paper details the reasons explaining the outperformance of family firms. We find that abnormal performance is associated with features usually indicating the presence of potential agency problems. Our interpretation of the results is that market participants are unable to correctly assess the

[33] See, for instance, Anderson and Lee (1997), Dlugosz et al. (2006), or Holderness (2009).

[34] Only few studies examined the stock market performance of family firms. For example, Corstjens et al. (2006) analyze large firms from the French, U.K., German, and U.S. markets, and find positive abnormal returns for family firms on the French market. Cella (2009) considers a sample of large firms from eight European countries, and documents that family firms from these countries earn significant positive abnormal returns. Fahlenbrach (2009) examines the performance of a subsample of family firms—those run by a founder-CEO in the U.S.—finding that these firms generate significantly positive abnormal returns. Miralles-Marcelo et al. (2013) find that, for a sample of Portuguese companies, family firms outperform others. However, this body of literature does not find explanations for the stock market performance of family firms.

performance of family firms because of the ambiguous effects of family presence on performance, and that the abnormal returns of these firms are a reward for bearing the risk of potential expropriation. Second, this paper contributes to the growing finance literature on family firms. To the best of our knowledge, it is one of the first to investigate the stock market returns of such firms and relate them to features known to have an impact on profitability and valuation. The paper is also one of the first to provide a detailed explanation for the abnormal returns of these firms, also showing that the presence of potential agency problems in family firms plays a very important role in stock pricing. Finally, our study contributes to the growing literature at the intersection of corporate finance and asset pricing, showing the existence of firm features not properly assessed by the market, which generate abnormal returns for investors. It shows that, under certain circumstances, the market might not integrate efficiently some publicly available information such as the ownership structure of a company into stock prices.

The remainder of this paper is organized as follows: Section 2 describes the Swiss institutional setting. Section 3 presents the data and variables used in the analysis and provides descriptive statistics for the sample. Section 4 analyzes the stock market performance of family firms, while Section 5 provides an additional analysis of returns related to specific characteristics of family firms. Section 6 investigates how the market perceives family firms' earnings announcement. Section 7 summarizes the major findings and concludes the paper.

2. Swiss institutional setting

The Swiss stock market is one of the largest stock markets worldwide. At the end of 2015, it ranked 10th in terms of market capitalization (World Federation of Exchanges (2016)). Despite its size, the number of publicly listed firms is relatively small, as only 250 companies are traded on this market. The ownership structure of Swiss firms is typical for continental Europe as the majority have a concentrated ownership. For instance, Faccio and Lang (2002) report that, in 1995, 28% of companies were widely held, while 48% of firms are family-owned and 24% have a nonfamily blockholder. Moreover, they report that controlling shareholders essentially employ dual-class shares to increase their control over the company, as these are unrestricted by Swiss law. The authors report that 51% of firms use multiple share classes, while 10% resort to pyramidal structures and none to cross-holdings.

In terms of corporate governance characteristics, Switzerland belongs to the German-origin civil law countries according to La Porta et al. (1998), which tend to have poor investor protection. This is illustrated by Switzerland ranking poorly both in terms of anti-director rights index (La Porta et al. (1998)) and the anti-self-dealing index proposed by Djankov et al. (2008). It also has a nearly non-existent but slowly evolving market for corporate control (Lowinski et al. (2004)). These observations indicate that, on this market, controlling shareholders such as families have significant freedom. As such, agency problems between majority and minority shareholders can potentially be severe, since controlling shareholders can extract private benefits more easily than in other countries. However, improvements in investor protection have been recently observed. In 2002, Switzerland adopted a code of best practices for corporate governance. This led to significant changes in corporate governance practices. An example is the fact that numerous firms abandoned their dual-class share structure since. Finally, in 2013, the Swiss citizens voted a very constraining law to limit abuses on executive compensation.

A recent example[35] illustrates how the risk of expropriation associated with investment in family firms can materialize for minority shareholders in this setting. Sika AG is a medium-sized company in the chemical specialties sector. The company was founded in 1910 by K. Winkler. He was then joined by his son-in-law, F. Schenker, and both developed the company over the years. The descendants of the two founders, the Schenker-Winkler family, then controlled the firm through the SWH holding company. With the use of dual-class shares, they held 16% of capital and 52% of voting rights. In December 2014, the SWH holding announced its intention to sell its complete stake to the French company Saint-Gobain, as the group of descendants had diverging interests and were not willing to keep the company anymore. The price Saint-Gobain agreed to pay to SWH holding for their shares included a premium of 80% over the current market price. Other minority shareholders could not benefit from this offer and were at risk with this change of control, as there were no guarantees for the future of Sika since Saint-Gobain is its direct competitor in many sectors. Following this announcement, the stock price dropped by more than 20%, directly affecting the wealth of minority shareholders. Sika's example highlights the potential dangers for the shareholders of family firms in Switzerland, a country where investor protection is relatively weak.

[35] The information about this case has been obtained from several articles published in the Swiss financial press.

3. Data and variables

The empirical analysis is performed on a dataset of 195 companies listed on the SIX Swiss Exchange from January 2003 to December 2013. The final sample contains 19,928 firm-month observations on the entire population of Swiss non-financial listed firms over the analyzed period. Different sources are used to build this database as follows.

Ownership data are collected by hand, and include information on all non-financial companies belonging to the Swiss Performance Index (SPI), that is, detailed information on the ownership structure of the firms.[36] Particularly, we have information on the identity of the three largest shareholders holding more than 3% of voting rights in every company (if any). When the shareholder is a company, we further search for the ultimate owner as to determine the exact type of shareholder (e.g. the Schenker-Winkler family behind the SWH holding company). We also identify the proportions of voting and cash-flow rights held by each large shareholder. Ownership data are observed on a yearly basis and recorded at the end of each year.

Data are collected from the annual reports of companies, as well as from Swiss stock guides, newspaper articles, firm homepages, or the commercial register when needed. We follow the standard practice in the literature, and when the largest shareholder has a stake of the voting rights larger than the 20% threshold, we consider the firm is controlled by a majority shareholder (Faccio and Lang (2002)). We classify the companies by type of owner as follows: family, widely held, state, private investor[37], owned by another widely held corporation, owned by another widely held financial firms, and miscellaneous. For each largest shareholder of a firm, we compute the wedge between voting and cash-flow rights as the ratio between the proportions of voting and cash-flow rights held by this shareholder. In Switzerland, this difference is mainly due to the use of dual-class shares. When a company does not have a shareholder holding more than 20% of the voting rights, we classify it as a widely held firm. For these firms, we also compute the wedge for the largest shareholder even if he holds less than 20% of voting rights.

[36] The database of ownership structure for 2003–2010 originates from the work of Isakov and Weisskopf (2014a). We have extended their database and collected additional information for 2011–2013.

[37] We follow Andres (2008) and Isakov and Weisskopf (2014a), establishing a specific category of controlling shareholder named private investor. A private investor is defined as one or more individuals that have neither founded the company nor shaped it in a substantial way over time. The motivations and values of a private investor strongly differ from those of a founding family. Typically, there are private investors who target making a quick profit and then leaving. Private investors also differ from other nonfamily blockholders in being more likely to reduce agency problems I (more incentives to control managers), but are more prone to agency problem II (more incentives to extract private benefits). Typically, firms with this type of controlling shareholder are considered family firms in a large proportion of the literature, which might lead to biased results.

We also collect additional information specific to family firms. We first distinguish between firms at the founder or at the descendant stage. When the founder is not active in the company or is not a shareholder and the firm is owned by his heirs, we consider the firm to be at a descendant stage. We then determine if family members have an active role in its management (as CEO and/or Chairman of the Board), and then distinguish between firms where the family is active or a passive owner of shares without direct management implication.

Market data on the monthly stock returns of each company are obtained from Thomson Reuters' Datastream. Returns are computed as total returns and include the dividend distribution. Besides returns, we also need a series of variables to quantify the different firm characteristics, as well as the earnings announcements, for the empirical analyses. These are obtained from Thomson Reuters' Datastream, Worldscope, and FactSet. A detailed description of the different variables and their sources is found in Appendix 1.

Table 1 presents the sample composition according to different types of controlling shareholders. These statistics are provided for the entire sample period (column 1). We also compute them for the first (column 2), middle (column 3), and last year (column 4) of our sample to document the evolution of ownership over time. We also present the mean, maximum, and minimum number of firms in each category and year.

Our sample appears well balanced regarding firm types. We have three main groups of roughly equal sizes. Each year, we have approximately 50 firms in each category (widely held, family, and firms with another blockholder). Widely held firms represent 33% of the sample. Family firms are the most common type, representing approximately 35% of the sample. Of these, around one-third are at the founder stage and two-thirds at the descendant stage. Two-thirds of family firms have family members active as CEOs or Chairman of the Board and that 10% of family firms have a founder-CEO. Finally, 32% of our sample consists of firms with a controlling shareholder other than the founding family. In this group, 5% of firms are owned by the state, 15% by a private investor, 5% by another widely held corporation, 4% by another widely held financial firm, and 3% are miscellaneous. Proportions remain almost constant between the three decomposed periods. The ownership pattern is stable over time, as there are few changes in the controlling shareholders' identity or the fraction of voting rights they hold.

Table 1: Sample composition and evolution over the time

This table presents the composition of the entire sample, which includes 195 companies for 2003–2013 (19,604 firm-month observations). The table also presents the mean of the main different dummy variables related to the ownership structure. The variables are described in Appendix 1. A company is considered controlled by a shareholder if he is the largest shareholder and holds more than 20% of the voting rights. Column 1 shows the results for the entire period, while columns 2–4 show the composition of the first, middle, and last year, respectively. Columns 5–7 present the average number of firms per year for the entire period, as well as the minimum and maximum number of firms.

	All	2003	2008	2013	Number of firms per year		
	Mean	Mean	Mean	Mean	Mean	Min	Max
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Widely held firms	0.33	0.35	0.36	0.29	49.7	41	55
Family firms	0.35	0.38	0.35	0.33	52.8	46	60
Family firms at founder stage	*0.12*	*0.13*	*0.13*	*0.11*	*18.8*	*14*	*23*
Family firms at descendant stage	*0.23*	*0.25*	*0.22*	*0.22*	*34.0*	*31*	*37*
Family active	*0.22*	*0.25*	*0.23*	*0.19*	*33.9*	*25*	*43*
Family non-active	*0.13*	*0.13*	*0.12*	*0.14*	*18.9*	*15*	*21*
Family with founder-CEO	*0.04*	*0.04*	*0.03*	*0.03*	*5.5*	*3*	*8*
Family without founder-CEO	*0.31*	*0.34*	*0.32*	*0.30*	*47.3*	*40*	*54*
Other blockholders	0.32	0.27	0.29	0.38	47.5	40	58
State	*0.05*	*0.04*	*0.05*	*0.05*	*7.6*	*6*	*9*
Private investor	*0.15*	*0.12*	*0.13*	*0.21*	*21.6*	*17*	*30*
Widely held corporation	*0.05*	*0.08*	*0.03*	*0.04*	*7.6*	*5*	*12*
Widely held financial	*0.04*	*0.01*	*0.04*	*0.04*	*5.8*	*1*	*9*
Miscellaneous	*0.03*	*0.02*	*0.04*	*0.04*	*4.9*	*3*	*6*
N	19604	1795	1800	1680	150	140	156

Table 2 presents the descriptive statistics for the entire sample (Column 1), as well as for the different categories of firms, grouped by the type of controlling shareholder, namely family firms (Column 2), nonfamily firms (Column 3), the latter being further subdivided in widely held firms (Column 4) and firms held by another blockholder (Column 5). Table 2 also presents (i) the means of the different variables used in the analysis and (ii) the results of the tests of difference in means between family firms and other controlling shareholder types.

The average monthly raw stock return for the entire sample is 0.59% per month. Family firms have significantly higher average raw returns (0.91%) than other firm categories. Widely held firms have the lowest average raw return over the analyzed period (0.25%). Moreover, family firms appear to be significantly more profitable than other firms according to their mean ROA (5.69%) and return-on-equity (ROE) (4.98%). The profitability of family firms is positive over the period, while that of other firms is negative. In terms of risk, family firms are slightly less risky than other firms in the sample. They also have lower betas (except for the firms with another blockholder that have a slightly lower mean beta of 0.87) and lower volatility. In terms of control-enhancing mechanisms, family firms have an average wedge of 1.57, while this value is close to one for all other categories This means that the largest shareholder in family firms has, on average, 1.5 more voting than cash-flow rights, while the other groups respect the one-vote-one-share principle. Despite the progressive reduction of dual-class shares structures in Switzerland, family firms still use this technique to reinforce the control they have over the firm. Interestingly, the mean wedge for widely held firms is slightly below one. This is due to some firms having limitations on voting rights and some large shareholders having less voting than cash-flow rights. Concerning the other firm characteristics, family firms and firms held by another blockholder have higher book-to-market ratios and less liquid stocks (higher Amihud's illiquidity ratio) and are generally smaller than widely held firms (in terms of market value, total assets, or net sales). While firms held by another blockholder are the oldest, widely held firms are, on average, the youngest. We also observe that family firms are more generous with their shareholders, as they pay significantly more dividends than other firms (they have an average payout ratio of 1.92%, while other firms have 1.42%). This is consistent with the findings of Isakov and Weisskopf (2015), who document that family firms have higher payouts in Switzerland. Regarding leverage, family firms have slightly lower levels of leverage, on average, than nonfamily firms. These results are consistent with the previous literature.[38]

[38] Schmid (2013) shows that leverage is lower for family firms in Germany, which has an institutional and economic environment similar to the Swiss one.

Table 2: Descriptive statistics for different types of controlling shareholders

This table presents the descriptive statistics for the different variables used in the study. A more detailed description of the variables is given in Appendix 1. The mean of each variable is presented for the entire sample (Column 1), as well as for the different types of controlling shareholders, namely family, nonfamily, widely held, and firms with another blockholders (in Columns 2–5, respectively). The table also presents the results of difference in means tests for the variables between the major groups, that is, between family firms and nonfamily firms (Column 6), between family firms and widely held firms (Column 7), and between family firms and other blockholder firms (Column 8). *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively, based on the t-statistic and assuming unequal variance.

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder	Family–Nonfamily	Family–Widely held	Family–Other blockholder
	Mean	Mean	Mean	Mean	Mean	Difference	Difference	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Stock returns (in %)	0.59	0.91	0.41	0.25	0.58	0.49***	0.65***	0.32**
Return-on-assets (in %)	0.58	5.69	-2.24	-0.63	-4.00	7.93***	6.31**	9.68**
Return-on-equity (in %)	-10.27	4.98	-18.75	-7.31	-31.08	23.73*	12.30*	36.06
Beta	1.01	0.98	1.03	1.19	0.87	-0.05***	-0.21***	0.10***
Volatility	0.11	0.10	0.12	0.12	0.11	-0.01***	-0.02***	-0.01***
Wedge	1.22	1.57	1.02	0.98	1.07	0.55***	0.60***	0.51***
Age (in years)	73.2	69.8	75.1	57.5	93.6	-5.3***	12.3***	-23.8***
Book-to-market	0.82	0.87	0.80	0.65	0.97	0.06***	0.22***	-0.10***
Amihud's illiquidity (in ‰)	0.62	0.58	0.65	0.46	0.86	-0.08	0.12*	-0.29***
Dividend yield (in %)	1.60	1.92	1.42	1.36	1.49	0.50***	0.56***	0.43***
Leverage	0.13	0.12	0.14	0.13	0.16	-0.03***	-0.01***	-0.04***
Market value (in million CHF)	5159	4786	5363	9076	1463	-576*	-4289***	3323***
Total assets (in million CHF)	3852	3629	3976	6358	1375	-348*	-2730***	2254***
Net sales (in million CHF)	3257	3296	3235	5051	1258	61	-1754***	2039***
N	19604	6924	12680	6495	6185	19604	13419	13109

4. Stock market returns of founding family firms

This section analyzes the stock market performance of family firms. We use two complementary approaches: portfolio-based and firm-characteristics. The latter allows for a larger number of risk factors/firm characteristics that impact stock returns than the standard portfolio approach, which is based on size, book-to-market, and momentum factors. Moreover, the portfolio-based approach has some drawbacks in the case of Switzerland.

4.1. Portfolio-based approach

To study the impact of family ownership on stock performance, we follow the methodology of Gompers et al. (2003), which is based on grouping stocks with similar characteristics in portfolios. At the beginning of each year, we build equally weighted portfolios[39], containing the stocks of all firms with the same type of controlling shareholder (family, widely held, other blockholder). Portfolio returns are subsequently calculated at the end of each month over the entire year. At the beginning of the next year, portfolios are reformed and returns calculated again. We then create different self-financing strategies that are long in one portfolio and short in the second one (e.g. long on the portfolio of family firms and short on the portfolio of widely held firms).

We then use a multi-factor model to analyze the performance of portfolios and strategies. Specifically, we use the four-factor model of Carhart (1997), which is an extension of the classical Fama-French three-factor model (Fama and French (1992, 1993)), with an additional factor reflecting the momentum effect of Jegadeesh and Titman (1993). We estimate the model as:

$$R_{pt} = \alpha_p + \beta_{1p} RMRF_t + \beta_{2p} SMB_t + \beta_{3p} HML_t + \beta_{4p} WML_t + e_{pt}, \quad (1)$$

where R_{pt} is the return of portfolio p minus the risk-free rate in month t, $RMRF_t$ the expected market return minus the risk-free rate in month t, SMB_t the difference between the expected return in month t of a portfolio of small-cap stocks and that of a portfolio of large cap stocks, HML_t the difference between the expected return in month t of a portfolio of stocks with high book-to-market and that of a portfolio of stocks with low book-to-market, and WML_t the difference between the expected return in month t of a portfolio with stocks having

[39] The use of equally weighted portfolios is more appropriate for the Swiss market, since some firms are very large and represent an important fraction of total market capitalization. The use of value-weighted portfolios is less informative, since these portfolios would essentially reflect the returns of these few large firms.

outperformed the previous month and that of a portfolio with stocks having underperformed the previous month. Alpha measures the abnormal return an investor would have obtained monthly from 2003 to 2013. This model necessitates monthly estimates of the four relevant factors, as well as the risk-free rate for Switzerland. We use local factors, as Griffin (2002) concludes that domestic factors explain better time-series variations in returns than world factor models and generally have smaller pricing errors than their international counterparts. The returns of these factors have been computed by Ammann and Steiner (2008) for 1990–2014.[40] However, evidence on the validity of the four-factor model for the Swiss stock market is weak (e.g. Fama and French (1998) and Ammann and Steiner (2008)). Moreover, the reliability of these factors is not guaranteed, as the number of stocks available for their construction is limited. We therefore also use a simple one-factor model as an alternative to measuring abnormal returns.

The results of the analysis are presented in Table 3. The first three columns report abnormal returns and the risk coefficients for the three portfolios representing different types of firms, while the last two columns report the alphas of two self-financing strategies. Both strategies are long on the portfolio of family firms. The first strategy shorts a portfolio of nonfamily firms, while the second shorts a portfolio of widely held firms.

Panel A shows the results for the four-factor model. The abnormal returns of the portfolio of family firms is positive and insignificant, while the returns of nonfamily or widely held firms are negative and insignificant. The returns on self-financing strategies long on family firms and short on widely held or nonfamily firms yield significant and positive alphas of 0.25% and 0.47% per month, respectively (3.04% and 5.78% per annum). However, the results must be interpreted with caution, as explained above. We therefore use a single-factor model as well, whose results are shown in Panel B. We find the alphas of different long-only strategies are all higher than in the four-factor model. This time, the portfolio of family firms displays a positive and significant alpha of 0.57% per month (7.05% per annum), while the portfolios of nonfamily and widely held firms are positive and insignificant. Regarding self-financed strategies, the strategy that sells short the portfolio of widely held firms yields a significant and abnormal return of 0.34% per month (4.08% per annum). This result is similar to those in Panel A. As robustness check, we repeat the analysis with value-weighted portfolios to verify if the results are not driven by smaller firms, and find qualitatively similar results.[41]

[40] These factors are available on Ammann's website (www.manuel-ammann.com). We thank the authors for making these factors available to other researchers.

[41] The results are not shown due to space considerations, but are available upon request.

Table 3: Results for the portfolio-based approach

This table presents the coefficients and robust standard errors of the portfolio-based approach for different portfolios. The regressions are based on 132 observations, with data from January 2003 to December 2013. Panel A shows the results for the four-factor model of Fama and French (1992, 1993) and Carhart (1997), which are returns on zero investment portfolios that capture the effects of the market (RMRF), size (SMB), book-to-market value (HML), and momentum effect (WML). These data for Switzerland are downloaded from Ammann's website (www.manuel-ammann.com). Panel B shows the results for the one-factor model, which only includes RMRF. Columns 1–3 show the results of the regression for the portfolios containing firms with similar types of controlling shareholders, whereas Columns 4 and 5 provide results for the main strategies (family versus nonfamily firms, and family versus widely held firms). *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are calculated using Huber-White estimators and are shown between parentheses.

Panel A: Four-factor model

	Family–Risk free	Nonfamily–Risk free	Widely held–Risk free	Family–Nonfamily	Family–Widely held
	(1)	(2)	(3)	(4)	(5)
Alpha	0.0023	-0.0002	-0.0023	0.0025*	0.0047***
	(0.0016)	(0.0014)	(0.0018)	(0.0014)	(0.0017)
RMRF	1.1129***	1.2120***	1.3405***	-0.0991**	-0.2276***
	(0.0487)	(0.0438)	(0.0470)	(0.0459)	(0.0493)
SMB	0.7334***	0.8867***	0.9147***	-0.1533**	-0.1813**
	(0.0595)	(0.0608)	(0.0715)	(0.0633)	(0.0712)
HML	0.4031***	0.4393***	0.3798***	-0.0362	0.0233
	(0.0762)	(0.0664)	(0.0824)	(0.0770)	(0.0858)
WML	0.0373	0.0442	0.1127*	-0.0069	-0.0754
	(0.0686)	(0.0579)	(0.0673)	(0.0491)	(0.0562)
N	132	132	132	132	132
R^2	0.8719	0.9016	0.8648	0.0850	0.1470

Panel B: One-factor model

	Family–Risk free	Nonfamily–Risk free	Widely held–Risk free	Family–Nonfamily	Family–Widely held
	(1)	(2)	(3)	(4)	(5)
Alpha	0.0057**	0.0038	0.0023	0.0019	0.0034**
	(0.0023)	(0.0025)	(0.0028)	(0.0013)	(0.0016)
RMRF	0.9185***	0.9782***	1.0648***	-0.0597*	-0.1462***
	(0.0727)	(0.0751)	(0.0775)	(0.0347)	(0.0393)
N	132	132	132	132	132
R^2	0.6580	0.6478	0.6443	0.0240	0.0852

Generally, this initial analysis shows that an investment in a portfolio of family firms yields the highest risk-adjusted returns among the different portfolios containing firms grouped according to their controlling shareholder. These results confirm those in Table 2 (i.e. family firms have the highest returns).

4.2. Firm-characteristics approach

The main issue with the portfolio approach is that it does not consider other firm characteristics besides size, book-to-market, and momentum. To control for firm characteristics, we follow Lilienfeld-Toal and Ruenzi (2014) and use two methods to estimate the following multivariate regression:

$$r_{it} = a_i + b_i X_{it} + c_i \mathbf{Z}_{it} + e_{it}, \quad (2)$$

where r_{it} is the total returns for firm i in month t, X_{it} the dummy variable indicating the presence of one type of shareholder in the ownership structure, and $\boldsymbol{Z}_{it}$ a vector of firm characteristics. The first method is a pooled panel regression (POLS2C), where standard errors are two-dimensionally clustered along the firm and time dimensions. The second method is a Fama-MacBeth (Fama and MacBeth (1973)) approach (FMB), where cross-sectional regressions are run separately for each month of the sample period, and then the values of the final parameters are determined using the mean and statistical significance of the time-series statistics of these monthly estimates.[42] In both cases, we also control for industry effects by including industry dummies in all regressions, based on the Industry Classification Benchmark (ICB) 10 industry classification. Following Brennan et al. (1998), Gompers et al. (2003), and Lilienfeld-Toal and Ruenzi (2014), our set of control variables includes the logs of book-to-market and of market value as proxies for the size and value effect, respectively. We also use the price of stocks and volatility of returns, as well as three variables for returns 3–2, 6–4, and 12–7 months before the month of analysis as proxies for the momentum factor. As suggested by Edmans (2011), we further control for stock liquidity by using the Amihud's illiquidity ratio (Amihud (2002)). We also consider the dividend yield and leverage and, as proxies for firm's efficiency, the operating margin and sales over total assets. Finally, we use asset and sales growth over the past year and over the past five years. All variables are detailed in Appendix 1.

The results of the multivariate regressions with firm characteristics are shown in Table 4. Among the different control variables, we observe that some characteristics not included in the Carhart four-factor model appear to be significantly related to individual stock returns. These variables are Amihud's illiquidity ratio, dividend yield, leverage, operating margin,

[42] Two-dimensional clustering provides asymptotically unbiased standard errors, while the FMB estimates of standard errors can be biased in the presence of firm fixed effects. It is therefore recommended to use the two methods, since we cannot rule out the presence of firm fixed effects in our regressions.

Table 4: Results for the firm-characteristics approach

This table presents the results of ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level (POLS2C) and Fama and MacBeth (1973) regressions (FMB) on a sample of 195 firms from January 2003 to December 2013. The dependent variable is a firm's monthly stock return. In all the regressions, industry dummies based on the ICB 10 industry classification are included (but not shown). All control variables are described in Appendix 1. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are between parentheses.

	(1)	(2)
Family Dummy	0.0052***	0.0023*
	(0.002)	(0.001)
Wedge	0.0002	0.0009
	(0.001)	(0.001)
logBM	-0.0058***	-0.0080***
	(0.002)	(0.002)
logSize	0.0006	-0.0009
	(0.001)	(0.001)
Price	0.0000	0.0000
	(0.000)	(0.000)
Volatility	0.0857	-0.0629
	(0.054)	(0.040)
Amihud's illiquidity	-1.2218***	-3.6409***
	(0.390)	(1.251)
Dividend yield	-0.0023**	-0.0015***
	(0.001)	(0.000)
Leverage	-0.0110	-0.0152**
	(0.010)	(0.006)
Operating margin	0.0000*	0.0002**
	(0.000)	(0.000)
Sales to total assets	-0.0005	-0.0015
	(0.001)	(0.001)
AG_1year	0.0258***	0.0215***
	(0.008)	(0.007)
AG_5year	-0.0204	-0.0156
	(0.016)	(0.013)
SG_1year	-0.0001	0.0194***
	(0.000)	(0.006)
SG_5year	-0.0019	-0.0151
	(0.006)	(0.010)
Return_2_3	0.0396*	-0.0128
	(0.022)	(0.012)
Return_4_6	0.0377**	0.0155*
	(0.016)	(0.009)
Return_7_12	-0.0251*	-0.0067
	(0.013)	(0.006)
Intercept	-0.0117	0.0287**
	(0.015)	(0.012)
Industry dummies	Yes	Yes
Method	POLS2C	FMB
N	15546	15546

sales, and asset growth. This indicates that the firm-characteristics approach is complementary to the portfolio-based one and relevant to analyzing stocks in Switzerland. The main results are the significant coefficients obtained in both approaches for the family dummy. These results reflect that family firms earn significantly higher returns compared to other firms in our sample, and that these differences cannot be explained by differences in firm characteristics.

Firms with a family holding at least 20% of the voting rights earn a significant additional monthly return of 0.52% (6.42% annually) compared to firms with no family holding in the POLS2C regression. The coefficients differ slightly between the regression approaches, but both are statistically significant. These results confirm and reinforce those from the portfolio-based approach: a family as a controlling shareholder is associated with higher stock returns.

4.3. Longevity of outperformance

The results in Tables 3 and 4 might be due to market mispricing for the effect of family ownership. However, since ownership is stable over time, an efficient market should correct its error and abnormal return should decline over time, as the market learns the true value of these firms. We therefore study the longevity of outperformance. We follow Edmans (2011) and assess it with a long-term event study approach, computing cumulative abnormal returns (CARs). The 'event' is the end-of-year disclosure of firm ownership structure. Each year, we calculate for each firm and each month an abnormal monthly return by subtracting the market return from the raw stock return. Starting in January, we cumulate these benchmark-adjusted returns over horizons of x months (12, 24, 36, 48, or 60). We then create equally-weighted portfolios, containing stocks of firms with similar ownership. Table 5 presents the average CARs over different horizons for different portfolios, obtained by computing the portfolio average returns over different years in the sample. Table 5 shows the results for the portfolio constructed from the entire sample of firms, as well as subsamples of firms with similar types of controlling shareholders, and also the differences in mean returns between portfolios.

These results first show that the CARs for the entire population of non-financial Swiss firms are mostly not statistically different from zero for the five horizons in Column (1). However, when distinguishing between family and nonfamily firms, we observe an important difference as, for each period, the CARs for the groups of family firms are positive and statistically different from zero, whereas those for both the other groups (nonfamily and widely held

Table 5: Longevity analysis

This table presents the cumulative abnormal returns (CAR) of an equally-weighted portfolio containing all firms in the sample (Column (1)), as well as portfolios containing firms with the same type of controlling shareholders (Columns 2–4). Each year, monthly abnormal returns are calculated for each firm and each month by subtracting the market return from the raw return of the stock. Starting in January, these benchmark-adjusted returns are cumulated over horizons of x months (12, 24, 36, 48, or 60 months). The CARs are then averaged over the number of years and of firms. The table presents also the results of difference in means tests for the stock returns between the major groups, that is, between family firms and nonfamily firms (Column 5), and between family firms and widely held firms (Column 6). In Columns 1–4, the stars indicate if the coefficients are statistically different from 0, whereas in Columns, 5–6 they indicate the coefficients are statistically different from each other. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Cumulative Abnormal Returns					
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Family firms	Nonfamily firms	Widely held firms	Family–Nonfamily	Family–Widely held
Month	Mean	Mean	Mean	Mean	Difference	Difference
1-12	-0.0077	0.0250**	-0.0255**	-0.0424**	0.0505***	0.0674***
1-24	-0.0193	0.0508***	-0.0579***	-0.0990***	0.1087***	0.1498***
1-36	-0.0377*	0.0804***	-0.1042***	-0.1676***	0.1846***	0.2480***
1-48	-0.0268	0.1332***	-0.1190***	-0.2215***	0.2521***	0.3547***
1-60	-0.0264	0.1527***	-0.1323***	-0.2615***	0.2850***	0.4143***

firms) are negative and statistically different from zero. Second, the differences in means tests confirm the outperformance of family firms over time compared to nonfamily or widely held firms. Finally, CARs are continuously growing for all groups (positively for the family firms and negatively for the two others), suggesting the market is not eliminating mispricing over the long term. We thus conclude there is persistence in the outperformance of family firms and that mispricing is never fully corrected, which is a sign of market inefficiency with respect to family ownership.

5. Family firm characteristics and stock returns

The previous section showed that the stocks of firms with a family member as a controlling shareholder outperform the stocks of other firms and yield significantly positive risk-adjusted returns. This outperformance also lasts over time and the associated market inefficiency does not disappear. Here, we investigate if stock market returns are related to different family firm characteristics to identify the potential determinants of outperformance.

5.1. Level of family control and stock returns

We first investigate if there is a relationship between the level of family control, measured as the proportion of voting rights held by the family, and stock returns. The impact of this variable can be interpreted in two opposite ways: a high stake in the firm may reflect a high level of control and a higher risk of expropriation for minority investors, while a high stake by the family may also reflect family members have a large fraction of their wealth invested in the company and will not undertake value-destroying actions that would harm their own interests. This means a high stake could be beneficial for minority shareholders. The previous literature already investigated the relationship between firm performance and the stake of the largest shareholder: Morck et al. (1988), McConnell and Servaes (1990), Anderson and Reeb (2003a), and Isakov and Weisskopf (2014a) find a nonlinear (concave) relationship between ownership and accounting performance. They also find that performance first increases as family ownership increases (incentive effect) but, after a certain level of ownership, performance decreases (entrenchment effect). The explanation for this concave relationship is that agency problems (risk of expropriation of minority shareholders by the controlling shareholder) become too high when the controlling shareholder has a high stake. This phenomenon has been documented for profitability and valuation ratios, but not for stock returns.

To investigate the relationship between returns and control levels, we first compute the different descriptive statistics of family firms by distinguishing three sub-groups according to the level of voting rights a family has in the firm. The results are presented in Table 6. The first group contains firms where families have 20–50% voting rights, a moderate level of control that does not allow full control over the firm. If a family holds more than 50% of voting rights, it has the absolute majority, thus making most standard corporate governance mechanisms (e.g. annual meeting votes or takeover threat) ineffective. We split the firms with family stakes above 50% into two groups to determine whether firms with very high levels of control have a different impact on returns: 50–80% and 80–100% of voting rights. In a firm with more than 80% of voting rights controlled by the family, there is virtually no possible counter-power to the family, and outside shareholders are totally dependent on family decisions. However, in a firm with a family stake of 50–80%, there is potentially more room for its power to be challenged by some other large investor, such as an institutional investor or another large blockholder. Note that these high levels of control do not automatically imply low stock liquidity, since these firms frequently use control enhancing mechanisms and families have much lower cash-flow than voting rights.

Table 6: Descriptive statistics for family firms based on family control levels

This table presents descriptive statistics for the different variables used in the study for the subsample of family firms, based on the family control levels. A detailed description of the variables is given in Appendix 1. The mean of each variable is presented for the entire subsample of family firms (Column 1), as well as for the three family control levels (Columns 2–4).

	Family firms	Family firms (Stake 20–50)	Family firms (Stake 50–80)	Family firms (Stake 80–100)
	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)
Stock returns (%)	0.91	0.88	0.91	1.01
Return-on-assets (in %)	5.69	4.97	6.24	5.81
Return on Equity (in %)	4.98	11.77	-0.92	8.81
Beta	0.98	1.16	0.86	0.91
Volatility	0.10	0.11	0.10	0.10
Wedge	1.57	1.30	1.80	1.56
Age (in years)	69.8	67.8	67.3	95.7
Book-to-market	0.87	0.82	0.72	2.00
Amihud's illiquidity (in ‰)	0.58	0.63	0.57	0.35
Dividend yield (in %)	1.92	1.86	1.86	2.58
Leverage	0.12	0.11	0.13	0.06
Market value (in million CHF)	4786	3263	6658	401
Total assets (in million CHF)	3629	3622	4095	693
Net sales (in million CHF)	3296	3381	3643	662
N	6924	2800	3572	552

In Table 6, the mean returns increase monotonically with the stake of the family. For families having a stake between 80 and 100%, the mean monthly return is 1.01%, while for those holding a stake of 20–50%, it is 0.88%. Table 6 also shows important differences between the different groups of family firms. The group of firms with high family control tends to include older and smaller firms, and firms with higher liquidity, lower leverage, and higher book-to-market ratios. To ascertain whether the documented differences in raw returns are real, it is important to adjust for these different factors when analyzing returns. We therefore investigate the relationship between family stakes and returns by estimating firm-characteristics regressions (Equation (2)). The results are presented in Table 7.[43]

We first regress returns on the percentage of control rights of the family, and obtain a positive and significant coefficient that indicates a monotonic positive relationship between stock returns and the family stake. Since the literature shows a concave relationship between performance and control levels, we add the squared stake to the previous equation. The coefficients are not significant, which means the relation is linear and not concave and there

[43] To save space, we do not present the control variables coefficients for the further results of firm-characteristics regressions. These are available upon request.

is no negative impact of high level of control on returns. This is confirmed by the third group of results, where we split the family dummy variable in three, according to the level of family ownership. We find the dummy is not significant for the 20–50% stake, but it is for the two other stake ranges. Moreover, the coefficients are largest for the group of firms with high family stakes. The outperformance of this type of firms is 0.91% per month (or 11.48% per annum) for the pooled regression results. This means that, among the group of family firms, those with high family control earn the highest returns. This contrasts the results in the literature on valuation and profitability ratios, where performance decreases at high levels of control. This can be interpreted as a reward for holding stocks with a high level of family control. As these high control levels imply the inefficiency of most standard shareholder protection mechanisms, higher returns can also be interpreted as a premium compensating the high risk of expropriation borne by outside investors.

5.2. Other specific family features and stock returns

Besides the level of family control, the literature on the relationship between family ownership and performance reached a number of converging conclusions regarding the link between family characteristics and performance. A first important distinction between family firms is the family generation and whether it is the descendants or the founder that runs the firm. A standard result is that descendant firms tend to underperform founder-led firms. This has been documented in different contexts by Perez-Gonzalez (2006), Bennedsen et al. (2007), or Villalonga and Amit (2006). The last study argues that descendant control leads to poor corporate financial performance because of weaker abilities. The literature on family firm control thus suggests that the risk of family expropriation may be particularly high when descendants control the firm. A second important distinction made in the literature is whether the firm is run by professional managers or family members. The main argument is that having family members in key management positions is suboptimal, since they do not necessarily have the best talent or skills to run the company compared to outside managers. The best scenario for a family firm would thus be to have the firm run by hired professional managers with the family being a passive investor. Having a family member active in the firm would then represent a risk because of his potential lack of skills and/or additional control this would imply for the family. From this viewpoint, having an active family member could be perceived as an additional risk of expropriation for outside investors. However, there is one

Table 7: Results for the firm-characteristics approach based on family control levels

This table presents the results of ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level (POLS2C) and Fama and MacBeth (1973) regressions (FMB) for the sample of 195 firms from January 2003 to December 2013. The dependent variable is the firm's monthly stock return. In all regressions, industry dummies based on the ICB 10 industry classification are included (coefficients not shown). The main independent variables are the percentage of voting rights held by the family (Family Control Rights) in Columns 1 and 2, the percentage of voting rights held by the family (Family Control Rights) and its square ((Family Control Rights)^2) in Columns 3 and 4, and the family dummies according to the three different control levels in Columns 5 and 6. The control variables are the same as in Table 4 (coefficients not shown). All variables are described in Appendix 1. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are between parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Family control rights	0.0093***	0.0058**	0.0111	-0.0028		
	(0.003)	(0.002)	(0.010)	(0.008)		
(Family control rights)^2			-0.0014	0.0137		
			(0.012)	(0.011)		
Family firms (Stake 20–50)					0.0032	-0.0003
					(0.002)	(0.002)
Family firms (Stake 50–80)					0.0064**	0.0034*
					(0.003)	(0.002)
Family firms (Stake 80–100)					0.0091***	0.0098***
					(0.003)	(0.003)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Method	POLS2C	FMB	POLS2C	FMB	POLS2C	FMB
N	15546	15546	15546	15546	15546	15546

exception: when the founder of the firm is also the CEO. Adams et al. (2009) and Fahlenbrach (2009) find that founder-CEO firms tend to have a better performance than the other firms. This can be explained by founders having strong incentives and motivation to develop their own firm. We analyze whether these three distinctions (founder/descendant, active/passive, founder-CEO/other family firms) yield different returns to investors. We first compute descriptive statistics for the different categories of family firms, and the results are presented in Table 8.

The results indicate that firms at the descendant stage have slightly higher mean returns than those at the founder stage. For control variables, descendant firms are larger and older. For the second distinction above, we find that firms with an active family member have higher returns than firms with passive owners. The latter also tend to be larger and older than firms with active family members. Finally, contrary to extant literature, family firms with founder-CEOs have comparatively lower returns. To verify if these differences are significant and not due to difference in other firm-related variables, we estimate firm-characteristics regressions (Equation (2)), with dummy variables representing the different categories of family firms. The results are presented in Table 9.

The regression results confirm the results in Table 8 for the first two distinctions of family firms. We find the family dummy is only significant for firms at the descendant stage and those where the family is active and has operational control. Regarding the distinction between founder-CEO and other firms, the latter have significantly higher returns only in the POLS2C approach.

These results complement those obtained in Section 5.1. Here, we investigate if the several distinctions of family firms that appeared to be related to firm performance in the previous literature also affect returns. Among the different distinctions, returns are always higher for the categories of firms potentially associated with more agency problems. Family firms at the descendant stage, with active family members or not run by a founder-CEO, are less efficient than other family firms. Higher abnormal returns for these firms could therefore be interpreted as a compensation for the higher risk of expropriation present in those firms.

We have identified several categories of family firms that earn higher abnormal returns. These firms are those perceived as presenting a potentially higher risk of expropriation (represented by a high family stake, involvement of the family in the firm, or the firm being at the descendant stage) for outside investors.

Table 8: Descriptive statistics for family firms based on specific family firm characteristics

This table presents the descriptive statistics for the different variables used in the study for the subsample of family firms, according to specific family firm features. A detailed description of the variables is given in Appendix 1. The mean of each variable is presented for the entire subsample of family firms (Column 1), as well as for the subcategories according to the generation of the family (Columns 2 and 3), for the active or passive involvement of the family in the management (Columns 4 and 5), and if the CEO is the founder of the family firm (Columns 6 and 7).

	Family firms	Family at founder stage	Family at descendant stage	Family active	Family non-active	Family with founder-CEO	Family without founder-CEO
	Mean	Mean	Mean	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Stock returns (%)	0.91	0.87	0.92	0.97	0.79	0.66	0.93
Return-on-assets (in %)	5.69	4.83	6.16	5.43	6.16	1.27	6.19
Return-on-equity (in %)	4.98	7.20	3.75	-0.66	15.20	-0.65	5.63
Beta	0.98	0.96	0.99	0.94	1.05	0.94	0.98
Volatility	0.10	0.11	0.10	0.10	0.10	0.11	0.10
Wedge	1.57	1.32	1.71	1.47	1.76	1.38	1.60
Age (in years)	69.8	29.0	91.7	63.5	81.0	17.3	75.6
Book-to-market	0.87	0.85	0.88	0.89	0.82	0.99	0.85
Amihud's illiquidity (in ‰)	0.58	0.85	0.42	0.58	0.56	1.01	0.53
Dividend yield (in %)	1.92	1.34	2.24	1.78	2.16	1.03	2.02
Leverage	0.12	0.11	0.12	0.11	0.12	0.06	0.12
Market value (in million CHF)	4786	3596	5441	2516	8829	3009	4983
Total assets (in million CHF)	3629	2365	4310	1729	7058	1535	3857
Net sales (in million CHF)	3296	3043	3440	1895	5813	1259	3519
N	6924	2424	4488	4434	2490	688	6236

Table 9: Results for the firm-characteristics approach based on specific family firm characteristics

This table presents the results of ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level (POLS2C) and Fama and MacBeth (1973) regressions (FMB) for the sample of 195 firms from January 2003 to December 2013. The dependent variable is the firm's monthly stock return. In all regressions, industry dummies based on the ICB 10 industry classification are included (coefficients not shown). The main independent variables are the dummies for family firms at founder and descendant stages in Columns 1 and 2, the active and non-active family dummies in Columns 3 and 4, and dummies for family firms with founder-CEO and without founder-CEO in Columns 5 and 6. The control variables are the same as in Table 4 (coefficients not shown). All variables are described in Appendix 1. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are between parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Family at founder stage	0.0034	0.0018				
	(0.003)	(0.002)				
Family at descendant stage	0.0064***	0.0030**				
	(0.002)	(0.001)				
Family active			0.0065***	0.0032*		
			(0.002)	(0.002)		
Family non-active			0.0025	0.0008		
			(0.002)	(0.002)		
Family with founder-CEO					0.0031	0.0040
					(0.005)	(0.005)
Family without founder-CEO					0.0053***	0.0023
					(0.002)	(0.001)
Intercept	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Method	POLS2C	FMB	POLS2C	FMB	POLS2C	FMB
N	15546	15546	15546	15546	15546	15546

6. Earnings announcements, analysts' surprises, and abnormal returns

One possible explanation for the outperformance of family firms over the analyzed 11 years is that investors are unable to properly assess the value of these firms and tend to be skeptical about their performance because of the high expropriation risk. The true economic performance of these firms can be assessed based on the information they disclose. An event with an important informational content is the disclosure of annual earnings. When these are announced, investors have accurate and detailed information about the firm and readjust their opinion accordingly. As suggested by Core et al. (2006) and Giroud and Mueller (2011), one way to verify if market participants are surprised is to use analysts' forecasts of earnings per share (EPS) as a proxy for market expectations and compare them with the actual published EPS. Another more direct way to determine how investors integrate information into prices is to look at market reactions around earnings announcements. Here, we consider both measures and differentiate the surprises and market reactions observed around earnings announcements for family and nonfamily firms, as well as for the different categories of family firms.

To measure analysts' forecasts of earnings, we use the mean EPS estimated nine months before the release date of annual results. This ensures analysts know the earnings from the previous year when making their forecasts. The published EPS is used as the true EPS. The estimates are obtained from FactSet. This one-year surprise is standard in the literature and has been used by Giroud and Mueller (2011), Edmans (2011), Lilienfeld-Toal and Ruenzi (2014), among others. We define earnings surprises in relative terms and normalize the difference between realized and expected EPS by the share price at the time of the forecast. For a particular firm and year, the surprise is:

$$\text{Surprise} = \frac{\text{Published EPS} - \text{Consensus EPS}}{\text{Share Price}}. \tag{3}$$

The market reaction around annual earnings announcements is measured by the CAR for a specific firm and year, computed from an event study over the window [-1; +1]. We estimate normal returns with the market model and use the SPI as the market portfolio. The parameters of the market model are estimated for a window of 200 days, 20 days before the announcement date. Table 10 provides the mean values for the earnings surprises and market reactions for the entire market and firms with different types of controlling shareholders. We also compute the ratio of positive to negative earnings surprises.

Table 10 shows that, for the entire market, the earnings surprise is negative, which means that, one-year ahead, the consensus is above the true EPS and the market is overly optimistic regarding future earnings. This is consistent with the literature (see e.g., Brown (1997) for the U.S. or Galanti and Vaubourg (2017) for France). A comparison between the mean surprise of family firms and of nonfamily firms shows that the market is more positively surprised by family firms, with an average surprise of -1.31% for family firms and -2.34% for other firms. This is also confirmed by the results of the tests of differences in means between family firms earnings surprises and those of other firms, all being positive and significant. For the number of positive and negative surprises for different firms, family firms have a larger proportion of positive surprises (0.76) than other firms (0.67). This also means that, despite analysts' tendencies to produce forecasts on average above the realized EPS, realized EPS are above the forecasts more frequently for family firms than for other firms. These two results indicate the disclosures of annual earnings by family firms surprise the market more positively than for other firms. Regarding the way investors react to earnings announcements, we find a significant average CAR of 1.16% for family firms, while an insignificant 0.08% is obtained for nonfamily firms. These average CARs are significantly different from each other and indicate a strong positive price reaction after family firms announce their earnings. As for earnings surprises, the relative frequency of positive CARs is higher for family firms. However, the differences in surprises and market reactions might be due to different confounding factors. We thus use the approaches of Core et al. (2006) and Giroud and Mueller (2011) and estimate the following regression:

$$y_{it} = a_i + b_i X_{it} + c_i \mathbf{Z}_{it} + e_{it}, \tag{4}$$

where y_{it} is either the earnings surprise or the CAR of firm i in year t, X_{it} a dummy variable for family firms, and $\boldsymbol{Z}_{it}$ a vector of control variables. The set of control variables $\boldsymbol{Z}_{it}$ includes the lagged logarithm of the book-to-market ratio and market capitalization at year-end as proposed by Core et al. (2006). We also add analyst coverage, since it might impact forecast accuracy and market reactions in Switzerland as some firms are followed by a few analysts only. We estimate equation (4) using a pooled regression with industry fixed effects. The results are presented in Columns (1) and (4) of Table 11.

The regression results confirm those in Table 10, as the dummy for family firms is positive and significant for both analysts' surprises and the CARs arounds earnings announcement date. Therefore, it can be concluded that analysts are systematically positively surprised by the good performance of family firms and that these firms have a stronger market reaction to

Table 10: Descriptive statistics for earnings surprises and CARs based on the type of controlling shareholders

This table presents the descriptive statistics for the earnings surprises and market reactions to annual earnings announcements (CAR). A more detailed description of the variables is given in Appendix 1. The mean of each variable is presented for the entire sample (Column 1), as well as for the main types of controlling shareholders (in Columns 2–5, respectively). The table presents the results of differences in means tests for the variables between the major groups, that is, between family and nonfamily firms (Column 6), family and widely held firms (Column 7), and family and other blockholder firms (Column 8). The table shows the number of positive and negative earnings surprises (CAR) and the ratio of positive to negative earnings surprises (CAR). To eliminate outliers, surprises above 10% of the stock price are not taken into account, as well as those below the 1-percentile and above the 99-percentile *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. In Columns 1–5, the stars indicate if the coefficients are statistically different from 0, whereas in Columns 6–8 they indicate if the coefficients are statistically different from each other based on the t-statistic and assuming unequal variance.

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder	Family–Nonfamily Difference	Family–Widely held Difference	Family–Other blockholder Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Surprise (in %)	-1.9530***	-1.3055***	-2.3355***	-2.2596***	-2.4381***	1.0300***	0.9541**	1.1326**
Surprise > 0	494	192	302	167	135			
Surprise < 0	707	254	453	267	186			
Ratio (+/-)	0.70	0.76	0.67	0.63	0.73			
N	*1201*	*446*	*755*	*434*	*321*			
CAR (in %)	0.4608***	1.1577***	0.0832	0.1564	0.0078	1.0745***	1.0013***	1.1499***
CAR > 0	837	328	509	266	243			
CAR < 0	710	216	494	243	251			
Ratio (+/-)	1.18	1.52	1.03	1.09	0.97			
N	*1548*	*544*	*1004*	*509*	*495*			

earnings announcements. These results show that the abnormal returns of family firms can be partly explained by annual earnings announcements surprises as the average CAR is 1.16% while the annualized abnormal returns for family firms is between 2.8–7.1% depending on the risk-adjustment method used.

As shown in Section 5, abnormal returns are associated with specific family firm features. We therefore investigate if there is a relation between these characteristics and the measures of earnings surprise and market reaction. We first determine whether there is a relationship with the level of family control. The results are presented in Table 12, and the different descriptive statistics are provided for family firms grouped by their level of voting rights. The surprises are larger for family firms with a stake above 50% than for family firms with a moderate stake. In terms of the ratio of positive surprises, family firms with high levels of family control have more positive than negative surprises and this ratio is larger than for the two other categories of family firms.

Finally, regarding the market reaction to earnings announcements, family firms with an 80–100% stake have average CARs of 2.60%, while those of firms with moderate family levels of control have average positive CARs of 0.85%. We also observe that the relative frequency of positive CARs is higher for family firms with a high control level. The descriptive statistics are confirmed by the regression analysis in Table 11. We find significant positive coefficients for the variable of family control rights for surprises and CARs in Columns (2) and (5). When we decompose the family dummy into three dummy variables representing different levels of control by the family in Columns (3) and (6), we find positive and significant coefficients for the levels of control beyond 50%. The largest estimates are in both cases obtained for family firms with more than 80% of voting rights. These results indicate that the market is positively surprised by family firms' performance and this surprise is more significant for family firms where the family has the highest levels of control, making the extraction of private benefits more likely. We next investigate if earnings surprises and market reactions are related to other family firm characteristics. Table 13 provides descriptive statistics, while Table 14 presents the regression results.

We first analyze the founder/descendant stage distinction. Columns (2) and (3) of Table 13 show descendant firms have slightly larger earnings surprises, a larger proportion of positive surprises, and larger average CARs at earnings announcements. The regression results in Columns (1) and (4) of Table 14 show descendant firms have significantly higher surprises and CARs than firms at the founder stage. These results are consistent with those for returns.

Table 11: Multivariate regression results for earnings surprises and CARs based on family control levels

This table presents the results of ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level (POLS2C) for the sample of 195 firms from January 2003 to December 2013. The dependent variable is the Surprise in Columns 1–3 and the CAR in Columns 4–6. In all regressions, industry dummies based on the ICB 10 industry classification are included (coefficients not shown). The main independent variables are the family dummy in Columns 1 and 4, percentage of voting rights held by the family in Columns 2 and 5, and family dummies according to the three different control levels in Columns 3 and 6. All variables are described in Appendix 1. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are between parentheses.

	Surprise			CAR		
	(1)	(2)	(3)	(4)	(5)	(6)
Family dummy	0.6343*			0.7632***		
	(0.348)			(0.292)		
Family control rights		1.6602**			1.6143***	
		(0.788)			(0.541)	
Family firms (Stake 20–50)			-0.0752			0.4642
			(0.456)			(0.291)
Family firms (Stake 50–80)			1.0467**			0.8823**
			(0.524)			(0.368)
Family firms (Stake 80–100)			2.4914*			2.0539**
			(1.479)			(0.916)
Analyst coverage	-0.1357**	-0.1259**	-0.1246**	-0.0256	-0.0183	-0.0219
	(0.065)	(0.062)	(0.060)	(0.045)	(0.046)	(0.046)
logSize (lagged)	1.1195***	1.0777***	1.0752***	-0.1957	-0.2231	-0.2081
	(0.350)	(0.340)	(0.334)	(0.254)	(0.256)	(0.257)
logBM (lagged)	-0.0864	-0.1721	-0.2042	0.1065	0.0487	0.0512
	(0.666)	(0.690)	(0.702)	(0.256)	(0.251)	(0.244)
Intercept	-24.8477***	-24.5598***	-24.5786***	5.0043**	5.1641**	5.0609**
	(4.907)	(4.867)	(4.878)	(2.006)	(2.037)	(2.148)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Method	POLS2C	POLS2C	POLS2C	POLS2C	POLS2C	POLS2C
N	1182	1182	1182	1201	1201	1201

Table 12: Descriptive statistics for earnings surprises and CARs based on family control levels

This table presents the descriptive statistics for the earnings surprises and market reactions to annual earnings announcements (CAR). A more detailed description of the variable is given in Appendix 1. The mean of each variable is presented for the entire subsample of family firms (Column 1), as well as for the three family control levels (Columns 2–4). The table also presents the results of differences in means tests for the variables between the different subcategories, that is, between family firms with medium and low stakes (Column 5), with high and low stakes (Column 6), with high and medium stakes (Column 7). The table also shows the number of positive and negative earnings surprises (CAR) and the ratio of positive to negative earnings surprises (CAR). To eliminate outliers, surprises above 10% of the stock price are not taken into account, as well as those below the 1-percentile and above the 99-percentile. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. In Columns 1–4, the stars indicate the coefficients are statistically different from 0 whereas, in Columns 5–7, they indicate if the coefficients are statistically different from each other based on the t-statistic and assuming unequal variance.

	Family firms	Family firms (Stake 20–50)	Family firms (Stake 50–80)	Family firms (Stake 80–100)	(3) - (2)	(4) - (2)	(4) - (3)
					Difference	Difference	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Surprise (in %)	-1.3055***	-2.0556***	-0.7432**	-0.7479	1.3123**	1.3077	-0.0047
Surprise > 0	494	77	101	14			
Surprise < 0	707	114	128	12			
Ratio (+/-)	0.70	0.68	0.79	1.17			
N	446	191	229	26			
CAR (in %)	1.1577***	0.8521***	1.2176***	2.6047***	0.3655	1.7526*	1.3871
CAR > 0	328	134	170	24			
CAR < 0	216	88	117	11			
CAR (+/-)	1.52	1.52	1.45	2.18			
N	544	222	287	35			

Regarding the distinction between firms with active members in the management and those with passive owners, the evidence is mixed. As shown in Columns (4) and (5) of Table 13, firms with active family members have larger forecasting errors and proportion of positive surprises. However, these firms have lower CARs than firms with passive owners. These results are confirmed by the regression results in Columns (2) and (5) of Table 14. Regarding the distinction between firms with a founder-CEO and other family firms, we obtain consistent results. Founder-CEO firms have smaller earnings surprises and CARs, as shown in Columns (6) and (7) of Table 13 and in Columns (3) and (6) of Table 14. The additional results in Tables 13 and 14 confirm those obtained in Tables 11 and 12 for family control levels. We find that family firms with characteristics perceived as presenting more expropriation risk have higher monthly abnormal returns, and also larger earnings surprises and CARs around earnings announcements.

These results show that the market is regularly and positively surprised by the good operational performance of family firms and the absence of private benefit extraction in firms where these are presumably more likely to happen. These positive EPS surprises translate into positive abnormal returns. However, the magnitude of market reactions found around earnings announcements cannot completely explain the abnormal returns in Section 4, because they are not the sole information events when the market learns about the true performance of family firms. Information is also disclosed on other occasions, such as interim results reports or firm-specific events, that have not been investigated in this paper. Nevertheless, the evidence provided in this article should be sufficient to conclude that the positive abnormal returns earned by family firms are caused by market inefficiencies, by the presence of potential agency problems in family firms, and by the fear of outside investors' expropriation.

7. Conclusions

Many listed firms are owned and controlled by the founding families worldwide. However, the impact of such ownership structures on firm performance is not yet fully understood. This paper investigates an aspect that has hitherto received limited attention in the academic literature by taking the point of view of an investor and analyzing the relationship between ownership structure and stock market returns. The lack of academic evidence and interest on this issue can be explained by that, in efficient markets, there should be no abnormal

Table 13: Descriptive statistics for earnings surprises and CARs based on specific family firm characteristics

This table presents descriptive statistics for the earnings surprises and market reactions to annual earnings announcements (CAR). A more detailed description of the variable is given in Appendix 1. The mean of each variable is presented for the entire subsample of family firms (Column 1), as well as for the three family control levels (Columns 2–4). The table also presents the results of differences in means tests between the different subcategories, that is, between family firms with medium and low stakes (Column 5), with high and low stakes (Column 6), and with high and medium stakes (Column 7). The table also shows the number of positive and negative earnings surprises (CAR) and the ratio of positive to negative earnings surprises (CAR). To eliminate outliers, surprises above 10% of the stock price are not taken into account, as well as those below the 1-percentile and above the 99-percentile. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. In Columns 1–7, the stars indicate if the coefficients are statistically different from 0 whereas, in Columns 8–10, they indicate if the coefficients are statistically different from each other based on the t-statistic and assuming unequal variance.

	Family firms	Family at founder stage	Family at descendant stage	Family active	Family non-active	Family with founder-CEO	Family without founder-CEO	(2) - (3)	(4) - (5)	(6) - (7)
								Difference	Difference	Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Surprise (in %)	-1.3055***	-1.3227***	-1.2957***	-1.0719***	-1.6117***	-1.7947***	-1.2639***	-0.0270	0.5398	-0.5308
Surprise > 0	494	66	126	117	75	13	179			
Surprise < 0	707	96	158	136	118	22	232			
Ratio (+/-)	0.70	0.69	0.80	0.86	0.64	0.55	0.77			
N	*446*	*162*	*284*	*253*	*193*	*35*	*411*			
CAR (in %)	1.1577***	1.0682***	1.1927***	1.1070***	1.2408***	0.4958	1.2203***	-0.1245	-0.1338	-0.7245
CAR > 0	328	106	221	205	123	26	302			
CAR < 0	216	76	140	133	83	21	195			
Ratio (+/-)	1.52	1.39	1.58	1.54	1.48	1.24	1.55			
N	*544*	*182*	*361*	*338*	*206*	*47*	*497*			

Table 14: Multivariate regression results for earnings surprises and CARs based on specific family firm characteristics

This table presents the results of ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level (POLS2C) for the sample of 195 firms from January 2003 to December 2013. The dependent variable is the Surprise in Columns 1–3 and the CAR in Columns 4–6. In all regressions, industry dummies based on the ICB 10 industry classification are included (coefficients not shown). The main independent variables are the dummies for family firms at the founder and descendant stages in Columns 1 and 4, the active and non-active family dummies in Columns 2 and 5, and dummies for family firms with founder-CEO and without founder-CEO in Columns 3 and 6. All variables are described in Appendix 1. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are between parentheses.

	Surprise			CAR		
	(1)	(2)	(3)	(4)	(5)	(6)
Family at founder stage	0.4564			0.6712**		
	(0.649)			(0.290)		
Family at descendant stage	0.7319**			0.8111**		
	(0.352)			(0.369)		
Family active		0.7901**			0.7433*	
		(0.357)			(0.424)	
Family non-active		0.4312			0.7888***	
		(0.539)			(0.264)	
Family with founder-CEO			0.1596			0.3688
			(0.794)			(0.581)
Family without founder-CEO			0.6767*			0.7914**
			(0.353)			(0.321)
Analyst coverage	-0.1359**	-0.1336**	-0.1359**	-0.0257	-0.0259	-0.0259
	(0.065)	(0.067)	(0.065)	(0.045)	(0.046)	(0.045)
logSize (lagged)	1.1156***	1.1154***	1.1143***	-0.1970	-0.1953	-0.1974
	(0.348)	(0.355)	(0.346)	(0.256)	(0.255)	(0.254)
logBM (lagged)	-0.0942	-0.0827	-0.1001	0.1039	0.1059	0.0996
	(0.666)	(0.668)	(0.664)	(0.256)	(0.258)	(0.253)
Intercept	-24.7785***	-24.8644***	-24.7565***	5.0304**	5.0080**	5.0423**
	(4.939)	(4.920)	(4.811)	(1.990)	(2.000)	(1.960)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Methods	POLS2C	POLS2C	POLS2C	POLS2C	POLS2C	POLS2C
N	1182	1182	1182	1201	1201	1201

returns associated with a firm's ownership structure, since this information is public and should be fully integrated in stock prices. However, the results of our empirical investigations on the Swiss stock market show different results. We analyze panel data from January 2003 to December 2013 for the entire population of non-financial firms listed on the Swiss Exchange, and find that family firms outperform other firms by 2.8–7.1% per annum. To explain these abnormal returns, we investigate if stock returns are associated with different family firm characteristics. We find that returns are positively associated with the level of family control, a variable that measures the level of power the family holds over the firm. For instance, an investment in firms with families controlling between 80 and 100% of the voting rights generates an abnormal return of 12.5% per annum. Significantly higher returns are also observed for firms run by descendants, those with family members active in the management, or with no founder-CEO.

It is well established that the main agency problem faced by a listed firm with a controlling shareholder is the potential conflict of interest between majority and minority shareholders. For family firms, agency problems are not likely to materialize as pure wealth expropriation, since family wealth might also be negatively affected by such practices, but they can turn into the extraction of private benefits of control. For family firms, these private benefits are frequently associated with decisions that maximize the utility of the family but not the value of the firm. The goals of these decisions can be firm growth, reputation, or survival. Family firms can also suffer from more specific problems, such as family feuds or nepotism, which have a negative impact on firm value. Outside shareholders of family firms are exposed to all these potential problems. We therefore interpret the abnormal returns of family firms as a compensation for exposure to these risks. Our analysis of the returns for subgroups of family firms confirms this interpretation, as higher returns are earned by firms with features that make agency problems more severe. For example, a firm where the family controls 80–100% of the votes presents almost no protection for outside shareholders, as most corporate governance mechanisms are made ineffective by such a high level of control.

We complement the above analysis by examining how family firms react to earnings announcements, and find that family firms have significantly larger earnings surprises than other firms. These translate into significantly stronger market reactions, measured by CARs around the announcement date, thus leading to the positive abnormal returns observed for family firms. Market participants appear to be systematically positively surprised by the content of earnings announcements of family firms. We also analyze the reactions of the different subgroups of family firms and confirm that the strongest reactions are observed for firms with the highest risks of expropriation. Although the reaction to annual earnings

announcements cannot completely explain the observed abnormal returns, our evidence is consistent with the outperformance of family firms being due to the presence of potential agency problems in family firms and the fear of outside investors' expropriation. The positive abnormal returns can be interpreted as a premium for bearing the higher expropriation risk.

Overall, the market inefficiency documented here can be related to the previous literature on the difficulty to properly value the true impact of certain firm characteristics, such as employee satisfaction or CEO ownership. In our case, since family control can have a positive or a negative impact on the economic efficiency of the firm, the market is unable to properly integrate information about ownership into stock prices. Our results thus show that market participants correct their poor assessment of these firms when these announce their annual earnings, which leads to positive abnormal returns and make these firms attractive for investors.

8. Appendix

Appendix 1: Variable definitions and sources

This table defines the variables used in the analysis. The data for the ownership structure are obtained from the database of Isakov and Weisskopf (2014a) and updated by hand-collecting data from annual reports and from the Swiss stock guides. Firm characteristics and market data are mainly from Datastream and Worldscope, while those on earnings announcements are from FactSet. The period of analysis is from January 2003 to December 2013.

Firm ownership measure	
Widely held firm (*WH*)	Dummy variable that takes the value 1 if no shareholder holds more than 20% of the voting rights, and 0 otherwise.
Family firms (*FF*)	Dummy variable that takes the value 1 if a family holds more than 20% of the voting rights, and 0 otherwise.
Family control rights	The percentage of voting rights held by the largest shareholder in a family firm.
Family firms at the founder stage (*FFF*)	Dummy variable that takes the value 1 if a family firm is held by its founder, and 0 otherwise.
Family firms at the descendant stage (*FFD*)	Dummy variable that takes the value 1 if a family firm is held by its descendant, and 0 otherwise.
Family active (*FA*)	Dummy variable that takes the value 1 if at least one member of the family is active in the firm, and 0 otherwise.
Family non-active (*FNA*)	Dummy variable that takes the value 1 if no member of the family is active in the firm, and 0 otherwise.
Family firms with founder-CEO	Dummy variable that takes the value 1 if the CEO is the founder of the family firms, and 0 otherwise.
Family firms without founder-CEO	Dummy variable that takes the value 1 if the CEO is not the founder of the family firms, and 0 otherwise.
Family firms (Stake 20–50)	Dummy variable that takes the value 1 if the family holds between 20% and 50% of the voting rights, and 0 otherwise.
Family firms (Stake 50–80)	Dummy variable that takes the value 1 if the family holds between 50% and 80% of the voting rights, and 0 otherwise.
Family firms (Stake 80–100)	Dummy variable that takes the value 1 if the family holds between 80% and 100% of the voting rights, and 0 otherwise.
Other blockholder (*OB*)	Dummy variable that takes the value 1 if the firm has a shareholder with more than 20% of the voting rights but is not family, and 0 otherwise.
State (*S*)	Dummy variable that takes the value 1 if the state holds more than 20% of the voting rights, and 0 otherwise.
Private investor (*PI*)	Dummy variable that takes the value 1 if a private investor holds more than 20% of the voting rights, and 0 otherwise.
Widely held corporation (*WHC*)	Dummy variable that takes the value 1 if another widely held corporation holds more than 20% of the voting rights, and 0 otherwise.
Widely held financial (*WHF*)	Dummy variable that takes the value 1 if another widely held financial firm holds more than 20% of the voting rights, and 0 otherwise.
Miscellaneous (*Misc*)	Dummy variable that takes the value 1 if an unclassifiable shareholder holds more than 20% of the voting rights, and 0 otherwise.

Firm characteristics	
Age	The age of a firm in years computed as the current year minus the year of foundation stated in the Swiss stock guides.
Amihud's illiquidity ratio	Amihud (2002) illiquidity ratio (Amihud (2002)) is calculated using daily data and is then averaged by month. The daily ratio is calculated by dividing the daily return by the daily trading volume, which is calculated by multiplying the daily price by the daily volume. Data are obtained from Datastream.
Asset growth (*AG*)	The asset growth of a firm over the past year and the past five years (AG_1year, AG_5years). Data are obtained from Worldscope.
Beta	Regression coefficients of the market model calculated using the returns of the previous 60 months. Data are obtained from Datastream.
Book-to-market (*BM*)	Ratio of the book value to the market value of common equity. Data are obtained from Worldscope and Datastream.
Dividend yield (*DY*)	The ratio of total dividends to total market capitalization. Data are obtained from Datastream.
Leverage (*Lev*)	Long-term debt divided by total assets. Data are obtained from Worldscope and Datastream.
logBM	The natural logarithm of the book-to-market ratio. Data are obtained from Worldscope and Datastream.
logSize	The natural logarithm of the firm's market value. Data are obtained from Datastream.
Market value	Share price multiplied by the number of ordinary shares in issue. Data are obtained from Datastream and expressed in million CHF.
Net sales	Gross sales and other operating revenue except discounts, returns, and allowances. Data are obtained from Worldscope and expressed in million CHF.
Operating margin (*OM*)	Operating income over net sales. Data are obtained from Worldscope.
Price	The closing price at which the firm's stock is traded. Data are obtained from Datastream and expressed in CHF.
Return_2_3	The natural logarithm of the cumulative returns over months t - 2 and t - 3. Data are obtained from Datastream.
Return_4_6	The natural logarithm of the cumulative returns from month t - 6 to t - 4. Data are obtained from Datastream.
Return_7_12	The natural logarithm of the cumulative returns from month t - 12 to t - 7. Data are obtained from Datastream.
Return-on-assets (*ROA*)	Income before extraordinary items (IBEI) divided by the total assets. Data are obtained from Worldscope and Datastream.
Return-on-equity (*ROE*)	Net income divided by the book value on equity. Data are obtained from Worldscope.
Sales growth	The sales growth of a firm over the past year and the past five years (SG_1year, SG_5years). Data are obtained from Worldscope.
Sales/Total assets	Net sales divided by total assets. Data are obtained from Worldscope and Datastream.
Total assets	Sum of total current assets, long-term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment, and other assets. Data are obtained from Datastream and expressed in million CHF.
Volatility	The monthly volatility of a stock calculated using daily data and averaged by month. Data are obtained from Datastream.

Wedge	Ratio between the number of voting and of cash-flow rights. Data are obtained from annual reports and the Swiss stock guides.

Earnings announcements	
Analyst coverage	The number of analysts issuing nine-month horizon earnings per share estimates for a particular firm and year. Data are obtained from FactSet.
Cumulative abnormal return (*CAR*)	The CAR is computed from an event study (with the market model as normal return) over the window [-1; +1]. Data are obtained from Datastream and FactSet.
Surprise	The actual earnings per share at the end of the fiscal year minus the estimated earnings forecasted nine months prior, deflated by the share price at the time of the forecast for a particular firm and year. Data are obtained from FactSet.

Market data	
Stock returns	Monthly returns of the securities calculated from the monthly stock prices collected at the end of each month and adjusted to the dividend distribution. Data are obtained from Datastream.
RF_t	The risk-free rate in month t is the three-month ICE Libor for CHF. Data are obtained from Datastream.
$RMRF_t$	The expected market return minus the risk-free rate (RF) in month t. Data are obtained from Ammann and Steiner (2008) website.
SMB_t	The difference between the expected return in month t of a portfolio of small-cap stocks and that of a portfolio of large cap stocks. Data are obtained from Ammann and Steiner (2008) website.
HML_t	The difference between the expected return in month t of a portfolio of stocks with high book-to-market and that of a portfolio of stocks with low book-to-market. Data are obtained from Ammann and Steiner (2008) website.
WML_t	The difference between the expected return in month t of a portfolio with stocks having outperformed the previous month and that of a portfolio with stocks having underperformed in the previous month. Data are obtained from Ammann and Steiner (2008) website.

Part 2: Ownership Structure, Analyst Coverage, and Forecast Error: Are family firms different from others?[44]

Abstract

This paper examines the relationship between ownership structure, analyst coverage, and forecast error for a sample of 160 companies listed on the Swiss Exchange for the period 2003-2013. A distinction is made between family firms, widely held firms, and firms owned by another blockholder. I utilize the subsample of family firms to gauge the following characteristics: generation, involvement in management, use of dual class shares, and excess control by the largest shareholder. The results show that family firms are less frequently followed by analysts, but their earnings are better forecasted. Furthermore, by looking only at family firms and their characteristics, I find evidence that the higher the likelihood of expropriation, the higher the number of analysts following them in comparison with other family firms; however, I find little association between the likelihood of expropriation and forecast error.

[44] This paper was presented by Nicolas Eugster at the 14ème Conférence International de Gouvernance (CIG) in June 2015 in Québec (Canada). The author thanks the participants of this conference for many helpful suggestions and comments.

1. Introduction

Ever since Demsetz (1983) challenged Berle and Means' (1932) image of widely held firms, and since the spread of certain seminal papers that followed (e.g. Faccio and Lang (2002); Claessens et al. (2000); La Porta et al. (1999)), it is broadly accepted that ownership concentration—and more specifically, family ownership—is the prevailing form of ownership around the world. As an important participant in the world economy,[45] family firms have attracted attention in recent literature, with many papers describing various aspects of them (see Villalonga et al. (2015) for a recent literature review). In this paper, I explore one aspect which has received little attention so far in the financial literature: the analyst activity.

Analysts, who provide information to market participants (e.g. earnings forecasts, price targets, buy-sell recommendations, etc.), serve as independent monitors (Healy and Palepu (2003)) and play the important role of informational intermediaries between the firm and the market (Lang et al. (2004)). In the context of ownership concentration and family ownership, the additional scrutiny from analysts could have a significant impact.

The aim of this paper is to examine the relationship between ownership structure, analyst coverage, and forecast error. It provides insight into the following two issues: (1) Are family firms less often followed by analysts, and if so, are certain characteristics of family firms influencing the number of analyst following them? (2) Are family firms' earnings better forecasted by analysts, and if so, how do firm characteristics influence forecast error? I study this relationship by first looking at the intensity of market scrutiny and analyzing the impact of ownership structure on the extent of analyst coverage. I then analyze the availability of information by looking at the relationship between ownership structure and forecast error. Contrary to existing literature, I disentangle the effects of family ownership from that of other large blockholders, and I compare family firms to both widely held firms and firms held by another blockholder. This paper expands on previous studies by analyzing various characteristics of family firms, such as the generation of the family, the involvement of the family in the management of the firm, the discrepancy between voting rights and cash-flow rights, and the use of dual class shares.

[45] About 65-80% of all businesses (listed and unlisted) in the world are owned by a family (Gersick et al. (1997)), while this figure hovers around 90% in the United States (Colli (2003)). In the case of listed firms, 50% of all public companies (Villalonga and Amit (2010)) and one third of the largest firms ((Anderson and Reeb (2004)) in the U.S. are controlled by the founding family, and this is also true for almost half of the listed firms in Western Europe (Faccio and Lang (2002)) and two-thirds of listed firms in East Asia (Carney and Child (2013); Claessens et al. (2000)).

Few papers address this issue, and the results lack unanimity. Lang et al. (2004), by investigating analyst activity in 27 countries, find that analysts dislike following firms that might manipulate information, for example when a family or management group is the largest shareholder. On the other hand, Haw et al. (2004) and Boubaker and Labégorre (2008) find that analysts are more likely to follow firms that show a discrepancy between voting rights and cash-flow rights and that have achieved control through pyramids. When expropriation likelihood increases, minority shareholders are more likely to seek analyst services. In these studies, authors compare ownership structure and analyst coverage, but not the accuracy of analyst predictions. However, Chang et al. (2000) find differences in the forecast error across countries. I provide evidence that ownership structure is not only associated with the number of analysts following the firm, but also with the accuracy of analyst forecasts.

Analyst forecast error, usually measured as the difference between real earnings per share (EPS) and EPS' consensus estimate, is a common measure of analyst performance (see Lilienfeld-Toal and Ruenzi (2014); Giroud and Mueller (2011); Core et al. (2006)). Analysts provide estimates for a given firm (such as EPS, price target, or buy/sell/hold recommendations) several months to several years before the announcement of the firm's actual results. EPS forecasts are primarily based on information (public or private) released by firms. The personal ability of an analyst also plays a role in the accuracy of the forecast,[46] but the use of consensus estimates for calculating analyst forecasts mitigates this aspect. Forecast error based on consensus estimates can then be seen as a proxy to measure the quality and availability of the information released by firms (Anderson et al. (2009); Ali et al. (2007)).

Existing literature on corporate disclosure and informativeness evidences several different approaches. Warfield et al. (1995) use the correlation between stock returns and accounting earnings as a proxy for informativeness. They find a positive relationship between managerial ownership and earnings quality. Francis et al. (2005) use the slope coefficients from regressions of annual returns on annual earnings as a proxy for earnings informativeness. They find that earnings are generally less credible, hence less informative, with dual class firms than with single class firms. Wang (2006) uses three measures as proxies for earnings quality and informativeness: abnormal accruals, earnings informativeness, and persistence of transitory loss components in earnings. He finds that founding family ownership is associated with higher earnings quality. Ali et al. (2007) use several measures as proxies for

[46] See Loh and Mian (2006), who find that analysts issuing more accurate earnings forecasts make more profitable stock recommendations.

corporate disclosure. They assess the quality of earnings[47], the likelihood of management to issue earnings forecasts, the voluntary disclosure of corporate governance practices, the analyst coverage, the analysts' forecast properties, and the bid-ask spreads. They find that family firms usually provide more information (i.e. better quality earnings and warnings of bad news), except for disclosures regarding corporate governance practices. Chen et al. (2008) find somewhat comparable results by analyzing the impact of voluntary disclosure practices among family and nonfamily firms. By using management forecasts as a proxy for voluntary disclosure, they find that family firms disclose fewer earnings forecasts, but more earnings warnings. On the contrary, Anderson et al. (2009), by creating an opacity index[48] that ranks the transparency of the largest industrial U.S. firms, find that founder- and heir-controlled firms rank high in their index and are therefore less transparent than widely held firms. Cascino et al. (2010), based on Francis et al. (2004), use seven measures to capture earnings quality, four of which are accounting-based attributes (accrual quality, persistence, predictability, and smoothness) and three of which are market-based attributes (relevance, timeliness, and conservatism). They find that family firms in Italy provide financial information of higher quality when compared to their nonfamily counterparts. Finally, Isakov and Weisskopf (2014b) use idiosyncratic risk as a proxy for informativeness. They find a positive link between family ownership and idiosyncratic risk, meaning family firms issue more information and are more transparent.

This paper expands on existing literature by analyzing panel data over the period January 2003 to December 2013 for a sample of 160 non-financial companies listed on the SIX Swiss Exchange. The Swiss market is relatively small in terms of the number of listed companies (221 domestic companies in 2016) but in terms of market capitalization, it is ranked among the top ten largest financial centers in the world. Family firms are widespread, and companies often use dual class shares to dissociate voting rights from cash-flow rights. The system of law in Switzerland originates with German civil law, which historically has left minority shareholders poorly protected (La Porta et al. (1998)). Nevertheless, outside investors and foreigners are generally attracted to Swiss companies due to the financial stability of the country and the voluntary adoption of good corporate governance practices by firms. For aforementioned reasons, the Swiss market is an appropriate setting to conduct a study about ownership structure and analyst activity.

[47] As proxies for the quality of earnings, Ali et al. (2007) use the level of discretionary accruals in earnings, the ability of earnings components to predict future cash-flows, the association of earnings with contemporaneous stock returns, and the persistence of earnings.

[48] The index comprises four proxies for opacity: trading volume, bid-ask spread, analyst coverage, and analyst forecast errors.

The main results of the study are: (1) Analysts follow fewer firms in which a family has a large stake. Conversely, widely held firms are more often followed; (2) When looking at family firms, corporate characteristics that increase the likelihood of expropriation also increase the number of analysts following the firm; (3) Forecast errors of family firms are smaller, meaning better information is released by family firms; (4) There is little correlation between firm characteristics of family firms and forecast error.

The remainder of this paper is organized as follows: Section 2 develops the literature and hypotheses tested in the study. Section 3 describes the data and variables used in the analysis. Section 4 presents the descriptive statistics and results of univariate tests. Section 5 shows the results of multivariate tests. Section 6 discusses the robustness of previous results. Section 7 summarizes and concludes.

2. Related literature and hypotheses

2.1. Ownership structure and analyst coverage

Based on the agency conflict framework, there are several arguments which might explain the relationship between the ownership structure of a firm and the number of analysts following it. Because of the large stake and dominant position of the majority shareholder, concentrated ownership reduces conflict of interest between managers and shareholders (i.e. Agency Problem I) (Gilson and Gordon (2003)). Large shareholders may monitor managers and ensure that the interests of both sides are aligned. This monitoring effect is more pronounced in family firms, where a large portion of the owner's private wealth is invested and where family reputation is involved. In this case, outside monitoring by analysts is less important and less needed by external shareholders (Moyer et al. (1989)). However, concentrated ownership does increase conflict of interest between majority and minority shareholders (i.e. Agency Problem II) and expropriation becomes a bigger concern (Gilson and Gordon (2003)). Large shareholders might be able to extract private benefits and therefore might favor maintaining the opacity of the firm's financial performance (Lang et al. (2004)), in which case, the expertise of analysts would be crucial in monitoring the firm (Jensen and Meckling (1976)). Yet, the fact that it is more costly for analysts to follow this kind of firm, and the fact that small investors are more reluctant to invest in them, might decrease the number of analysts following them. Though it is not clear which of the two conflicts dominates, or if they counterbalance each other, monitoring by analysts should see a decrease in both cases. Lastly, Ball et al. (2000) affirm that information in a concentrated

ownership framework is more likely to be communicated through private channels (as opposed to public channels). This would also increase the costs of following firms with concentrated ownership, as well as decrease the overall need for analysts by outside investors. For these reasons, I expect to find an inverse association between family ownership and the number of analysts following family firms; and the higher the family stake, the more pronounced this negative relationship is.

Past literature suggests that family firms are not a homogenous group (Arregle et al. (2007)) and agency costs do not affect all family firms in the same way. Some characteristics of family firms might therefore influence analyst coverage. Generation is one of the common differentiating factors (Villalonga and Amit (2006); Morck et al. (1988)). Family firms at the founder stage do not have the same relationship with outside investors as firms at the descendant stage. In the case of the former, young companies need to attract both investors and capital to develop their business. Founders are therefore less willing to take advantage of outside shareholders and extract private benefits for themselves. However, investors often view family firms at the descendant stage quite critically, due to fear of conflict between heirs (Gordon and Nicholson (2010)), lack of competence (Morck and Yeung (2003)), or personal extraction of benefits (Villalonga and Amit (2006)). Families' use of control-enhancing mechanisms to magnify their power is another possible differentiating factor (Villalonga and Amit (2006); Faccio and Lang (2002); Claessens et al. (2000); La Porta et al. (1999)). These mechanisms allow the family to more easily pursue their goals within the firm (Anderson et al. (2009)). Enhancing family power—especially their active participation in management—strongly reduces conflicts of interest between managers and shareholders. But, it could raise the incentive for expropriation if the family seeks to extract private benefits of control at the expense of minority shareholders.

Based on the agency costs described above, I would expect to find an inverse association between the number of analysts following family firms, and the likelihood of expropriation. However, based on the argument made by Jensen and Meckling (1976) that analysts serve as intermediaries and possess the expertise to play a monitoring role, it could be that external investors, once they have decided to invest in family firms, ask for more analyst services when expropriation becomes a greater concern. I empirically test these two opposing views by looking at the generation of the firm, the involvement of the family in the management of the firm, the use of multiple share classes, and the discrepancy between voting rights and cash-flow rights among family firms.

2.2. Ownership structure and forecast error

Forecast error, defined as the difference between real earnings per share (EPS) and EPS' consensus estimate, is a typical way to measure analyst performance (see Lilienfeld-Toal and Ruenzi (2014); Giroud and Mueller (2011); Core et al. (2006)). Performance can be influenced either by the ability of the analyst or by the quality of the information (public or private) released by the firms.[49] It is possible to minimize the fallibility of the analysts by using consensus estimates, so forecast error based on consensus estimates might be seen as a good proxy for measuring the quality of information release (Anderson et al. (2009)). The more complete and reliable information that a firm releases (via public or private channels), the better the analysts' predictions should be (Lang and Lundholm (1996)).

Agency theory provides two competing views on predicting the quality of information release in a concentrated ownership framework (Givoly et al. (2010)). The entrenchment hypothesis postulates that ownership concentration increases the risk of expropriation and decreases the incentive to provide high quality accounting information. Family firms might prefer to keep private information within the family, because sharing it with outside parties is not beneficial for them (Fan and Wong (2002a)). This reduces the flow of information released (Ajinkya et al. (2005)). On the other hand, the alignment hypothesis suggests that ownership concentration reduces conflict between shareholders and managers. In a concentrated framework, managers are less prone to reporting poor or misleading accounting information that satisfies their own interests (Warfield et al. (1995)). The monitoring effect would be even larger among family firms, where reputation, risk aversion, and long-term orientation are key concerns. This might lead to greater information disclosure among firms with concentrated ownership. Finally, a third explanation could address this relationship: Ball et al. (2000) argue that firms with concentrated ownership are more likely to communicate through private channels. Considering the importance of being followed by analysts (i.e. higher visibility and better stock liquidity), family firms might have a privileged relationship with some analysts and give them information via private channels. This would allow these analysts to better forecast their earnings.

Studies on the relationship between family ownership and accounting quality (or informativeness) provide inconsistent results, which makes this an empirical issue (Hutton (2007)). According to Wang (2006), outside investors may demand greater earnings quality

[49] It is probable that managers of concentrated firms would prefer to be followed by better-quality analysts, similar to what Fan and Wong (2002b) find with managers of concentrated firms and the quality of auditors they work with. However, contrary to the firm choosing the auditors, analysts normally choose whether to follow the firm.

from family firms if they fear inferior corporate governance. This demand motivates family firms to report a higher quality of earnings to satisfy investors. Using data from the S&P500, Wang (2006) concludes that founding family ownership is associated with higher earnings quality and greater earnings informativeness. Similarly, Cascino et al. (2010) find that Italian family firms provide higher quality financial information compared to nonfamily firms, and are simultaneously more transparent and less prone to managerial opportunism. On the contrary, Anderson et al. (2009) argue that family firms in the U.S. are significantly more opaque than diffuse shareholder firms. However, they find smaller analyst errors in forecast estimates for family firms. Ali et al. (2007), who look at several corporate disclosures, report that family firms make more informative financial disclosures, report better quality earnings, and are more likely to provide warnings of a given magnitude of bad news. Concerning voluntary disclosure practices, Chen et al. (2008) find that family firms provide fewer earnings forecasts and conference calls, but more earnings warnings. This is consistent with families taking more care due to litigation and reputation concerns. Finally, Isakov and Weisskopf (2014b) find a positive link between family ownership and idiosyncratic risk, meaning that family firms issue more information and are more transparent. The release of accurate information by family firms may be a way to assuage minority shareholders that they are not being expropriated.

Since theoretical explanations as well as empirical evidence present both positive and negative associations between accounting information and family ownership, I expect to find both kinds of relationships when looking at family ownership and forecast error.

As debated in the previous section, generation and control-enhancing mechanisms impact agency costs by increasing either the monitoring effect or the expropriation effect. The risk of expropriation usually increases when a firm is run by heirs, or when control-enhancing mechanisms are used. Those firm's relationship with informativeness might also differ, but has been studied less and shows mixed results. Anderson et al. (2009) find no significant difference between heir-controlled firms and founder-controlled firms in terms of their opacity index and each of its four components. However, Isakov and Weisskopf (2014b) find that family firms at the descendant stage offer more informative stock prices. Yet, they do not find any significant difference between family firms actively managed by the family and those with which the family is not involved.

Firms with a higher likelihood of expropriation might provide lower quality information if they are, indeed, expropriating minority shareholders. On the other hand, they might provide outside investors with more and better disclosures if they want to show that minority

shareholders are not being expropriated and that the firm is being run in an efficient way. At the same time, outside investors that fear expropriation but are interested in investing in that kind of firm, might ask analysts for greater scrutiny and deeper analysis, which should increase forecast accuracy and decrease forecast errors. It is therefore unclear how an increase in the likelihood of expropriation affects the precision of the forecasts, and this is an empirical issue. I test this association by looking at the generation of the family, the involvement of the family in the management of the firm, the use of multiple share classes, and the discrepancy between voting rights and cash-flow rights among family firms.

3. Data and variables

For my empirical investigation, I use a dataset of 160 non-financial companies listed on the SIX Swiss Exchange during the period January 2003 to December 2013. This sample of 1,255 firm-year observations contains information from almost the entire non-financial Swiss market for this period. Various sources are used to compile this dataset.

First, I use a hand-collected database on the ownership structure of almost all non-financial companies included in the Swiss Performance Index (SPI) between 2003 and 2013 (1,703 firm-year observations).[50] This database, gathered from companies' annual reports as well as Swiss stock guides, newspaper articles, firm homepages, and the commercial register, provides information on the ownership structure of 195 firms. It contains information about large shareholders, and defines, according to a threshold of 20% of the voting rights, whether a company is held by a family, another blockholder (i.e. the state, a private investor, another widely held corporation, another widely held financial firm, or miscellaneous), or is widely held. In the majority of previous studies the distinction was not made between firms owned by the founding family and those held by a private investor (they were both considered family firms). However, these two types of shareholder should be differentiated because they do not own the firm for the same reasons. The term 'family firms' in this study refers to founding family firms only. The only exception to this rule is firms in which the largest shareholder is not part of the founding family, but has been involved in the firm for a long time and has significantly influenced the company (e.g. the Hayek family and the Swatch Group). The database also contains other hand-collected information on family firms, such as the generation of the family firm (i.e. founder or descendant stage), the involvement of the family

[50] I am grateful to Isakov and Weisskopf (2014a) for providing me with their data on the ownership structure of 185 Swiss firms between 2003 and 2010, which is the baseline of my database.

in the management (i.e. active or passive), the use of multiple share classes, and the difference between voting rights and cash-flow rights.

In a second step, I extract from Factset all the data available on yearly consensus estimates (mean and date), annual earnings announcements, and annual EPS for these 195 firms. Data are available for 189 of them, but in several cases, no analysts followed the company during the period, so these firms are dropped.[51] After merging the data on analyst forecast with that on ownership structure, I end up with a database of 1,255 firm-year observations on 160 different firms.

Finally, I add market and firm data obtained from Datastream and Worldscope, such as stock prices, book-to-market ratios, total assets, free float, and return-on-equity. Data on the American Depositary Receipt (ADR) are collected from the BNY Mellon (2014) website.

Table 15 summarizes the different variables used in this study.

4. Descriptive statistics and univariate tests

Table 16 presents the composition of the sample and the descriptive statistics for the entire sample (Column 1) as well as for the main groups, namely family firms (Column 2), nonfamily firms (Column 3), widely held firms (Column 4), and firms held by another blockholder (Column 5).

Of our sample of 1,255 firm-year observations, 35% are family firms, 40% are widely held firms, and 24% are firms held by another blockholder (10% by a private investor, 4% by the state, 3% by a widely held corporation, 4% by a widely held financial firm, and 4% are classified as miscellaneous).

The mean EPS is about 21.79CHF for the entire sample, and differs largely among the various groups. Widely held firms have the smallest EPS (7.53CHF), while the EPS of family firms is twice as large (18.21CHF), and that of firms with another blockholder is seven times as large (50.84CHF). The mean consensus estimates for all groups are higher than the real

[51] In the literature, authors often drop firms with fewer than 3-5 analysts following them. I keep all firms with at least one analyst because the Swiss market is relatively small—with about 220 listed firms—and the higher the number of observations, the more robust the tests are. Appendices 2-9 show the results after dropping firms followed by fewer than 3 analysts. The results are similar to when firms followed by fewer than 3 analysts are not dropped.

Table 15: Variable definitions

This table defines the variables used in the analysis. Market data come from Datastream and Worldscope, while data on ownership structure for 2003-2010 originates with Isakov and Weisskopf (2014a) and are extended through 2013 via hand-collected data from annual reports and Swiss stock guides. The data for analyst coverage and earnings are collected from Factset, and those concerning the American Depositary Receipts are collected from the BNY Mellon (2014) website. The period of analysis is from January 2003 to December 2013.

Panel A: Firm ownership measures	
Widely held firm (*WH*)	Dummy variable that takes on the value 1 if no shareholder holds more than 20% of the voting rights, otherwise it equals 0.
Family firms (*FF*)	Dummy variable that takes on the value 1 if a family holds more than 20% of the voting rights, otherwise it equals 0.
Stake family firm	The percentage of voting rights held by the largest shareholder in a family firm.
Family firms at the founder stage (*FFF*)	Dummy variable that takes on the value 1 if a family firm is held by its founder, otherwise it equals 0.
Family firms at the descendant stage (*FFD*)	Dummy variable that takes on the value 1 if a family firm is held by a descendant, otherwise it equals 0.
Active family firms (*AFF*)	Dummy variable that takes on the value 1 if at least one member of the family is active in the firm, otherwise it equals 0.
Passive family firms (*PFF*)	Dummy variable that takes on the value 1 if no member of the family is active in the firm, otherwise it equals 0.
Other blockholder (*OB*)	Dummy variable that takes on the value 1 if the firm has a shareholder with more than 20% of the voting rights who is also not a family member, otherwise it equals 0.
State (*S*)	Dummy variable that takes on the value 1 if the state holds more than 20% of the voting rights, otherwise it equals 0.
Private investor (*PI*)	Dummy variable that takes on the value 1 if a private investor holds more than 20% of the voting rights, otherwise it equals 0.
Widely held corporation (*WHC*)	Dummy variable that takes on the value 1 if another widely held corporation holds more than 20% of the voting rights, otherwise it equals 0.
Widely held financial (*WHF*)	Dummy variable that takes on the value 1 if another widely held financial firm holds more than 20% of the voting rights, otherwise it equals 0.
Miscellaneous (*Misc*)	Dummy variable that takes on the value 1 if an unclassifiable shareholder holds more than 20% of the voting rights, otherwise it equals 0.

Panel B: Firm characteristics

ADR	Dummy variable that takes on the value 1 if a company has an ADR (American Depositary Receipt) traded in the U.S., otherwise it equals 0.
Analyst coverage	The number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year.
Book-to-market	Ratio of book value of common equity to market value of common equity.
Consensus estimate	The mean of the analysts' forecasts that were made 9 months prior to the end of the fiscal year.
Dual class share (*DCS*)	Dummy variable that takes on the value 1 if a company has more than one class of share, otherwise it equals 0.
Earnings per share	The portion of the firm's earnings allocated to each outstanding share.
Earnings surprise	The absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price.
Excess control	The discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR.
Forecast dispersion	The standard deviation of analysts' EPS forecasts divided by the absolute value of the mean of analysts' EPS forecasts.
Forecast error	The absolute value of the actual earnings per share at the end of the fiscal year, minus the estimated earnings forecasted 9 months prior, deflated by the share price at the time of the forecast for a particular firm and year
Free float	The percentage of shares that floats freely.
logBM	The natural logarithm of the book-to-market ratio (ratio of book value of common equity to market value of common equity).
Price	The closing price in Swiss Francs (CHF) at which the firm's stock is traded.
Return-on-equity	Profitability ratio, calculated as (Net Income – Bottom Line – Preferred Dividend Requirement) / Average of Last Year's and Current Year's Common Equity x100.
Size	The natural logarithm of the firm's total assets.
Total assets	Sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property, plant, and equipment, and other assets.
Volatility	The average daily volatility of a stock, calculated using daily data over the previous three years.

Table 16: Composition of the sample and descriptive statistics for the main ownership structures

This table presents the descriptive statistics for the entire sample, which includes 160 non-financial companies over the period 2003-2013 (1,255 firm-year observations). The table presents the mean of the different dummy variables related to the ownership structure, as well as the mean of the main variables used in the study for the principal types of ownership structure. The variables are described in Table 15. A company is controlled by a shareholder if it holds more than 20% of the voting rights. Column 1 shows the results for the entire sample, while Columns 2 to 5 show the means for the subsample of family firms (Column 2) and nonfamily firms (Column 3), as well as widely held firms (Column 4) and firms held by another blockholder (Column 5).

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder
	Mean	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)
Founding family firms	0.35				
Widely held firms	0.40				
Other blockholder	0.24				
Private investor	*0.10*				
State	*0.04*				
Widely held corporation	*0.03*				
Widely held financial	*0.04*				
Miscellaneous	*0.04*				
Consensus estimate (in CHF)	24.07	19.49	26.57	9.92	54.39
Earnings per share (in CHF)	21.79	18.21	23.75	7.53	50.84
Analyst coverage	8.10	7.82	8.25	10.18	5.03
Forecast error	0.0677	0.0467	0.0792	0.0797	0.0785
Forecast dispersion	0.4094	0.2384	0.5031	0.5049	0.4995
N	1255	443	812	508	304

EPS. This means that analysts usually overestimate future earnings. This is consistent with the fact that analysts are often too optimistic about the future (Easterwood and Nutt (1999)).

Each of our sample firms are covered by an average of 8.10 analysts. This is consistent with Lang et al. (2004) who find there is an average of 11 analysts per firm for their sample of 66 Swiss firms in the year 1996. However, this average is lower than that found by Chang et al. (2000), which was 19.97 for Switzerland. This difference can be explained by the fact that they focus on the 30 largest firms in each country, rather than all non-financial firms, as this paper does. From a subsample of the 30 largest Swiss firms, a mean coverage of 19.68 analysts per firm is obtained (see Appendix 10), which is close to their result. As with the EPS, large differences occur between groups. Widely held firms are the most followed, with

an average of 10.18 analysts per firm, followed by family firms (7.82 analysts) and firms with another blockholder (5.02 analysts).

Finally, I find an average forecast error of 6.77%, with a forecast dispersion of 40.94% for the entire sample. Widely held firms and firms held by another blockholder have a forecast error and dispersion around twice as large as those of family firms (7.97%/50.49% and 7.85%/49.95% respectively, versus 4.67%/23.84%).

So far, our descriptive statistics allow us to see that even though family firms are less frequently followed by analysts, their earnings might be better forecasted than those of widely held firms or firms held by another blockholder. Univariate tests presented in Table 17 confirm these results from a statistical point of view.

Table 17: Univariate tests for the main ownership structures

This table presents the results of the difference in means tests for analyst coverage, forecast error, and forecast dispersion between the major groups, that is, between family firms and nonfamily firms, between family firms and widely held firms, and between family firms and other blockholder firms. A more detailed description of the variables is given in Table 15. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	Family firms – Nonfamily firms	Family firms – Widely held firms	Family firms – Other blockholder
	Difference	Difference	Difference
	(1)	(2)	(3)
Analysts coverage	-0.4285	-2.3572***	2.7943***
Forecast error	-0.0326***	-0.0330**	-0.0318**
Forecast dispersion	-0.2648	-0.2665	-0.2611*
N	1255	951	747

As suggested by Boubaker and Labégorre (2008), firm characteristics such as excess control, the use of pyramids, or the presence of family in management can influence the degree of analyst coverage of controlled firms. In my analysis, I use the four following firm characteristics: (1) the generation of the family firm (i.e. founder stage versus descendant stage), (2) the active involvement of the family in management (i.e. active versus passive), (3) the use of dual class shares, and (4) excess control. Tables 18 and 19 present the descriptive statistics and univariate tests of the different variables of interest.

Table 18: Descriptive statistics for family firms based on firm characteristics

This table presents descriptive statistics for the different variables used in the study. The mean of each variable is presented for the different subdivisions of family firms based on different firm characteristics (generation, active involvement, use of dual class shares, and excess control by the largest shareholder). The variables are described in Table 15. Column 1 shows the means for the entire subsample of family firms (the first 8 lines give the percentage of observations belonging to each characteristic), Columns 2-3 show the means for firms at the founder or descendant stage, Columns 4-5 show the means for firms for which family members are involved in management or are passive, Columns 6-7 show the means for firms using dual class shares or not, and Columns 8-9 show the means for firms whose largest shareholder has excess control or not.

	All family firms	Founder stage	Descendant stage	Active family	Passive family	Dual class shares	Single class shares	Excess control	No excess control
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family firms at the founder stage	0.36								
Family firms at the descendant stage	0.64								
Active family firms	0.59								
Passive family firms	0.41								
Dual class shares	0.45								
Single class shares	0.55								
Excess control	0.43								
No excess control	0.57								
Consensus estimate (in CHF)	19.49	10.02	24.85	18.41	21.06	30.46	10.38	32.11	10.10
Earnings per share (in CHF)	18.21	9.15	23.34	18.53	17.77	29.61	8.75	31.14	8.60
Analyst coverage	7.82	7.55	7.98	7.07	8.92	8.80	7.02	9.08	6.89
Forecast error	0.0467	0.0467	0.0467	0.0549	0.0348	0.0325	0.0584	0.0338	0.0563
Forecast dispersion	0.2384	0.2012	0.2572	0.2171	0.2661	0.1691	0.2978	0.1749	0.2866
N	443	160	283	262	181	201	242	189	254

Table 19: Univariate tests for family firms based on firm characteristics

This table presents the results of the difference in means tests for analyst coverage, forecast error, and forecast dispersion between the different subdivisions of family firms based on different firm characteristics (generation, active involvement, use of dual class shares, and excess control by the largest shareholder). A more detailed description of the variables is given in Table 15. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	Founder stage – Descendant stage	Active family – Passive family	Dual class shares – Single class shares	Excess control – No excess control
	Difference	Difference	Difference	Difference
	(1)	(2)	(3)	(4)
Analyst coverage	-0.4288	-1.8484**	1.7795**	2.1988***
Forecast error	0.0001	0.0200*	-0.0259**	-0.0225**
Forecast dispersion	-0.0560	-0.0490	-0.1287	-0.1117
N	443	443	443	443

Table 18 shows that 36% of the subsample of family firms are at founder stage, while 64% are at descendant stage. Fifty-nine percent have at least one member of the family involved in the management of the firm, either as CEO or Chairman of the Board. Finally, 45% of them are using dual class shares, and in 43% of them the largest shareholder has excess control.

As far as the influence of these four characteristics is concerned, the generation of the family firms has no association with analyst coverage nor forecast error. However, the three other firm characteristics do influence analyst coverage and forecast error. Family firms involved in management are less often followed by analysts (7.07 average) than family firms in which no members participate (8.92 average) and for which the forecast error is higher (5.49% versus 3.48%). Concerning the use of dual class shares and excess control, both are associated with higher analyst coverage and lower forecast error. Consistent with the findings of Boubaker and Labégorre (2008), firms with a higher probability of expropriation might require more analyst services to satisfy minority shareholders.

5. Multivariate analysis

To further test my hypotheses, I study the impact of ownership structure on both analyst coverage and forecast error by completing a multivariate analysis and controlling for several firm characteristics. The first section focuses on the dependent variable of analyst coverage while the second focuses on forecast error.

5.1. Ownership structure and analyst coverage

To study the impact of ownership structure on the extent of analyst coverage, I follow Lang et al. (2004) and Boubaker and Labégorre (2008) and estimate the following model:

$$\begin{aligned} \text{Analyst coverage} = {} & \beta_0 \\ & + \beta_1(\text{Ownership variables}) \\ & + \beta_2(\text{Control variables}) \\ & + \beta_3(\text{Year dummies}) \\ & + \beta_4(\text{Industry dummies}) + \varepsilon_i \end{aligned} \quad (1)$$

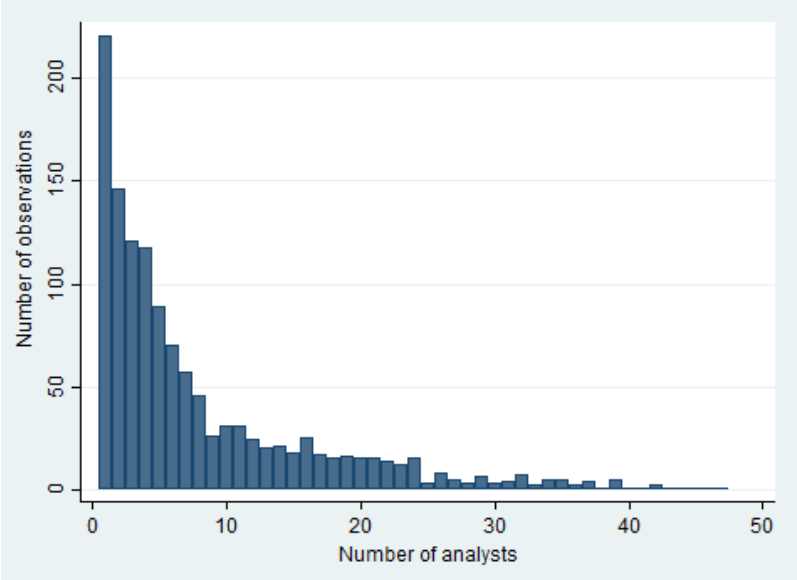
ANALYST COVERAGE is defined as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. Ownership variables vary depending on the hypothesis tested. They include *FAMILY*, *WH*, and *OB*—three dummy variables equaling 1 if the founding family is the largest shareholder, the firm is widely held, or the firm is held by another blockholder, respectively. It may also include *FAMILY STAKE*, representing the percentage of the family's voting rights, and *EXCESS CONTROL*, representing the discrepancy between voting rights (*VR*) and cash-flow rights (*CR*), which is measured as (VR-CR)/VR. Finally, some corporate characteristics may be included, such as *DFF*, a dummy variable taking the value of 1 if the family firm is at descendant stage, or 0 if it is at founder stage, *FAMILY ACTIVE*, a dummy variable taking the value of 1 if at least one member of the family is involved in the management of the firm (as CEO or Chairman of the Board) or 0 otherwise, and *DCS*, a dummy variable equaling 1 if the firm is using dual class shares or 0 otherwise. Based on prior research, I include control variables that explain the extent of analyst coverage in my regressions. I control for cross-listing by using indicator variable *ADR*, which takes the value of 1 if the firm has an ADR traded in the U.S., and 0 otherwise. Baker et al. (2002) and Lang et al. (2003) find there is greater analyst coverage if a firm has exchange-listed ADR's in the USA. I also include firm size (*SIZE*)—proxied by the natural logarithm of total assets—because larger firms are expected to be followed more often by analysts (see Brennan and Hughes (1991)). Consistent with Dahlquist et al. (2003), I include float (*FLOAT*), because firms for which the volume of shares that float freely is low, are less attractive to investors and require less analyst coverage. I also control for return volatility (*VOLATILITY*), by calculating the standard deviation of daily returns over the previous three years, as suggested by Boubaker and Labégorre (2008). O'Brien and Bhushan (1990) find that analysts are more attracted to lower return variability. And I include Return-on-equity (*ROE*)—a proxy for profitability—since McNichols and O'Brien (1997) find that analysts are reluctant to follow non-profitable firms. Last, I include earnings surprise

(*EARNINGS SURPRISE*) since firms with highly volatile earnings are less frequently followed by analysts (Lang and Lundholm (1996)). It is calculated as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Finally, year dummies as well as industry dummies based on the 1-digit ICB classification are included to control for fixed effects.

Before looking at the results of the regressions, it is important to discuss the econometric model used. Analyst coverage is not a continuous variable, but a count variable, which takes on relatively few nonnegative integer values (1 to 47 in my case); and small values are much more common than large, as Figure 3 shows.

Figure 3: Distribution of analyst coverage

This figure presents the distribution of the analyst coverage variable (1,255 firm-year observations). The x-axis shows the number of analysts following a particular firm in a particular year, and the y-axis shows the number of observations corresponding to the number of analysts. The minimum number of analysts is 1 and the maximum is 47.



Using standard OLS assumes normal distribution, with continuous variables that can take on all values. However, a count variable cannot have a normal distribution and the nominal distribution is the Poisson distribution (Wooldridge (2009)). So, using a linear regression model in the case of analyst coverage would lead to biased and inconsistent coefficients, as pointed out by Rock et al. (2001). Boubaker and Labégorre (2008) test several models which deal with count dependent variables. They find that a standard negative binomial model[52]

[52] Traditionally, "a negative binomial probability distribution with parameters *r* and *p* gives the probabilities of various numbers of failures before the r^{th} success when each attempt has probability of success *p*" (Cook (2009)).

(see Cameron and Trivedi (1986, p.32-33)) best suits the distribution of analyst coverage. This model relaxes the mean-variance-equality assumption of the Poisson model by allowing for unobserved heterogeneity in the mean function, and takes care of the overdispersion problem. Indeed, the dependent variable *ANALYST COVERAGE* has a mean of 8.11, which is about nine times smaller than its variance of 73.65, and thus suffers from an overdispersion problem. For the following regressions using analyst coverage as the dependent variable, I use a standard negative binomial model to estimate the various coefficients.

Table 20 presents regression results between analyst coverage and ownership structure. The first equation regresses analyst coverage against the percentage of voting rights held by the largest shareholder in a family firm, along with the full set of control variables and industry and year dummies. The results show a negative and highly significant relationship between analyst coverage and the stake of the family, meaning that the more voting power the family has, the fewer analysts follow it. In concrete terms, an increase of 10% of the family stake would decrease the number of analysts following the firm by about 2.5%, if all other factors remain constant. Equations 2 to 4 show the results of the regressions of analyst coverage on the three dummies indicating the presence of a family as the largest shareholder (eq. 2), the presence of no large shareholder (eq. 3), and the presence of another blockholder (eq. 4). Apart from the dummy representing the family firms, the other two coefficients are highly significant and associated with the expected positive/negative designation. If all other factors remain constant, widely held firms would be followed by 12.23% more analysts than other firms, and firms with another blockholder would be covered by 16.11% fewer analysts. In Equation 2, the coefficient for the dummy variable for family firms is neither negative nor significant because the analyst coverage for firms owned by another blockholder is even smaller than that of family firms. If we add both the ‘family firms’ dummy and the ‘another blockholder’ dummy in the regression, we find a negative and significant coefficient for family firms as well (eq. 5). These results are consistent with the findings of the univariate tests and show that the number of analysts following a firm is associated with the ownership structure of the firm, and that family firms are less often followed by analysts than widely held firms.

Although this model was originally meant to count the number of successes and failures, it is the properties of the model’s distribution that is interesting in the case of analyst coverage. The distribution of the standard negative binomial model is similar to that of a Poisson model, but unlike the Poisson model, it allows the variance to be unequal to the mean. The standard negative binomial model is thus a generalization of the Poisson model (Rock et al. (2001)) and should be used when the dependent variable is an over-dispersed count variable, that is, when the conditional variance exceeds the conditional mean.

Table 20: Multivariate analysis of analyst coverage for the main ownership structures

This table presents the coefficients and robust standard errors of the multivariate regressions of the dependent variable ANALYST COVERAGE on different ownership variables, control variables, year dummies, and industry dummies for the main ownership structure. These regressions are based on 1,137 firm-year observations for the eleven-year period between January 2003 and December 2013. All regressions are performed using a Standard Negative Binomial Model, as defined by Cameron and Trivedi (1986). ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. Ownership variables may include FAMILY, WH, and OB; these three dummy variables indicate whether the founding family is the largest shareholder, if the firm is widely held, or if the firm is held by another blockholder. It may also include FAMILY STAKE, the percentage of family voting rights, and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: ADR, a dummy variable indicating if the firm is cross-listed in the U.S.; SIZE, proxied by the natural logarithm of total assets; FLOAT, the volume of shares that floats freely; VOLATILITY, the standard deviation of daily returns over the previous three years; ROE, a proxy for profitability; and EARNINGS SURPRISE, the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Robust standard errors are in parentheses. α is a *t*-test for overdispersion.

	Model 1	Model 2	Model 3	Model 4	Model 5
Family stake	-0.2511***				
	(0.070)				
Family dummy		0.0207			-0.0728*
		(0.037)			(0.043)
WH dummy			0.1223***		
			(0.041)		
OB dummy				-0.1611***	-0.2040***
				(0.048)	(0.055)
Excess control	0.0874***	0.0333	0.0794***	0.0380	0.0616**
	(0.032)	(0.026)	(0.030)	(0.025)	(0.027)
ADR	0.3204***	0.3367***	0.3159***	0.3256***	0.3161***
	(0.047)	(0.048)	(0.048)	(0.047)	(0.049)
Size	0.4010***	0.3967***	0.4003***	0.3943***	0.3966***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Float	0.4774***	0.6081***	0.4566***	0.5464***	0.4743***
	(0.078)	(0.076)	(0.081)	(0.072)	(0.080)
Volatility	13.1846***	14.3486***	13.7054***	14.5634***	14.1927***
	(2.741)	(2.731)	(2.745)	(2.687)	(2.703)
ROE	0.0006*	0.0006*	0.0006*	0.0006*	0.0006
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Earnings surprise	-0.1912**	-0.1866**	-0.1824**	-0.1781**	-0.1770**
	(0.095)	(0.092)	(0.091)	(0.088)	(0.088)
Intercept	-4.0627***	-4.1554***	-4.1869***	-4.0849***	-4.0463***
	(0.275)	(0.279)	(0.278)	(0.281)	(0.278)
α (Overdispersion)	-2.1892***	-2.1795***	-2.1837***	-2.2066***	-2.2052***
	(0.085)	(0.086)	(0.085)	(0.088)	(0.088)
Year dummies	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
N	1137	1137	1137	1137	1137
Log-likelihood	-2846.83	-2852.22	-2848.22	-2845.83	-2844.57
X^2 (LR test)	2874.66***	2861.09***	2890.10***	2976.60***	2983.57***
Pseudo R^2	0.2130	0.2115	0.2126	0.2133	0.2136

Concerning the control variables, except for the risk (positively related), all coefficients conform to past literature and are almost always highly significant. Analysts more often follow firms with a higher likelihood of expropriation (*EXCESS CONTROL*), larger firms, profitable firms, firms with a large number of free float shares, and firms that are cross-listed in the USA. On the contrary, they are reluctant to follow firms with greater earnings surprises.

Table 21 presents the results of the association between different firm characteristics and analyst coverage for the subsample of family firms. All equations include the same set of control variables and industry and year dummies as the previous table. As suggested by Boubaker and Labégorre (2008), I add the percentage of voting rights held by the family to dissociate the effect of the variable of interest from that of the stake.

In the first equation, a dummy variable indicating whether the firm is at the descendant stage is regressed against analyst coverage. The coefficient is positive and significant at 10% confidence level, meaning that firms at descendant stage are more often followed by analysts than firms at founder stage. This result is partially consistent with that of the univariate test (the difference is not significant in the univariate test). According to Isakov and Weisskopf (2014b), firms at founder stage communicate with investors less than those at descendant stage. This lack of communication could explain why analysts are less interested in firms at founder stage. Equation 2 uses a dummy variable equaling 1 as the main independent variable, if at least one member of the family is active in the management of the firm (i.e. CEO or Chairman of the Board). The coefficient is positive and highly significant. Family firms actively managed by a family member are more often followed by analysts than family firms not managed by the family. This result is contrary to that found in the univariate test, but favors the argument that an increase in expropriation likelihood increases analyst coverage. Equation 3 regresses the use of dual class shares against analyst coverage. The coefficient is positive and highly significant. Firms that use dual class shares are more prone to expropriation problems and are thus more often followed by analysts. In the same way, Equation 4 regresses excess control against analyst following. I find a positive and highly significant coefficient here as well. Finally, some of the family firms accumulate control-enhancing mechanisms. Equations 5 to 7 test the interaction between dual class shares and generation (eq. 5), between dual class shares and the involvement of the family (eq. 6), and between generation and the involvement of the family (eq. 7). Family firms at the founder stage and at the descendant stage using dual class shares have the same highly significant positive effect on the number of analysts following them. However, family firms actively

Table 21: Multivariate analysis of analyst coverage for family firms based on firm characteristics

This table presents the coefficients and robust standard errors of the multivariate regressions of the dependent variable ANALYST COVERAGE on different ownership variables based on firm characteristics, control variables, year dummies, and industry dummies. These regressions are based on the subsample of family firms (411 firm-year observations) for the eleven-year period between January 2003 and December 2013. All regressions are performed using a Standard Negative Binomial Model, as defined by Cameron and Trivedi (1986). ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. Ownership variables may include FAMILY STAKE, the percentage of family voting rights, as well as the following variables based on firm characteristics: FFD, a dummy variable indicating if the family firm is at the descendant stage; FFF, a dummy variable indicating if the family firm is at the founder stage; ACTIVE FAMILY (AFF), a dummy variable indicating if at least one member of the family is active in the firm (as CEO or Chairman of the Board); PASSIVE FAMILY (PFF), a dummy variable indicating if no member of the family is active in the firm; DCS, a dummy variable indicating if the firm is using dual class shares; and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: ADR, a dummy variable indicating if the firm is cross-listed in the U.S.; SIZE, proxied by the natural logarithm of total assets; FLOAT, the volume of shares that floats freely; VOLATILITY, the standard deviation of daily returns over the previous three years; ROE, a proxy for profitability; and EARNINGS SURPRISE, the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Robust standard errors are in parentheses. α is a *t*-test for overdispersion.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Family stake	-1.0913***	-1.1579***	-1.3514***	-1.2132***	-1.3440***	-1.5096***	-1.1894***
	(0.131)	(0.130)	(0.159)	(0.141)	(0.159)	(0.174)	(0.141)
Family firms at the descendant stage (FFD)	0.0873*						
	(0.051)						
Active family firms (AFF)		0.1301***					
		(0.049)					
Dual class shares (DCS)			0.1901***				
			(0.059)				
Excess control				0.2697***			
				(0.084)			
FFD * DCS					0.1771***		
					(0.062)		
FFF * DCS					0.2383***		
					(0.083)		
AFF * DCS						0.3350***	
						(0.077)	
PFF * DCS						0.0664	
						(0.064)	
FFD *AFF							0.1747***
							(0.053)
FFF * AFF							0.0707
							(0.057)

ADR	0.4328***	0.4481***	0.4355***	0.4509***	0.4362***	0.3837***	0.4263***
	(0.077)	(0.079)	(0.081)	(0.081)	(0.081)	(0.085)	(0.082)
Size	0.4211***	0.4247***	0.4168***	0.4074***	0.4175***	0.4231***	0.4256***
	(0.017)	(0.016)	(0.017)	(0.017)	(0.017)	(0.016)	(0.016)
Float	0.0015	0.0065	-0.1576	-0.1380	-0.1632	-0.1977*	-0.0220
	(0.097)	(0.092)	(0.109)	(0.107)	(0.109)	(0.106)	(0.095)
Volatility	33.2165***	30.9904***	32.0001***	32.4180***	32.1287***	30.7971***	32.0582***
	(4.050)	(4.042)	(3.860)	(3.867)	(3.885)	(3.813)	(4.091)
ROE	0.0003	0.0004	0.0003	0.0002	0.0003	0.0005	0.0004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Earnings surprise	-0.7596***	-0.7099***	-0.6993***	-0.7492***	-0.6929***	-0.6542***	-0.7214***
	(0.232)	(0.189)	(0.182)	(0.213)	(0.176)	(0.160)	(0.205)
Intercept	-4.4654***	-4.4476***	-4.2270***	-4.1581***	-4.2410***	-4.2662***	-4.4904***
	(0.316)	(0.309)	(0.319)	(0.327)	(0.318)	(0.304)	(0.304)
α (Overdispersion)	-3.0126***	-3.0974***	-3.0665***	-3.0395***	-3.0865***	-3.2581***	-3.1316***
	(0.235)	(0.261)	(0.259)	(0.247)	(0.263)	(0.325)	(0.273)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	411	411	411	411	411	411	411
Log-likelihood	-959.66	-957.61	-956.04	-956.72	-955.79	-949.70	-955.77
X^2 (LR test)	1655.13***	1827.69***	1815.51***	1805.51***	1847.41***	2029.71***	1904.74***
Pseudo R^2	0.2582	0.2598	0.2610	0.2605	0.2612	0.2659	0.2612

managed by the family while using dual class shares (eq. 6) or while at the descendant stage (eq. 7) are associated with a higher number of analysts following them, whereas those passively managed while using dual class shares or while at the founder stage create no significant effect.

To briefly summarize, the results of this section show that family firms are generally followed by fewer analysts than firms that are widely held, but when looking only at family firms, characteristics that increase the likelihood of expropriation are positively associated with analyst coverage. This supports the role of analysts as intermediaries that have a monitoring effect, as described by Jensen and Meckling (1976).

5.2. Ownership structure and forecast error

To further examine the relationship between ownership structure and analysts' forecast errors, I follow Giroud and Mueller (2011) and Chang et al. (2000) and estimate the following regression:

$$\begin{aligned} \text{Forecast error} = \; & \beta_0 \\ & + \beta_1(\text{Ownership variables}) \\ & + \beta_2(\text{Control variables}) \\ & + \beta_3(\text{Year dummies}) \\ & + \beta_4(\text{Industry dummies}) + \varepsilon_i \end{aligned} \tag{2}$$

FORECAST ERROR is measured as the absolute value of the actual earnings per share at the end of the fiscal year, minus the estimated earnings forecasted 9 months prior, deflated by the share price at the time of the forecast for a particular firm and year. The ownership variables are the same as those used with analyst coverage, and vary depending on the hypothesis tested (i.e. *STAKE*, *FAMILY*, *WH*, *OB*, *DFF*, *FAMILY ACTIVE, EXCESS CONTROL*, or *DCS*). Based on past literature, control variables include *SIZE* and *VOLATILITY* (defined above), as well as *BOOK-TO-MARKET*, the natural logarithm of the book-to-market ratio. Finally, I add year and industry dummies to address fixed effects and I cluster standard errors at the company level. The results for the main types of ownership structure are presented in Table 22. Appendix 11 presents a similar table, but adds analyst coverage in the set of control variables. Indeed, the number of analysts providing forecasts might also be associated with forecast error; however, as this variable is endogenous, I exclude it in the main tables presented below. The results are nevertheless similar.

Table 22: Multivariate analysis of forecast error for the main ownership structures

This table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables, control variables, year dummies, and industry dummies for the main ownership structure. These regressions are based on 1,141 firm-year observations for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY, WH, and OB; these three dummy variables indicate whether the founding family is the largest shareholder, if the firm is widely held, or if the firm is held by another blockholder. It may also include FAMILY STAKE, the percentage of family voting rights. All regressions include the following control variables: SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

	Model 1	Model 2	Model 3	Model 4
Family stake	-0.0568*** (0.018)			
Family firms		-0.0234** (0.011)		
WH			0.0102 (0.013)	
OB				0.0182 (0.013)
Size	-0.0075* (0.004)	-0.0073* (0.004)	-0.0077* (0.004)	-0.0069* (0.004)
Book-to-market	0.0591*** (0.015)	0.0570*** (0.015)	0.0562*** (0.015)	0.0553*** (0.014)
Volatility	4.6594*** (1.396)	4.7666*** (1.387)	4.9523*** (1.418)	4.9300*** (1.423)
Intercept	0.1641* (0.095)	0.1573* (0.095)	0.1457 (0.097)	0.1455 (0.095)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
N	1141	1141	1141	1141
Adj. R^2	0.1790	0.1759	0.1728	0.1737

Equations 1 and 2 confirm the results of the univariate tests and show that family firms' earnings are better predicted by analysts (smaller forecast error) when compared to the other types of ownership structure (significant at 1% and 5% respectively); the higher the family stake, the better the forecast. The results from Equations 3 and 4 show that both widely held firms and firms held by another blockholder have higher forecast errors, meaning that their earnings are less well-predicted by analysts (not significant at the 10% confidence level). These results support the alignment hypothesis and suggest that family firms provide more information (via public or private channels) to analysts, which allows them to better estimate future earnings. This also supports findings from past literature (Isakov and Weisskopf (2014b); Cascino et al. (2010); Chen et al. (2008); Ali et al. (2007); Wang (2006)) that report a higher informativeness from family firms using other proxies. Control variables are all

significant and show that forecast error is positively related to the book-to-market ratio and the volatility of returns (both highly significant), and negatively related to the size of the firm (at 10% confidence level).

Table 23 shows regression results for corporate characteristics of family firms and forecast error for the subsample of family firms.[53] The generation of the family (eq. 1) is not statistically associated with the accuracy of the analysts, nor is the active involvement of the family (eq. 2), which coincides respectively with the results of Anderson et al. (2009) and Isakov and Weisskopf (2014b). I find equivalent results for the use of dual class shares (eq. 3) and excess control (eq. 4). When looking at the different interactions, only firms at the founder stage using dual class shares (eq. 5) show a slightly significant negative coefficient. Based on these results, it is not possible to draw strong conclusions about the association between firm characteristics of family firms and the precision of the forecasts.

6. Robustness check

One might ask whether the relationships previously found between the ownership variables and the two dependent variables (analyst following and forecast error) are in fact driven by the variables or by other firm characteristics which have not been considered in the models. To assess the robustness of the results and control for other firm characteristics, I look to Anderson et al. (2017) and construct different match samples using coarsened exact matching (CEM) (Iacus et al. (2009)).[54] The matching criteria are: the exact 1-digit ICB industry code, total assets, and firm age. Two CEM methods are used and presented. The first one allows the use of different numbers of treated and control units in order to maximize information (*m*-to-*n*), and returns weights to be used in the subsequent regressions. The second one forces the use of the same number of treated and control units by randomly dropping observations (*k*-to-*k*).[55]

I use different main independent dummy variables[56] as treatment effects, and estimate the Sample Average Treatment effect on the Treated (SATT) by re-running the regressions using the same models and set of control variables as before (Tables 21 to 23). The results are presented in Tables 24 to 27 (Panel A for *m*-to-*n* and Panel B for *k*-to-*k*).

[53] See Appendix 12 for the results with analyst coverage included in the set of control variables.
[54] See Blackwell et al. (2009) for a guide on the implementation of CEM in Stata (with examples).
[55] The second option strongly decreases the number of observations.
[56] Family, WH, OB, DFF, FA, and DCS.

Table 23: Multivariate analysis of forecast error for family firms based on firm characteristics

This table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables based on firm characteristics, control variables, year dummies, and industry dummies. These regressions are based on the subsample of family firms (412 firm-year observations) for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY STAKE, the percentage of family voting rights, as well as the following variables based on firm characteristics: FFD, a dummy variable indicating if the family firm is at the descendant stage; FFF, a dummy variable indicating if the family firm is at the founder stage; ACTIVE FAMILY (AFF), a dummy variable indicating if at least one member of the family is active in the firm (as CEO or Chairman of the Board); PASSIVE FAMILY (PFF), a dummy variable indicating if no member of the family is active in the firm; DCS, a dummy variable indicating if the firm is using dual class shares; and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Family stake	-0.0832**	-0.0903**	-0.0663*	-0.0801**	-0.0683*	-0.0636	-0.0905**
	(0.037)	(0.040)	(0.039)	(0.036)	(0.039)	(0.039)	(0.040)
Family firms at the descendant stage (FFD)	0.0138						
	(0.012)						
Active family firms (AFF)		0.0130					
		(0.009)					
Dual class shares (DCS)			-0.0135				
			(0.010)				
Excess control				-0.0064			
				(0.015)			
FFD * DCS					-0.0085		
					(0.010)		
FFF * DCS					-0.0307*		
					(0.018)		
AFF * DCS						-0.0165	
						(0.013)	
PFF * DCS						-0.0101	
						(0.010)	
FFD *AFF							0.0149
							(0.013)
FFF * AFF							-0.0005
							(0.010)

Size	-0.0132*** (0.004)	-0.0125*** (0.004)	-0.0121*** (0.004)	-0.0126*** (0.004)	-0.0124*** (0.004)	-0.0121*** (0.004)	-0.0131*** (0.004)
Book-to-market	0.0095 (0.007)	0.0106 (0.007)	0.0112 (0.007)	0.0096 (0.007)	0.0117* (0.007)	0.0112 (0.007)	0.0100 (0.007)
Volatility	-3.1459* (1.631)	-3.2176* (1.644)	-3.1690* (1.676)	-3.2024* (1.677)	-3.2537* (1.688)	-3.1683* (1.674)	-3.1447* (1.620)
Intercept	0.3947*** (0.116)	0.3974*** (0.119)	0.3922*** (0.120)	0.4012*** (0.119)	0.3978*** (0.121)	0.3907*** (0.119)	0.4035*** (0.121)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	412	412	412	412	412	412	412
Adj. R^2	0.1473	0.1478	0.1472	0.1437	0.1489	0.1456	0.1464

Table 24: Causal effect of the main ownership structures on analyst coverage

This table replicates Table 20, except that it uses coarsened exact matching (CEM) (Iacus et al. (2009)) to control for causal effect. The matching criteria are exact 1-digit ICB industry codes, total assets, and firm age. Panel A presents the CEM method that allows using different amounts of treated and control units, whereas Panel B presents the CEM method that necessitates using the same number of treated and control units. This table presents the coefficients and robust standard errors of the multivariate regressions of the dependent variable ANALYST COVERAGE on different ownership variables, control variables, year dummies, and industry dummies for the main ownership structure for the eleven-year period between January 2003 and December 2013. All regressions are performed using a Standard Negative Binomial Model, as defined by Cameron and Trivedi (1986). ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. Ownership variables may include FAMILY, WH, and OB; these three dummy variables indicate whether the founding family is the largest shareholder, if the firm is widely held, or if the firm is held by another blockholder. It may also include FAMILY STAKE, the percentage of family voting rights, and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: ADR, a dummy variable indicating if the firm is cross-listed in the U.S.; SIZE, proxied by the natural logarithm of total assets; FLOAT, the volume of shares that floats freely; VOLATILITY, the standard deviation of daily returns over the previous three years; ROE, a proxy for profitability; and EARNINGS SURPRISE, the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Robust standard errors are in parentheses.

	Panel A: *m*-to-*n* match					Panel B: *k*-to-*k* match				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Family stake	-0.2483*** (0.081)					-0.3962*** (0.081)				
Family dummy		0.0160 (0.046)			-0.0955* (0.050)		-0.0963** (0.049)			-0.1322** (0.060)
WH dummy			0.2648*** (0.047)					0.2495*** (0.053)		
OB dummy				-0.1739*** (0.052)	-0.1725*** (0.058)				-0.1272** (0.058)	-0.2226*** (0.073)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	887	887	963	918	963	604	604	643	373	645
Log-likelihood	-2073.27	-2078.07	-2220.27	-2141.31	-2258.46	-1342.55	-1351.22	-1529.87	-820.83	-1532.57
X^2 (LR test)	1498.82***	1517.59***	1741.30***	1437.45***	1547.87***	1452.93***	1493.82***	1439.08***	803.91***	1337.69***
Pseudo R^2	0.2087	0.2068	0.2009	0.1898	0.1981	0.2210	0.2159	0.1908	0.1834	0.1898

Table 25: Causal effect of the family firm characteristics on analyst coverage

This table replicates Table 21, except that it uses coarsened exact matching (CEM) (Iacus et al. (2009)) to control for causal effect. The matching criteria are exact 1-digit ICB industry codes, total assets, and firm age. Panel A presents the CEM method that allows using different amounts of treated and control units, whereas Panel B presents the CEM method that necessitates using the same number of treated and control units. This table presents the coefficients and robust standard errors of the multivariate regressions of the dependent variable ANALYST COVERAGE on different ownership variables based on firm characteristics, control variables, year dummies, and industry dummies for the subsample of family firms for the eleven-year period between January 2003 and December 2013. All regressions are performed using a Standard Negative Binomial Model, as defined by Cameron and Trivedi (1986). ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. Ownership variables may include FAMILY STAKE, the percentage of family voting rights, as well as the following variables based on firm characteristics: FFD, a dummy variable indicating if the family firm is at the descendant stage; FFF, a dummy variable indicating if the family firm is at the founder stage; ACTIVE FAMILY (AFF), a dummy variable indicating if at least one member of the family is active in the firm (as CEO or Chairman of the Board); PASSIVE FAMILY (PFF), a dummy variable indicating if no member of the family is active in the firm; DCS, a dummy variable indicating if the firm is using dual class shares; and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: ADR, a dummy variable indicating if the firm is cross-listed in the U.S.; SIZE, proxied by the natural logarithm of total assets; FLOAT, the volume of shares that floats freely; VOLATILITY, the standard deviation of daily returns over the previous three years; ROE, a proxy for profitability; and EARNINGS SURPRISE, the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Robust standard errors are in parentheses.

Panel A: *m*-to-*n* match						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Family stake	-1.0318*** (0.144)	-0.9371*** (0.152)	-1.5097*** (0.249)	-1.5313*** (0.247)	-1.5317*** (0.266)	-0.9489*** (0.168)
FFD	0.5431*** (0.047)					
AFF		-0.0199 (0.060)				
DCS			0.2679*** (0.093)			
FFD * DCS				0.2916*** (0.094)		
FFF * DCS				-0.1000 (0.172)		
AFF * DCS					0.2831*** (0.109)	
PFF * DCS					0.2560*** (0.092)	
FFD * AFF						-0.0454 (0.080)
FFF * AFF						-0.0143 (0.071)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	150	299	208	208	208	299
Log-likelihood	-261.49	-614.95	-355.98	-354.74	-355.95	-614.83
X^2 (LR test)	2109.79	1311.46	1922.99	1909.23	1936.44	1317.87
Pseudo R^2	0.3832	0.2725	0.3188	0.4919	0.3188	0.2727

Panel B: *k*-to-*k* match						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Family stake	-1.2470*** (0.174)	-1.1020*** (0.193)	-1.2905*** (0.371)	-1.3167*** (0.343)	-1.1621*** (0.382)	-1.0774*** (0.200)
DFF	0.6024*** (0.066)					
AFF		-0.1603** (0.069)				
DCS			0.2345* (0.128)			
DFF * DCS				0.2688** (0.121)		
FFF * DCS				-0.3961* (0.208)		
FA * DCS					0.1561 (0.144)	
FP * DCS					0.3315*** (0.118)	
DFF * FA						-0.1238 (0.096)
FFF * FA						-0.1939** (0.085)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	67	168	118	118	118	168
Log-likelihood	-128.00	-348.98	-221.79	-219.09	-221.04	-348.67
X^2 (LR test)	1527.89	1213.19	.	.	.	1227.67
Pseudo R^2	0.4087	0.2847	0.3358	0.3439	0.3380	0.2853

Table 26: Causal effect of the main ownership structures on forecast error

This table replicates Table 22, except that it uses coarsened exact matching (CEM) (Iacus et al. (2009)) to control for causal effect. The matching criteria are exact 1-digit ICB industry codes, total assets, and firm age. Panel A presents the CEM method that allows using different amounts of treated and control units, whereas Panel B presents the CEM method that necessitates using the same number of treated and control units. This table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables, control variables, year dummies, and industry dummies for the main ownership structure for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY, WH, and OB; these three dummy variables indicate whether the founding family is the largest shareholder, if the firm is widely held, or if the firm is held by another blockholder. It may also include FAMILY STAKE, the percentage of family voting rights. All regressions include the following control variables: SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

	Panel A: *m*-to-*n* match				Panel B: *k*-to-*k* match			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Family stake	-0.0657*** (0.020)				-0.0676*** (0.023)			
Family dummy		-0.0297** (0.012)				-0.0283** (0.012)		
WH dummy			0.0078 (0.016)				0.0087 (0.016)	
OB dummy				0.0260* (0.014)				0.0078 (0.017)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	891	891	967	922	610	610	655	374
Adj. R^2	0.1839	0.1801	0.1788	0.1798	0.1540	0.1465	0.1813	0.2644

Table 27: Causal effect of the family firm characteristics on forecast error

This table replicates Table 23, except that it uses coarsened exact matching (CEM) (Iacus et al. (2009)) to control for causal effect. The matching criteria are exact 1-digit ICB industry codes, total assets, and firm age. Panel A presents the CEM method that allows using different amounts of treated and control units, whereas Panel B presents the CEM method that necessitates using the same number of treated and control units. This table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables based on firm characteristics, control variables, year dummies, and industry dummies for the subsample of family firms for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY STAKE, the percentage of family voting rights, as well as the following variables based on firm characteristics: FFD, a dummy variable indicating if the family firm is at the descendant stage; FFF, a dummy variable indicating if the family firm is at the founder stage; ACTIVE FAMILY (AFF), a dummy variable indicating if at least one member of the family is active in the firm (as CEO or Chairman of the Board); PASSIVE FAMILY (PFF), a dummy variable indicating if no member of the family is active in the firm; DCS, a dummy variable indicating if the firm is using dual class shares; and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

Panel A: *m*-to-*n* match						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Family stake	-0.0193 (0.059)	-0.0400 (0.030)	0.1698 (0.122)	0.1603 (0.119)	0.1711 (0.125)	-0.0434 (0.030)
DFF	-0.0048 (0.015)					
AFF		0.0172* (0.009)				
DCS			-0.0546 (0.038)			
DFF * DCS				-0.0478 (0.037)		
FFF * DCS				-0.0960* (0.048)		
FA * DCS					-0.0570 (0.042)	
FP * DCS					-0.0516 (0.034)	
DFF * FA						0.0192 (0.013)
FFF * FA						0.0109 (0.012)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	151	300	208	208	208	300
Adj. R^2	0.1730	0.0746	0.0713	0.2019	0.2038	0.1980

Panel B: *k*-to-*k* match						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Family stake	0.0120 (0.055)	-0.0147 (0.034)	0.1559 (0.133)	0.1443 (0.135)	0.1533 (0.143)	-0.0161 (0.033)
DFF	-0.0149 (0.015)					
AFF		0.0154 (0.013)				
DCS			-0.0679 (0.048)			
DFF * DCS				-0.0605 (0.050)		
FFF * DCS				-0.0947** (0.042)		
FA * DCS					-0.0656 (0.056)	
FP * DCS					-0.0691 (0.045)	
DFF * FA						0.0176 (0.019)
FFF * FA						0.0103 (0.021)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	66	172	115	115	115	172
Adj. R^2	0.0340	0.0732	0.1090	0.1038	0.0997	0.0676

The results for the main ownership structures (Tables 24 and 26) using both CEM methods are very similar to those of Table 20 (analyst coverage) and Table 22 (forecast error). Concerning the subsample of family firms and firm characteristics, the results are quite similar for forecast error (Table 27), but less consistent for some of the firm characteristics with regard to analyst coverage (Table 25).

Although the matching method affords the advantage of taking into account omitted or non-observable firm characteristics, it has the drawback of reducing the number of observations and the power of the tests. Since analyses of the characteristics of family firms are already based on a subsample, using matching methods further decreases the number of observations, which makes the results less robust and less interpretative.

7. Conclusion

This paper addresses the association between ownership structure and analyst activity by using panel data from 2003 to 2013 for a sample of 160 non-financial Swiss firms (1,255 firm-year observations). It examines the relationship between ownership structure and intensity of market scrutiny by looking at analyst coverage, and it examines the relationship between ownership structure and information release by analyzing the analysts' forecast error. The paper focuses on family firms, and tests different firm characteristics of family firms that may change agency costs, such as generation, the active involvement of the family, the use of dual class shares, and excess control by the largest shareholder.

This study contributes to the existing literature in several ways. First, it disentangles the effect of family ownership from other large blockholders, and distinguishes firms held by a family from those that are widely held and those held by another blockholder. Past studies on earnings quality and informativeness usually focus on concentrated ownership (rather than family ownership) versus dispersed ownership (Anderson et al. (2009); Chen et al. (2008); Ali et al. (2007); Wang (2006); Lakhal (2005)), or on family ownership versus nonfamily ownership (Cascino et al. (2010)). Second, it takes into consideration the heterogeneity of family firms (Arregle et al. (2007)) and focuses on several characteristics of family firms that impact agency costs. Third, unlike most of the studies on corporate disclosure and informativeness (Isakov and Weisskopf (2014b); Cascino et al. (2010); Chen et al. (2008); Wang (2006); Francis et al. (2005); Warfield et al. (1995)), it uses the accuracy of the analysts as a proxy for the information released (public and private). Lastly, it focuses on Switzerland and sheds light on a large market that has thus far received little attention.

Both the univariate and multivariate analyses show that family firms are less often followed by analysts than widely held firms. Family firms are followed by an average of 7.82 analysts, while widely held firms are followed by an average of 10.18 (statistically highly different). After controlling for several characteristics which might explain the extent of analyst coverage, results show that the higher the family stake, the smaller the number of analysts following the firm. On the contrary, widely held firms are followed by an average of about 12% more analysts (if all other variables remain constant). Monitoring by analysts is therefore in less demand when a family is the largest owner of a company, and especially when the family owns a large share of the voting rights. Several reasons might explain this finding. First, the higher expropriation risk associated with family firms might decrease their attractiveness to analysts (due to higher costs) and to outside investors, who are less interested in investing in them and require fewer analyst services (Lang et al. (2004)). Second, the better alignment

effect among family firms might decrease the importance and need for external services (Moyer et al. (1989)). Third, family firms might favor communication through private channels, which increases the cost of analyst coverage (Ball et al. (2000)) and reduces the number of analysts. When looking only at family firms, although the univariate test does not show any significant difference between family firms at the founder stage and those at the descendant stage, a multivariate analysis shows a positive relationship between firms at descendant stage and analyst coverage. This finding supports the hypothesis that monitoring by analysts might be necessary for outside investors because they doubt the skills or intention of the heirs (Gordon and Nicholson (2010); Villalonga and Amit (2006); Morck and Yeung (2003)). Concerning control-enhancing mechanisms used by families to augment their power, multivariate tests show an increase in analyst coverage when these mechanisms are used. Analyst services are more often requested by outside investors when the likelihood of expropriation by a family firm increases, such as when the family is actively involved in management, uses dual class shares, or evidences a discrepancy between voting rights and cash-flow rights.

Concerning the relationship between ownership structure and forecast error, both univariate and multivariate tests show that family firms have smaller forecast errors than other firms (about twice as small). Furthermore, the higher the family stake, the smaller the forecast error. This result supports both the alignment hypothesis and the argument regarding communication through private channels. Family firms might either release more accurate information to outside investors to show that they are not expropriating them and/or provide analysts with privileged information; both allow analysts to better estimate their earnings. This is consistent with Wang (2006), Cascino et al. (2010) and Isakov and Weisskopf (2014b) who find, respectively, higher earnings quality, higher quality of financial information, and higher idiosyncratic risk among family firms.

As Anderson et al. (2009) and Isakov and Weisskopf (2014b) note, no significant relationship exists between forecast error and the generation of the family, nor does one exist between forecast error and the involvement of the family. The results are similar with regard to the use of dual class shares and excess control. The only slightly significant association is found with firms at the founder stage using dual class shares (smaller forecast error). Overall, the findings do not allow conclusions to be drawn from the relationship between firm characteristics of family firms and the accuracy of the analysts.

To briefly summarize the findings, the results show that family firms are less often followed by analysts and that their earnings are better predicted (smaller forecast error). When looking

only at family firms, firms with a higher likelihood of expropriation are associated with more analyst coverage than other family firms, but their earnings are not forecasted differently.

8. Appendix

Appendix 2: Composition of the sample and descriptive statistics for the main ownership structures

This table replicates Table 16, except that firms followed by fewer than three analysts are dropped. The table presents the descriptive statistics for the entire sample, which includes 125 non-financial companies over the period 2003-2013 (888 firm-year observations). The table presents the mean of the different dummy variables related to the ownership structure, as well as the mean of the main variables used in the study for the principal types of ownership structure. The variables are described in Table 15. A company is controlled by a shareholder if it holds more than 20% of the voting rights. Column 1 shows the results for the entire sample, while Columns 2 to 5 show the means for the subsample of family firms (Column 2) and nonfamily firms (Column 3), as well as widely held firms (Column 4) and firms held by another blockholder (Column 5).

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder
	Mean	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)
Founding family firms	0.35				
Widely held firms	0.46				
Other blockholder	0.19				
Private investor	0.06				
State	0.03				
Widely held corporation	0.03				
Widely held financial	0.03				
Miscellaneous	0.03				
Consensus estimate (in CHF)	26.97	17.97	31.72	10.89	81.69
Earnings per share (in CHF)	24.47	15.78	29.06	8.04	79.47
Analyst coverage	10.87	10.65	10.99	12.27	7.91
Forecast error	0.0538	0.0302	0.0663	0.0639	0.0723
Forecast dispersion	0.4413	0.2636	0.5352	0.5428	0.5171
N	888	307	581	410	171

Appendix 3: Univariate tests for the main ownership structures

This table replicates Table 17, except that firms followed by fewer than three analysts are dropped. The table presents the results of the difference in means tests for analyst coverage, forecast error, and forecast dispersion between the major groups, that is, between family firms and nonfamily firms, between family firms and widely held firms, and between family firms and other blockholder firms. A more detailed description of the variables is given in Table 15. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	Family firms – Nonfamily firms	Family firms – Widely held firms	Family firms – Other blockholder
	Difference	Difference	Difference
	(1)	(2)	(3)
Analysts coverage	-0.3315	-1.6160**	2.7483***
Forecast error	-0.0362***	-0.0337**	-0.0421**
Forecast dispersion	-0.2716	-0.2791	-0.2534
N	888	717	478

Appendix 4: Descriptive statistics for family firms based on firm characteristics

This table replicates Table 18, except that firms followed by fewer than three analysts are dropped. The table presents descriptive statistics for the different variables used in the study. The mean of each variable is presented for the different subdivisions of family firms based on different firm characteristics (generation, active involvement, use of dual class shares, and excess control by the largest shareholder). The variables are described in Table 15. Column 1 shows the means for the entire subsample of family firms (the first 8 lines give the percentage of observations belonging to each characteristic), Columns 2-3 show the means for firms at the founder or descendant stage, Columns 4-5 show the means for firms for which family members are involved in management or are passive, Columns 6-7 show the means for firms using dual class shares or not, and Columns 8-9 show the means for firms whose largest shareholder has excess control or not.

	All Family firms	Founder stage	Descendant stage	Active Family	Passive family	Dual class shares	Single class shares	Excess control	No excess control
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Family firms at the founder stage	0.34								
Family firms at the descendant stage	0.66								
Active family firms	0.59								
Passive family firms	0.41								
Dual class shares	0.45								
Single class shares	0.55								
Excess control	0.42								
No excess control	0.58								
Consensus estimate (in CHF)	17.97	7.86	23.15	16.55	19.99	27.16	10.47	29.06	10.04
Earnings per share (in CHF)	15.78	6.55	20.52	15.21	16.60	24.77	8.45	26.51	8.11
Analyst coverage	10.65	10.89	10.53	9.68	12.03	12.13	9.45	12.70	9.19
Forecast error	0.0302	0.0276	0.0315	0.0289	0.0319	0.0265	0.0332	0.0279	0.0318
Forecast dispersion	0.2636	0.2174	0.2874	0.2320	0.3086	0.1778	0.3338	0.1845	0.3202
N	307	104	203	180	127	138	169	128	179

Appendix 5: Univariate tests for family firms based on firm characteristics

This table replicates Table 19, except that firms followed by fewer than three analysts are dropped. The table presents the results of the difference in means tests for analyst coverage, forecast error, and forecast dispersion between the different subdivisions of family firms based on different firm characteristics (generation, active involvement, use of dual class shares, and excess control by the largest shareholder). A more detailed description of the variables is given in Table 15. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	Founder stage – Descendant stage	Active family – passive family	Dual class shares – Single class shares	Excess control – No excess control
	Difference	Difference	Difference	Difference
	(1)	(2)	(3)	(4)
Analyst coverage	0.3622	-2.3482**	2.6807***	3.5132***
Forecast error	-0.0039	-0.0030	-0.0067	-0.0040
Forecast dispersion	-0.0700	-0.0766	-0.1560	-0.1357
N	307	307	307	307

Appendix 6: Multivariate analysis of analyst coverage for the main ownership structures

This table replicates Table 20, except that firms followed by fewer than three analysts are dropped. The table presents the coefficients and robust standard errors of the multivariate regressions of the dependent variable ANALYST COVERAGE on different ownership variables, control variables, year dummies, and industry dummies for the main ownership structure. These regressions are based on 803 firm-year observations for the eleven-year period between January 2003 and December 2013. All regressions are performed using a Standard Negative Binomial Model, as defined by Cameron and Trivedi (1986). ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. Ownership variables may include FAMILY, WH, and OB; these three dummy variables indicate whether the founding family is the largest shareholder, if the firm is widely held, or if the firm is held by another blockholder. It may also include FAMILY STAKE, the percentage of family voting rights, and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: ADR, a dummy variable indicating if the firm is cross-listed in the U.S.; SIZE, proxied by the natural logarithm of total assets; FLOAT, the volume of shares that floats freely; VOLATILITY, the standard deviation of daily returns over the previous three years; ROE, a proxy for profitability; and EARNINGS SURPRISE, the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Robust standard errors are in parentheses. α is a *t*-test for overdispersion.

	Model 1	Model 2	Model 3	Model 4	Model 5
Family stake	-0.1158* (0.068)				
Family dummy		0.0404 (0.032)			-0.0179 (0.035)
WH dummy			0.0594* (0.036)		
OB dummy				-0.1335*** (0.048)	-0.1440*** (0.053)
Excess control	0.1152*** (0.031)	0.0683*** (0.025)	0.1119*** (0.030)	0.0813*** (0.024)	0.0891*** (0.025)
ADR	0.3480*** (0.040)	0.3597*** (0.040)	0.3455*** (0.041)	0.3484*** (0.039)	0.3459*** (0.040)
Size	0.2943*** (0.011)	0.2910*** (0.011)	0.2939*** (0.011)	0.2907*** (0.011)	0.2912*** (0.011)
Float	0.3112*** (0.075)	0.3982*** (0.073)	0.2945*** (0.074)	0.3224*** (0.067)	0.3038*** (0.073)
Volatility	15.0378*** (2.546)	15.6180*** (2.546)	15.2596*** (2.567)	15.5967*** (2.518)	15.5331*** (2.516)
ROE	0.0007** (0.000)	0.0007*** (0.000)	0.0007** (0.000)	0.0006** (0.000)	0.0006** (0.000)
Earnings surprise	-0.1287 (0.088)	-0.1239 (0.084)	-0.1261 (0.086)	-0.1209 (0.081)	-0.1213 (0.082)
Intercept	-2.1055*** (0.243)	-2.1518*** (0.244)	-2.1572*** (0.246)	-2.0897*** (0.246)	-2.0802*** (0.244)
α (Overdispersion)	-3.1337*** (0.132)	-3.1448*** (0.135)	-3.1376*** (0.132)	-3.1893*** (0.139)	-3.1876*** (0.139)
Year dummies	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
N	803	803	803	803	803
Log-likelihood	-2133.31	-2133.92	-2133.34	-2129.61	-2129.51
X^2 (LR test)	3241.31***	3199.47***	3222.81***	3268.55***	3275.90***
Pseudo R^2	0.2082	0.2080	0.2082	0.2096	0.2096

Appendix 7: Multivariate analysis of analyst coverage for family firms based on firm characteristics

This table replicates Table 21, except that firms followed by fewer than three analysts are dropped. This table presents the coefficients and robust standard errors of the multivariate regressions of the dependent variable ANALYST COVERAGE on different ownership variables based on firm characteristics, control variables, year dummies, and industry dummies. These regressions are based on the subsample of family firms (288 firm-year observations) for the eleven-year period between January 2003 and December 2013. All regressions are performed using a Standard Negative Binomial Model, as defined by Cameron and Trivedi (1986). ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. Ownership variables may include FAMILY STAKE, the percentage of family voting rights, as well as the following variables based on firm characteristics: FFD, a dummy variable indicating if the family firm is at the descendant stage; FFF, a dummy variable indicating if the family firm is at the founder stage; ACTIVE FAMILY (AFF), a dummy variable indicating if at least one member of the family is active in the firm (as CEO or Chairman of the Board); PASSIVE FAMILY (PFF), a dummy variable indicating if no member of the family is active in the firm; DCS, a dummy variable indicating if the firm is using dual class shares; and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: ADR, a dummy variable indicating if the firm is cross-listed in the U.S.; SIZE, proxied by the natural logarithm of total assets; FLOAT, the volume of shares that floats freely; VOLATILITY, the standard deviation of daily returns over the previous three years; ROE, a proxy for profitability; and EARNINGS SURPRISE, the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Robust standard errors are in parentheses. α is a *t*-test for overdispersion.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Family stake	-0.6949***	-0.6688***	-0.9115***	-0.8067***	-0.8926***	-1.0155***	-0.7288***
	(0.119)	(0.119)	(0.160)	(0.138)	(0.165)	(0.178)	(0.126)
Family firms at the descendant stage (FFD)	0.0819*						
	(0.043)						
Active family firms (AFF)		0.0221					
		(0.046)					
Dual class shares (DCS)			0.1539***				
			(0.054)				
Excess control				0.2110***			
				(0.065)			
FFD * DCS					0.1329**		
					(0.057)		
FFF * DCS					0.2274***		
					(0.068)		
AFF * DCS						0.2511***	
						(0.074)	
PFF * DCS						0.0675	
						(0.053)	
FFD *AFF							-0.0019
							(0.048)
FFF * AFF							0.0712
							(0.048)

ADR	0.4071*** (0.062)	0.4247*** (0.063)	0.4167*** (0.065)	0.4343*** (0.063)	0.4166*** (0.064)	0.3703*** (0.067)	0.4043*** (0.068)
Size	0.3356*** (0.013)	0.3379*** (0.013)	0.3326*** (0.012)	0.3245*** (0.013)	0.3346*** (0.012)	0.3433*** (0.012)	0.3412*** (0.013)
Float	-0.0803 (0.079)	-0.0588 (0.079)	-0.2173** (0.087)	-0.2039** (0.085)	-0.2244** (0.087)	-0.2229*** (0.085)	-0.0796 (0.079)
Volatility	26.9157*** (3.904)	25.7214*** (3.767)	25.4932*** (3.579)	25.8620*** (3.651)	25.7985*** (3.562)	25.2212*** (3.513)	26.2977*** (3.847)
ROE	-0.0009 (0.001)	-0.0008 (0.001)	-0.0009 (0.001)	-0.0011 (0.001)	-0.0008 (0.001)	-0.0005 (0.001)	-0.0008 (0.001)
Earnings surprise	-0.7794** (0.353)	-0.6851** (0.343)	-0.6761** (0.333)	-0.7894** (0.340)	-0.6539** (0.332)	-0.6047* (0.331)	-0.6935* (0.356)
Intercept	-2.9532*** (0.284)	-2.9396*** (0.287)	-2.7509*** (0.281)	-2.6704*** (0.295)	-2.7894*** (0.273)	-2.9170*** (0.268)	-2.9952*** (0.286)
α (Overdispersion)	-6.2687* (3.736)	-6.4072 (4.369)	-7.3401 (11.624)	-6.9136 (7.365)	-13.3609 -13.3609	-15.7193*** -15.7193***	-6.6566 -6.6566
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	288	288	288	288	288	288	288
Log-likelihood	-693.43	-694.68	-691.00	-691.52	-690.19	-687.60	-693.69
X^2 (LR test)	2032.11***	2120.67***	2264.18***	2225.43***	2241.50***	2489.08***	2173.75***
Pseudo R^2	0.2753	0.2740	0.2779	0.2773	0.2787	0.2814	0.2751

Appendix 8: Multivariate analysis of forecast error for the main ownership structures

This table replicates Table 22, except that firms followed by fewer than three analysts are dropped. The table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables, control variables, year dummies, and industry dummies for the main ownership structure. These regressions are based on 806 firm-year observations for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY, WH, and OB; these three dummy variables indicate whether the founding family is the largest shareholder, if the firm is widely held, or if the firm is held by another blockholder. It may also include FAMILY STAKE, the percentage of family voting rights. All regressions include the following control variables: SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

	Model 1	Model 2	Model 3	Model 4
Family stake	-0.0438*** (0.016)			
Family firms		-0.0218** (0.009)		
Widely held			0.0024 (0.012)	
Other blockholder				0.0326* (0.019)
Size	-0.0009 (0.004)	-0.0009 (0.004)	-0.0010 (0.004)	-0.0003 (0.004)
Book-to-market	0.0650*** (0.021)	0.0646*** (0.021)	0.0639*** (0.021)	0.0632*** (0.021)
Volatility	5.9285** (2.359)	5.9769** (2.359)	6.1529** (2.404)	6.0248** (2.320)
Intercept	-0.0361 (0.114)	-0.0394 (0.114)	-0.0472 (0.114)	-0.0503 (0.110)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
N	806	806	806	806
Adj. R^2	0.2157	0.2154	0.2104	0.2170

Appendix 9: Multivariate analysis of forecast error for family firms based on firm characteristics

This table replicates Table 23, except that firms followed by fewer than three analysts are dropped. The table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables based on firm characteristics, control variables, year dummies, and industry dummies. These regressions are based on the subsample of family firms (289 firm-year observations) for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY STAKE, the percentage of family voting rights, as well as the following variables based on firm characteristics: FFD, a dummy variable indicating if the family firm is at the descendant stage; FFF, a dummy variable indicating if the family firm is at the founder stage; ACTIVE FAMILY (AFF), a dummy variable indicating if at least one member of the family is active in the firm (as CEO or Chairman of the Board); PASSIVE FAMILY (PFF), a dummy variable indicating if no member of the family is active in the firm; DCS, a dummy variable indicating if the firm is using dual class shares; and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Family stake	-0.0427***	-0.0332**	-0.0296*	-0.0410***	-0.0322*	-0.0248	-0.0347**
	(0.014)	(0.016)	(0.017)	(0.014)	(0.017)	(0.019)	(0.017)
Family firms at the descendant stage (FFD)	0.0114						
	(0.008)						
Active family firms (AFF)		-0.0083					
		(0.007)					
Dual class shares (DCS)			-0.0090				
			(0.008)				
Excess control				0.0010			
				(0.010)			
FFD * DCS					-0.0036		
					(0.007)		
FFF * DCS					-0.0278*		
					(0.016)		
AFF * DCS						-0.0137	
						(0.010)	
PFF * DCS						-0.0043	
						(0.008)	
FFD *AFF							-0.0063
							(0.010)
FFF * AFF							-0.0217***
							(0.007)

Size	-0.0059** (0.003)	-0.0060** (0.003)	-0.0051* (0.003)	-0.0059** (0.003)	-0.0051** (0.002)	-0.0052* (0.003)	-0.0061** (0.002)
Book-to-market	0.0172*** (0.005)	0.0166*** (0.005)	0.0187*** (0.005)	0.0167*** (0.005)	0.0202*** (0.004)	0.0191*** (0.004)	0.0172*** (0.004)
Volatility	-0.8063 (0.549)	-0.8187 (0.574)	-0.7473 (0.591)	-0.8583 (0.604)	-0.8370 (0.589)	-0.7823 (0.601)	-0.7189 (0.547)
Intercept	0.1802*** (0.051)	0.1883*** (0.052)	0.1723*** (0.053)	0.1861*** (0.053)	0.1760*** (0.050)	0.1754*** (0.052)	0.1870*** (0.048)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	289	289	289	289	289	289	289
Adj. R^2	0.1558	0.1544	0.1544	0.1494	0.1624	0.1539	0.1649

Appendix 10: Composition of the sample and descriptive statistics for the main ownership structures

This table replicates Table 16, but only for a subsample of the 30 largest Swiss firms. The table presents the descriptive statistics for the entire sample, which includes 30 non-financial companies over the period 2003-2013 (283 firm-year observations). The table presents the mean of the different dummy variables related to the ownership structure, as well as the mean of the main variables used in the study for the principal types of ownership structure. The variables are described in Table 15. A company is controlled by a shareholder if it holds more than 20% of the voting rights. Column 1 shows the results for the entire sample, while Columns 2 to 5 show the means for the subsample of family firms (Column 2) and nonfamily firms (Column 3), as well as widely held firms (Column 4) and firms held by another blockholder (Column 5).

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder
	Mean	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)
Founding family firms	0.40				
Widely held firms	0.45				
Other blockholder	0.15				
Private investor	0.05				
State	0.06				
Widely held corporation	0.00				
Widely held financial	0.00				
Miscellaneous	0.04				
Consensus estimate (in CHF)	50.59	7.76	79.49	12.13	283.17
Earnings per share (in CHF)	47.57	7.10	74.86	9.56	272.32
Analyst coverage	19.69	18.66	20.38	22.83	12.95
Forecast error	0.0162	0.0157	0.0166	0.0191	0.0090
Forecast dispersion	0.1322	0.0861	0.1633	0.1941	0.0703
N	283	114	169	127	42

Appendix 11: Multivariate analysis of forecast error for the main ownership structures

This table replicates Table 22, except that it adds the number of analysts to the control variables. The table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables, control variables, year dummies, and industry dummies for the main ownership structure. These regressions are based on 1,141 firm-year observations for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY, WH, and OB; these three dummy variables indicate whether the founding family is the largest shareholder, if the firm is widely held, or if the firm is held by another blockholder. It may also include FAMILY STAKE, the percentage of family voting rights. All regressions include the following control variables: ANALYST COVERAGE, measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year; SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

	Model 1	Model 2	Model 3	Model 4
Family stake	-0.0567*** (0.019)			
Family firms		-0.0231** (0.011)		
Widely held			0.0096 (0.012)	
Other blockholder				0.0199 (0.013)
Analyst coverage	0.0001 (0.002)	0.0003 (0.002)	0.0003 (0.002)	0.0009 (0.001)
Size	-0.0077 (0.009)	-0.0085 (0.009)	-0.0088 (0.009)	-0.0105 (0.008)
Book-to-market	0.0593*** (0.016)	0.0578*** (0.016)	0.0568*** (0.016)	0.0576*** (0.016)
Volatility	4.6547*** (1.403)	4.7407*** (1.398)	4.9284*** (1.438)	4.8354*** (1.433)
Intercept	0.1661 (0.122)	0.1677 (0.123)	0.1561 (0.126)	0.1770 (0.119)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
N	1141	1141	1141	1141
Adj. R^2	0.1783	0.1752	0.1721	0.1734

Appendix 12: Multivariate analysis of forecast error for family firms based on firm characteristics

This table replicates Table 23, except that it adds the number of analysts to the control variables. The table presents the coefficients and clustered standard errors of the multivariate regressions of the dependent variable FORECAST ERROR on different ownership variables based on firm characteristics, control variables, year dummies, and industry dummies. These regressions are based on the subsample of family firms (412 firm-year observations) for the eleven-year period between January 2003 and December 2013. All regressions are performed using panel regression and clustered standard errors at the firm level. FORECAST ERROR is measured as the absolute value of the difference between current earnings per share and earnings per share from the prior year, deflated by the firm's current stock price. Ownership variables may include FAMILY STAKE, the percentage of family voting rights, as well as the following variables based on firm characteristics: FFD, a dummy variable indicating if the family firm is at the descendant stage; FFF, a dummy variable indicating if the family firm is at the founder stage; ACTIVE FAMILY (AFF), a dummy variable indicating if at least one member of the family is active in the firm (as CEO or Chairman of the Board); PASSIVE FAMILY (PFF), a dummy variable indicating if no member of the family is active in the firm; DCS, a dummy variable indicating if the firm is using dual class shares; and EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR. All regressions include the following control variables: ANALYST COVERAGE, measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year; SIZE, proxied by the natural logarithm of total assets; BOOK-TO-MARKET, the natural logarithm of the book-to-market ratio; and VOLATILITY, the standard deviation of daily returns over the previous three years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Clustered standard errors are in parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Family stake	-0.0803*	-0.0864**	-0.0552	-0.0731*	-0.0572	-0.0522	-0.0869**
	(0.041)	(0.043)	(0.046)	(0.041)	(0.045)	(0.045)	(0.043)
Family firms at the descendant stage (FFD)	0.0133						
	(0.012)						
Active family firms (AFF)		0.0130					
		(0.009)					
Dual class shares (DCS)			-0.0169				
			(0.011)				
Excess control				-0.0113			
				(0.016)			
FFD * DCS					-0.0119		
					(0.012)		
FFF * DCS					-0.0341**		
					(0.017)		
AFF * DCS						-0.0201	
						(0.014)	
PFF * DCS						-0.0134	
						(0.011)	
FFD *AFF							-0.0004
							(0.010)
FFF * AFF							0.0147
							(0.013)

Analyst coverage	0.0005 (0.001)	0.0007 (0.001)	0.0013 (0.001)	0.0010 (0.001)	0.0012 (0.001)	0.0013 (0.001)	0.0006 (0.001)
Size	-0.0153** (0.006)	-0.0154** (0.006)	-0.0171** (0.007)	-0.0163** (0.006)	-0.0173** (0.007)	-0.0171** (0.007)	-0.0156** (0.006)
Book-to-market	0.0103 (0.006)	0.0116* (0.006)	0.0135** (0.006)	0.0113* (0.006)	0.0141** (0.006)	0.0136** (0.006)	0.0109* (0.006)
Volatility	-3.2308** (1.600)	-3.3295** (1.624)	-3.3584** (1.657)	-3.3453* (1.669)	-3.4426** (1.664)	-3.3598** (1.656)	-3.2440** (1.595)
Intercept	0.4216*** (0.120)	0.4335*** (0.124)	0.4537*** (0.131)	0.4469*** (0.132)	0.4591*** (0.131)	0.4528*** (0.131)	0.4350*** (0.123)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	412	412	412	412	412	412	412
Adj. R^2	0.1456	0.1464	0.1475	0.1429	0.1492	0.1459	0.1449

Part 3: Ownership Structure and Mergers and Acquisitions Decisions: Do family firms acquire differently?[57]

Abstract

This study investigates the relationship between ownership structure and mergers and acquisitions (M&A) decisions for a comprehensive sample of 195 companies listed on the Swiss Exchange for the period 2003-2013. It examines: whether different ownership structures influence the probability of engaging in M&A, whether different ownership structures influence the characteristics of M&A deals, and the value assigned to such operations around the announcement date. This paper focuses on family firms and analyzes the association between several characteristics (generation, involvement in the management, and the presence of just one family member as shareholder) and the M&A.

The results show that family firms engage less in M&A and prefer cash deals and diversified deals. This result is driven mainly by family firms whose power is the least contested. Moreover, family firms at the descendant stage care more about diversification than those at the founder stage. Family firms have a nonlinear (convex) association with value creation when it comes to M&A and only those with significant family ownership generate higher abnormal returns. However, investment decisions made by some types of family firms (i.e. those with several members or those not involved in management) are negatively perceived by market participants.

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1. Introduction

It is nowadays broadly accepted that firm ownership structure in most countries around the world is far from Berle and Means' (1932) image of the widely held corporation. The seminal work of La Porta et al. (1999) and Faccio and Lang (2002) show that, except in the Anglo-Saxon countries,[58] the presence of large shareholders is widespread among listed companies. This is even more pronounced in Asia, as demonstrated by Claessens et al. (2000) and Carney and Child (2013). These large shareholders can be the state, another company, a private investor or, more commonly, a family. La Porta et al. (1999) find that about 30% of their sample firms have a family owning more than 20% of the voting rights. According to Barontini and Caprio (2006), the most frequent (i.e. more than 50% of the time) largest shareholder in Continental Europe is a family.

Families are a unique type of shareholder (Bennedsen and Fan (2014); Cheng (2014)) and are known to behave differently from other shareholders or blockholders for several reasons. First, families usually hold an undiversified portfolio. According to Anderson et al. (2003), 69% of their personal wealth is invested in their firm. To maintain control over their company they cannot diversify their capital as other shareholders might. Second, families are more oriented toward the long term (Cheng (2014); Anderson and Reeb (2003a)) and more concerned with the firm's survival. Passing the firm to the next generation is an important concern, and takes precedence over personal consumption (Casson (1999); Chami (1999)). Families prefer investing in long-term projects instead of projects with shorter managerial horizons (Anderson et al. (2003)). Third, families face more reputation concerns. The commitment of family members and deep family involvement help create a family firm's identity (Deephouse and Jaskiewicz (2013); Zellweger et al. (2010)), which they seek to preserve (Sageder et al. (2015); Zellweger et al. (2013)). Family members view their firm as an extension of themselves (Dyer and Whetten (2006)).

Having a family as the largest shareholder is then an interesting setting in which to conduct research. Several topics have already been addressed in that area. The most widespread is probably the relationship between ownership structure—in particular family ownership—and firm performance (see, for example, Isakov and Weisskopf (2014a); Sraer and Thesmar (2007); Miller et al. (2007); Barontini and Caprio (2006); Corstjens et al. (2006); Villalonga and Amit (2006); Anderson and Reeb (2003a); Morck et al. (1988); Demsetz and Lehn

[58] Recent studies on the U.S. market argue that ownership structure in the United States is concentrated and that 30-40% of U.S. firms have a family as the main shareholder (Holderness (2009); Villalonga and Amit (2009); Gadhoum et al. (2005); Anderson and Reeb (2003a)).

(1985)). The implications of family ownership on financial choices and their effects is another aspect that has already been analyzed (see, for example, Aktas et al. (2016); Croci et al. (2011); Anderson and Reeb (2003b)), but to a lesser extent. By looking at mergers and acquisitions (M&A) activity, this paper investigates the investment decisions of different types of firms and their impact on firm performance.

Ownership structure may play a role in explaining involvement in M&A, since blockholders, and especially families, have enough power to influence firm decisions and to prevent overly risky or non-value-enhancing proposals (Bouzgarrou and Navatte (2013)). Their long-term view and desire for firm survival might also favor more conservative management policies and decrease their M&A activity. The method of payment and the diversification of deals may also be related to ownership structure. Families typically prefer using cash rather than stock, to avoid diluting their voting power (Faccio and Masulis (2005)), and might see diversifying acquisitions as an opportunity to diversify their own wealth (Aktas et al. (2016)). Finally, studies involving Swiss family firms (Eugster and Isakov (2017); Isakov and Weisskopf (2014a); Barontini and Caprio (2006)) find there is higher performance among family firms in Switzerland. M&A undertaken by family firms might generate greater value[59] for the firm, especially if families scrutinized proposals better and their engagement in M&A was less common. Analyzing M&A provides a unique and interesting framework because it allows for the direct assessment of the way market participants react to an important strategic decision made by a firm.

Using a sample of 256 Swiss M&A in the period 2003-2013, this study shows that family firms engage in less M&A activity than other firms, which corroborates the results of previous studies (Caprio et al. (2011); Miller et al. (2010)). This result is mainly driven by: family firms at the founder stage, those with only one family member involved, and those actively involved in management, where power is the least contested. These firms also make fewer equity deals and fewer undiversified deals, with the exception of family firms at the descendant stage who favor diversification more than those at the founder stage. According to Caprio et al. (2011), no linear relation is found between the value creation surrounding the announcement date and ownership structure. However, according to Basu et al. (2009) and Bouzgarrou and Navatte (2013), a significant convex relationship is found between family ownership and value creation. Family firms with high levels of family ownership cause a

[59] Hereafter, the term ‘value creation’ refers to the cumulative abnormal returns (CAR) surrounding M&A announcement dates, calculated using an event study methodology (Fama et al. (1969); Ball and Brown (1968)). This method is based on the hypothesis that markets are efficient and that the share price reflects the true value of the firm. Thus, a change in the share price reflects a change in value. In the case of M&A, positive CAR at announcement is interpreted as an increase in the value of the firm.

greater degree of market reaction at an announcement than those with low levels of family ownership. The analysis of family characteristics shows a decrease in value creation for family firms at the founder stage. This surprising result originates with family firms at the founder stage that are not actively managed by the family. Finally, both family firms with several involved family members and those not actively managed by the family show a decrease in value creation. Their M&A are therefore less valued by market participants.

Switzerland offers an interesting setting for studying ownership structure and family firms, as family firms are widespread and the level of ownership is high. Families are powerful and agency problems can become a significant issue. Furthermore, since 2003 and the adoption of a corporate governance directive by the Swiss Exchange (Directive Corporate Governance (2002)), all listed firms in Switzerland must include a corporate governance report in their annual report. Precise data on ownership structure and on board and executive composition are provided in the report, and are then hand-collectable for study purposes.

This paper adds to existing literature devoted to the investment decisions of family firms and their effect on firm performance (see, for example, Aktas et al. (2016); Adhikari and Sutton (2016); André et al. (2014); Bouzgarrou and Navatte (2013); Miller et al. (2010); Feito-Ruiz and Menéndez-Requejo (2010); Caprio et al. (2011); Shim and Okamuro (2011); Bauguess and Stegemoller (2008); Sraer and Thesmar (2007); Ben-Amar and André (2006)). It contributes to this literature in at least two ways. First, this is one of very few papers that distinguishes firms held by a family from those that are widely held and from those that are held by another type of blockholder[60]. Firms held by a nonfamily large blockholder may behave differently due to different motivations and objectives. Previous studies incorporate them into the family firms category or the nonfamily firms category. Second, family firms are not a homogenous group (Arregle et al. (2007)). Different characteristics of family firms, such as the generation of the family, the presence of either one family member or several, and the degree of participation of the family in the management of the firm, influence the character of agency problems and may impact investment decisions. With the exception of relatively few studies looking at the influence of the founder-CEO (Caprio et al. (2011); Miller et al. (2010); Bauguess and Stegemoller (2008)) or family involvement (André et al. (2014)), this paper is to my knowledge one of the first to address several characteristics of family firms concerning both the propensity to acquire and its effect on firm performance around the announcement date.

[60] I.e. the state, private investor, another widely held corporation, another widely held financial firm, or miscellaneous.

The remainder of this article proceeds as follows: Section 2 presents a literature review and develops the main hypotheses. Data, variables, and summary statistics are presented in Section 3. Section 4 presents the results of the empirical analysis; it first shows the results for the probability of engaging in M&A, then it shows the results for means of payment and diversification. Next, it develops the event study methodology and presents the results of bidder returns close to the announcement dates of the deals, and finally, it focuses on family firms and analyzes specific firm characteristics. Section 5 discusses the endogeneity issue. Section 6 summarizes and concludes the study.

2. Related literature and hypotheses

2.1. Ownership concentration, agency problems, and firm performance

The dominant perspective for explaining the differences between family firms and other types of firms is the agency theory framework (Pindado and Requejo (2015); Villalonga et al. (2015)). In family firms, two main agency conflicts can arise: one between managers and shareholders, referred to as Agency Problem I, and one between majority and minority shareholders, denoted as Agency Problem II (Cheng (2014)).

The first conflict is the classic agency problem described by Jensen and Meckling (1976), which occurs when managers and shareholders are separated, as in Berle and Means' (1932) setting. In this framework, managers are more likely to act in their own interest rather than the interest of the shareholders. However, ownership concentration, and especially family ownership, serves as a mechanism to reduce this conflict (Villalonga et al. (2015)). Because families hold an undiversified portfolio, seek the long-term survival of the firm, and face greater reputation concerns, they have strong incentives for monitoring managers. Furthermore, families are typically involved in management insofar as having top executive positions or seats on the board, thereby avoiding incentive misalignment (Cheng (2014)).

The second conflict arises when large shareholders seek to expropriate minority shareholders (Shleifer and Vishny (1986)) and appropriate for themselves private benefits of control (Grossman and Hart (1980)).[61] This problem may be more common among family firms where the family usually holds a large stake and other shareholders small ones. Moreover, by using dual class shares or pyramidal structures to dissociate their voting rights

[61] Examples include: excessive compensation, related-party transactions, and special dividends (Burkart et al. (2003)).

from their cash-flow rights (Villalonga and Amit (2009); Faccio and Lang (2002)), or by obtaining larger board representations (Villalonga and Amit (2009); Shleifer and Vishny (1986)), families often obtain disproportionate control over their firm. This may lead to suboptimal decisions being made in favor of the family, and increase Agency Problem II.

It is then obvious that family firms suffer more from Agency Problem II than Agency Problem I, but what the consequences are in terms of corporate decisions and firm performance remains an empirical issue.

Demsetz and Lehn (1985) are the first to test the relationship between ownership concentration and firm performance, but find no significant results. They are then followed by several other academic researchers, with surprisingly disparate results. Some of them find a positive relationship between the two (Isakov and Weisskopf (2014a); Villalonga and Amit (2006); Maury (2006); Anderson and Reeb (2003a); La Porta et al. (2002); Claessens et al. (2000); Xu and Wang (1999)), whereas others find a negative one (Lemmon and Lins (2003); Morck et al. (1998)) or none at all (Barontini and Caprio (2006); Holderness (2003); Himmelberg et al. (1999); Craswell et al. (1997)). Some studies also describe a non-monotonic relationship, beginning with a positive relationship up until a certain level of ownership that then shifts to a negative one (Claessens et al. (2002); McConnell and Servaes (1990); Morck et al. (1988)). Though not unanimous, the results of past studies show a preponderance of evidence for a positive relationship between family ownership and firm performance.

2.2. Family firms and propensity for engaging in M&A

According to Jensen (1986) and the agency theory, managers in widely held corporations may look to acquisitions to expand their empire and increase their wealth. This might be done at the expense of shareholders who have less information than managers do. However, large shareholders have the power to control and monitor the actions of managers (Gilson and Gordon (2003)). This is even more pronounced among family firms, when family reputation and longevity are important concerns. These concerns encourage the families to monitor managers better and scrutinize deal proposals better, so that they can avoid making non-value-enhancing acquisitions (Caprio et al. (2011)). Furthermore, studies show that family firms are more risk-adverse due to their large and undiversified investment in the firm (Anderson and Reeb (2003a)). For example, they adopt more conservative management policies (Zhou et al. (2011); Bauguess and Stegemoller (2008); Klasa (2007); Holderness

and Sheehan (1988)) and make fewer investments (Bianco et al. (2013); Bianco et al. (2009); Górriz and Fumás (2005)). They may also refrain from making value-enhancing acquisitions to ensure firm survival while avoiding putting the company at risk, instead of enhancing shareholder value (Caprio et al. (2011)). Since acquisitions financed by stock dilute voting power, and those financed with cash from the reserve or with debt weaken balance sheet health (Miller et al. (2010)) and increase the risk of bankruptcy (Furfine and Rosen (2011)), family firms may be less willing to engage in M&A. Bauguess and Stegemoller (2008) look at the effect several governance measures have on the probability of acquiring in the U.S., and are the first to point out that family firms are less likely to acquire other firms. Based on this result, Caprio et al. (2011) conduct a multi-country analysis of large Continental European firms and look at the relationship between ownership structure—especially as it relates to family ownership—and the propensity for acquiring other firms. They find a negative relationship between family ownership and the likelihood of launching a takeover bid; the smaller the stake, the smaller the probability. Miller et al. (2010) find a negative relationship between family ownership and the number and dollar volume of acquisitions for U.S. *Fortune1000* firms. Finally, by looking only at mergers during an older period (1955-1973), Shim and Okamuro (2011) find a similar pattern in Japan. Based on these arguments as well as past empirical findings, I expect the probability of engaging in M&A to be negatively related to family ownership in Switzerland.

As shown by Faccio and Masulis (2005) who study European M&A transactions, ownership structure affects the method of payment insofar as firms with large shareholders prefer cash financing rather than stock financing. Families typically value control more than other large shareholders and seek to avoid diluting their voting power as much as possible. For that reason, families can be more reluctant than other firms to use stock as a method of payment when engaging in an M&A transaction (Ward (2004)). Basu et al. (2009) empirically test this with newly public U.S. firms and find consistent results. They further point out that families with low levels of ownership are also those that prefer using cash as the medium of payment. I therefore expect the probability of making equity deals in Switzerland to be negatively related to family ownership.

As discussed in the introduction, families have a large majority of their personal wealth invested in their firm and therefore hold an undiversified portfolio (Anderson et al. (2003)). Miller et al. (2010) suggest that a way to diversify their asset allocation and reduce portfolio risk is by diversifying the business through acquiring firms in other industries. They, indeed, find that the probability of making diversifying acquisitions increases with the level of family ownership for the *Fortune1000* firms in the USA. Defrancq et al. (2014) find a nonlinear

relationship, where low levels of family ownership decrease the probability of acquiring an unrelated target firm and high levels of family ownership increase it. For a comprehensive sample of Continental European countries, Aktas et al. (2016) add that family firms—in particular those who highly value control[62]—tend to make more cross-industry acquisitions. Based on this argument, the probability of making undiversified deals should be negatively related to family ownership in Switzerland.

2.3. Family firms and value creation surrounding M&A

Agency theory proposes two opposing perspectives on how ownership structure might influence value creation for the acquirer around the time of M&A announcements. On the one hand, the alignment effect (Jensen and Meckling (1976)) found in concentrated ownership may diminish agency conflict. Due to their long-term perspective and risk aversion, families might scrutinize M&A proposals better and prevent non-value-enhancing transactions from occurring (Aktas et al. (2016)). Furthermore, as past literature suggests, families might be more careful about acquisitions and engage in fewer M&A transactions; when they do engage in an M&A transaction, it might be one of better quality and generate a surprisingly positive abnormal return the day of the announcement. From this perspective, market participants would react positively to the announcement of M&A initiated by family firms. On the other hand, the expropriation effect (Morck and Yeung (2003)) from the separation between controlling shareholders and minority shareholders might increase agency cost. Family firms might seek out M&A to extract private benefits that serve the family's interests at the expense of minority shareholders (Feito-Ruiz and Menéndez-Requejo (2010)). Market participants would then react negatively to the announcement. The way the market integrates information from an M&A transaction into the share price depends on which of the two effects dominates, and remains an empirical question.

Academic studies testing the relationship between concentrated ownership and value creation concerning M&A show contrasting results. Bauguess and Stegemoller (2008) support the expropriation effect and find a negative relationship between concentrated ownership and value creation for their sample of U.S. family firms. On the contrary, Ben-Amar and André (2006) and André et al. (2014) regarding Canada, Basu et al. (2009) and Adhikari and Sutton (2016) regarding the USA, Feito-Ruiz and Menéndez-Requejo (2010) regarding

[62] Aktas et al. (2016) use leverage as a proxy for the family's attitude toward control. According to them, the greater the leverage, the stronger the attitude toward control.

15 European countries, and Sraer and Thesmar (2007) and Bouzgarrou and Navatte (2013) regarding France, find value creation in M&A when it comes to family firms. Finally, Caprio et al. (2011) find no relationship among their sample of large Continental European companies. Some of the aforementioned studies also test the linearity of the relationship with, again, contrasting results. Basu et al. (2009) and Bouzgarrou and Navatte (2013) find that family firms with greater levels of control earn greater abnormal returns, whereas Ben-Amar and André (2006), Feito-Ruiz and Menéndez-Requejo (2010), and André et al. (2014) find the exact opposite.

Previous studies on Swiss family firms (Eugster and Isakov (2017); Isakov and Weisskopf (2014a); Barontini and Caprio (2006)) favor the alignment hypothesis, and find better stock market performance as well as better operational performance among Swiss family firms. Therefore, family firms in Switzerland might not use M&A to obtain private benefits at the expense of minority shareholders, and their M&A might display better value than those undertaken by other firms.

2.4. Characteristics of family firms

Literature on family firms argues that family firms are a heterogeneous group (Arregle et al. (2007)) and therefore are not all affected in the same way by agency costs. Several studies show that differences in firm characteristics among family firms can lead to different results. For example, Villalonga and Amit (2006) find that family firms whose founders are active in the management perform better than those run by descendants. Miller et al. (2007) and Fahlenbrach (2009) find higher performance in firms with only one founder. Isakov and Weisskopf (2014a) also observe that active involvement and familial generation are important factors in family firm outperformance in Switzerland. Investment decisions might also be impacted by these differences among family firms; however, relatively few papers take this into consideration.

Caprio et al. (2011) test the influence of positioning a founder or an heir as CEO or Chairman of the Board on the probability of engaging in an M&A transaction. They find only a statistically negative coefficient for the heirs. Miller et al. (2010) find no significant influence from family generation or from a family member being CEO. Bauguess and Stegemoller (2008) find a negative effect on the probability of engaging in M&A from both founders and descendants serving as CEO, but they find no significant results on value creation. Finally, André et al.

(2014) show that founder-CEO firms engage in more value-enhancing high-technology M&A (with higher cumulative abnormal returns) than descendant-CEO firms or hired-CEO firms.

Family firms at the founder stage, family firms with only one family member involved, and family firms actively managed by the family are those in which power should be least contested. Therefore, the expected negative effect of family firms on the quantity of M&A might be greater with these types of family firms. At the same time, these firms might be the ones who least want to dilute their share of capital and would avoid paying with stock. Concerning the diversification of the deal, family firms with more power might decide more readily to engage in a diversified deal. However, founders should care less than descendants about diversifying. Thus, I expect a greater negative coefficient for the undiversified deals dummy for: family firms at the descendant stage, family firms with only one family member involved, and family firms actively managed by the family. Finally, it is difficult to anticipate how firm characteristics of family firms will be associated with value creation surrounding M&A. On the one hand, family firms with greater power could more easily prevent non-value-enhancing transactions by exercising their influence. On the other hand, strong family owners could decide to engage in M&A that serve themselves to the detriment of other shareholders. It is therefore unclear how characteristics of family firms might be associated with value creation surrounding the announcement date, and I expect to find several different kinds of relationships.

3. Data and variables

3.1. Institutional setting

The Swiss market is an interesting setting since families in Switzerland have a very high level of ownership compared to other countries, particularly the USA. They own on average about 50% of the voting rights, whereas in the U.S. families own only 17.88% of the voting rights (Anderson and Reeb (2003a)). Moreover, there is usually no second large shareholder to counterbalance the family power. This creates a unique setting in which families are very powerful and agency costs might increase. Although a small market in terms of the number of listed firms (221 domestic companies in 2016), the Swiss market is one of the ten largest in the world in terms of market capitalization, including large international companies such as

Nestlé and Roche. Minority shareholders are generally considered poorly protected by law;[63] however, Swiss companies voluntarily adopt good governance practices to attract foreign investors and expand their business. Furthermore, the stability of the economy, the quasi-non-existent corruption, and compliance with laws and regulations increase the country's attractiveness.[64] Finally, since 2003, after the adoption of a corporate governance directive by the Swiss Exchange (Directive Corporate Governance (2002)), all listed firms in Switzerland must include a corporate governance report in their annual report. Precise data on ownership structure[65] and on board and executive composition are provided in the report, and are then hand-collectable for study purposes.[66]

Past literature typically defines Switzerland as a country with a high concentration of ownership, with 30-50% of the firms being owned by families, depending on the sample, definition, and threshold used (Isakov and Weisskopf (2014a); Barontini and Caprio (2006); Faccio and Lang (2002); La Porta et al. (1999)). The use of multiple share classes is common, especially among family firms (Schmid (2009)), which causes a large discrepancy between voting rights and cash-flow rights.[67] Finally, family firms in Switzerland often outperform their counterparts, based on return-on-assets (Barontini and Caprio (2006)), Tobin's Q (Isakov and Weisskopf (2014a)), and stock market performance (Eugster and Isakov (2017)).

3.2. Ownership structure

Almost all non-financial Swiss companies included in the Swiss Performance Index (SPI)[68] between January 2003 and December 2013 are used to conduct the analysis. The dataset comprises 195 firms and 1,703 firm-year observations. Variables on ownership structure are hand-collected mainly from firms' annual reports.[69]

[63] La Porta et al. (1998) attribute to Switzerland a score of 2 out of 5 for their anti-director rights index, and Djankov et al. (2008) give the country a score of 3 out of 5 for their revised anti-director index in addition to 0.27 out of 1 for their anti-self-dealing index.

[64] See La Porta et al. (1998), Kaufmann et al. (2009), or Schwab and Sala-i-Martin (2012).

[65] All Swiss listed firms have to divulge any shareholders holding, either alone or in group, more than 3% of the voting rights of the company (Directive Corporate Governance (2002) and Stock Exchange Act (2013)).

[66] See Holderness (2009) for a discussion on the importance of using hand-collected data rather than a commercial database when working on ownership structure.

[67] On average, 15% of the cash-flow rights are enough to control 20% of the voting rights.

[68] The SPI is the main index for the SIX Swiss Exchange stock market and comprises almost all stocks whose headquarters are in Switzerland.

[69] I am grateful to Isakov and Weisskopf (2014a) who provided me with their hand-collected dataset on Swiss companies comprising information on 185 non-financial firms between 2003 and 2010. I used this dataset as a baseline to construct mine.

To determine if a firm in a given year[70] has a majority shareholder, a threshold of 20% of the ultimate voting rights is used, as suggested by La Porta et al. (1999) or Faccio and Lang (2002). This threshold ensures that the shareholder has the power to influence company decisions. Firms with a majority shareholder are classified in either of the following categories: held by a *Family* or held by *Another blockholder* (i.e. the state, a private investor, another widely held financial firm, another widely held corporation, and miscellaneous). If there is no shareholder that exceeds this threshold, the firm is defined as *Widely held*. A firm is classified as a family firm if the majority shareholder has founded the company, or if the majority shareholder is a descendant of the founding family. It further includes, in some special cases, firms in which another family is involved for a long time and that family has significantly influenced the company.[71] Contrary to previous studies, firms in which an individual who has neither founded, nor inherited, nor shaped the company in a substantial way retains a large stake, are not considered *Family firms*, but firms held by a *Private investor* (*Another blockholder*). Although their motivation is different from that of families, this distinction is usually omitted in previous studies (exceptions are Isakov and Weisskopf (2014a) and Andres (2008)). As shown in Table 28, the composition of the sample of 1,703 firm-year observations is almost equally weighted, with 35% family firms, 36% widely held firms, and 29% firms held by another blockholder.

The main ownership variables are dummy variables categorizing each firm for each year in one of the preceding categories. The percentage of voting rights held by the family is also used as a continuous variable (*Stake family*). In a second step, family firms are classified according to specific firm characteristics by using separate dummy variables. They are initially classified according to their generation (*Founder* or *Descendant stage*). As shown in Table 28, 38% of family firms are at founder stage, whereas 62% are at descendant stage. Then, the number of family members with voting rights is scrutinized and companies with only one family member as shareholder (*Lone member*) are differentiated from those with several (*Several members*). It turns out that 24% of the firms have one family member as shareholder and 76% of them have several members. Finally, the involvement of the family in management is considered. Firms are classified as held by an *Active family* when at least one member of the family is either the CEO or the Chairman of the board, and are classified

[70] Ownership structure is stable during the observed period and only a few firms changed from one category to another.

[71] The Swatch Group is a good example of a firm classified with *Family firms* due to the large and lasting influence of the Hayek family, though the family did not found the company.

Table 28: Composition of the sample

This table presents the composition of the sample, which includes 195 non-financial companies over the period 2003-2013 (1,703 firm-year observations). The table presents the mean of the different dummy variables related to the ownership structure. The variables are described in Table 29. A company is controlled by a shareholder if it holds more than 20% of the voting rights. Column 1 shows the results for the entire sample, while Column 2 shows the means for the subsample of family firms and the different firm characteristics.

	All	Family firms
	Mean	Mean
	(1)	(2)
Family firms	0.35	
Founder stage		0.38
Descendant stage		0.62
Lone member		0.24
Several members		0.76
Active family		0.65
Passive family		0.35
Widely held firms	0.36	
Other blockholder	0.29	
Private investor	*0.13*	
State	*0.05*	
Widely held corporation	*0.04*	
Widely held financial	*0.04*	
Miscellaneous	*0.03*	
N	1703	604

as *Passive family* otherwise. As shown in Table 28, 65% of the sample firms are classified as *Active family*.

Table 29 Panel A summarizes the different ownership variables used in this study.

3.3. Mergers and acquisitions

Data on mergers and acquisitions (M&A) are collected from FactSet. Initially, all complete M&A available for the 195 firms between 2003 and 2013 are downloaded. In accordance with Caprio et al. (2011), only the M&A whose bidder's ownership increases from less than 30% of the target's equity capital to at least 50% are kept. This allows for the elimination of intra-group acquisitions. As another condition, transaction value must be disclosed and be higher

Table 29: Variable definitions

This table defines the variables used in the analysis. Market data come from Datastream and Worldscope, while data on ownership structure for 2003-2010 originates with Isakov and Weisskopf (2014a) and are extended through 2013 via hand-collected data from annual reports and Swiss stock guides. The data for mergers and acquisitions are collected from FactSet. The period of analysis is from January 2003 to December 2013.

Panel A: Firm ownership measures

Widely held firm (*WH*)	Dummy variable that takes on the value 1 if no shareholder holds more than 20% of the voting rights, otherwise it equals 0.
Family firms (*FF*)	Dummy variable that takes on the value 1 if a family holds more than 20% of the voting rights, otherwise it equals 0.
Stake family firm	The percentage of voting rights held by the largest shareholder in a family firm.
Family firms at the founder stage (*FFF*)	Dummy variable that takes on the value 1 if a family firm is held by its founder, otherwise it equals 0.
Family firms at the descendant stage (*FFD*)	Dummy variable that takes on the value 1 if a family firm is held by a descendant, otherwise it equals 0.
Active family firms (*AFF*)	Dummy variable that takes on the value 1 if at least one member of the family is active in the firm, otherwise it equals 0.
Passive family firms (*AFF*)	Dummy variable that takes on the value 1 if no member of the family is active in the firm, otherwise it equals 0.
Lone member (*LM*)	Dummy variable that takes on the value 1 if a family firm is held by only one family member, otherwise it equals 0.
Several members (*SM*)	Dummy variable that takes on the value 1 if a family firm is held by several family members, otherwise it equals 0.
Other blockholder (*OB*)	Dummy variable that takes on the value 1 if the firm has a shareholder with more than 20% of the voting rights who is also not a family member, otherwise it equals 0.
State (*S*)	Dummy variable that takes on the value 1 if the state holds more than 20% of the voting rights, otherwise it equals 0.
Private investor (*PI*)	Dummy variable that takes on the value 1 if a private investor holds more than 20% of the voting rights, otherwise it equals 0.
Widely held corporation (*WHC*)	Dummy variable that takes on the value 1 if another widely held corporation holds more than 20% of the voting rights, otherwise it equals 0.
Widely held financial (*WHF*)	Dummy variable that takes on the value 1 if another widely held financial firm holds more than 20% of the voting rights, otherwise it equals 0.
Miscellaneous (*Misc*)	Dummy variable that takes on the value 1 if an unclassifiable shareholder holds more than 20% of the voting rights, otherwise it equals 0.

Panel B: Deal characteristics

Relative size	Value of the transaction divided by the acquirer's market value of equity.
Public target	Dummy variable that takes on the value 1 if the acquirer's target is a public company, otherwise it equals 0.

Cash deals	Dummy variable that takes on the value 1 if the means of payment for the M&A is more than 50% cash, otherwise it equals 0.
Stock deals	Dummy variable that takes on the value 1 if the means of payment for the M&A is more than 50% stock, otherwise it equals 0.
Other means	Dummy variable that takes on the value 1 if the means of payment for the M&A is neither more than 50% cash nor more than 50% stock, otherwise it equals 0.
Undiversified deals	Dummy variable that takes on the value 1 if both the acquirer and the target have the same 2-digit SIC code, otherwise it equals 0.
Swiss target	Dummy variable that takes on the value 1 if the target is a Swiss firm, otherwise it equals 0.
European target	Dummy variable that takes on the value 1 if the target is a European firm, otherwise it equals 0.
North American target	Dummy variable that takes on the value 1 if the target is a North American firm, otherwise it equals 0.
Other target	Dummy variable that takes on the value 1 if the target is a firm from elsewhere in the world, otherwise it equals 0.

Panel C: Firm characteristics

Size	The firm's market value of equity.
LnSize	The natural logarithm of the firm's market value of equity.
Tangible assets	The ratio of tangible assets to total assets.
Cash holding	The ratio of cash plus tradable securities to total assets.
Leverage	The ratio of book value of financial debt to total assets.
Market-to-book	The ratio of market value of common equity to book value of common equity.
Return-on-assets	Profitability ratio, calculated as EBITDA over total assets.
Sales growth	The sales growth of a firm over the past year.

Panel D: Main dependent variables

M&A dummy	Dummy variable that takes on the value 1 if a company engages in at least one M&A during year *t*, otherwise it equals 0.
N_M&A	Number of M&A undertaken by a company during year *t*.
Equity deals dummy	Dummy variable that takes on the value 1 if a company makes at least one equity deal in year *t*, otherwise it equals 0.
Undiversified deals dummy	Dummy variable that takes on the value 1 if a company makes at least one undiversified deal in year *t*, otherwise it equals 0.
CAR	Cumulative abnormal returns surrounding the announcement date (calculated using the event study methodology).

than one million Swiss Francs[72]. Finally, this dataset is merged with the one on ownership structure, which results in 256 M&A with sufficient data for the analysis. Table 30 summarizes the selection process.

Table 30: Selection process

This table presents the selection process of the M&A used in this study. M&A are downloaded from FactSet for the sample of 195 firms for the period 2003-2013.

Process	Observations	Sample size
All complete M&A for the 195 firms between 2003 and 2013	1'236	1'236
No increase from less than 30% of the target's equity capital to at least 50%	122	1'114
No disclosed transaction value	848	266
Transaction value smaller than 1 million CHF	5	261
No merge with ownership data	5	256
Final number of M&A		256

Table 31 presents the frequency of acquisitions by the sample firms throughout the years (Panel A) and the bidders' industries using the primary SIC codes (Panel B), depending on ownership structure. Each year, there have been between 14 and 38 M&A and no trend can be detected through time. However, the highest number of acquisitions took place during the year 2007, corresponding with the beginning of the financial crisis. Looking at the number of acquisitions among the different ownership structures reveals that family firms increased their M&A activity the most that year. Regarding industries, M&A transactions took place in all sectors, as noted by Ben-Amar and André (2006), however an overwhelming number of deals were made by firms in the manufacturing sector.

Table 32 details some characteristics of the M&A deals for the entire sample and for the main ownership structures (see Table 29 Panel B for the definitions of the variables for the deal characteristics). It also shows the results of the significance tests between: family firms and nonfamily firms, family firms and widely held firms, and family firms and firms held by another blockholder.

[72] About one million USD as of December 2016.

Table 31: Acquisition frequency by year and industry

This table shows the frequency of acquisition for the entire sample as well as for the three main types of ownership structure: family firms, widely held firms, and firms held by another blockholder. Panel A presents frequencies by year and Panel B presents frequencies by bidder's industry. The number of acquisitions (N) and the percentage of acquisitions (%) are shown.

Panel A: Acquisition frequency by year

	All		Family firms		Widely held firms		Other blockholder	
Year	N	%	N	%	N	%	N	%
2003	18	7.0%	8	10.4%	9	6.2%	1	2.9%
2004	15	5.9%	2	2.6%	11	7.6%	2	5.9%
2005	23	9.0%	10	13.0%	9	6.2%	4	11.8%
2006	29	11.3%	7	9.1%	18	12.4%	4	11.8%
2007	38	14.8%	15	19.5%	17	11.7%	6	17.6%
2008	20	7.8%	8	10.4%	9	6.2%	3	8.8%
2009	24	9.4%	7	9.1%	14	9.7%	3	8.8%
2010	21	8.2%	5	6.5%	13	9.0%	3	8.8%
2011	31	12.1%	5	6.5%	23	15.9%	3	8.8%
2012	23	9.0%	4	5.2%	16	11.0%	3	8.8%
2013	14	5.5%	6	7.8%	6	4.1%	2	5.9%
Total	256	100%	77	30.1%	145	56.6%	34	13.3%

Panel B: Acquisition frequency by bidder's industry

	All		Family firms		Widely held firms		Other blockholder	
SIC codes	N	%	N	%	N	%	N	%
1-10 Natural resources	2	0.8%	0	0.0%	2	1.4%	0	0.0%
20-39 Manufacturing	206	80.5%	63	81.8%	121	83.4%	22	64.7%
40-49 Transportation	11	4.3%	3	3.9%	1	0.7%	7	20.6%
50-59 Consumer and wholesale	6	2.3%	0	0.0%	2	1.4%	4	11.8%
70-89 Services	31	12.1%	11	14.3%	19	13.1%	1	2.9%
Total	256	100%	77	30.1%	145	56.6%	34	13.3%

Table 32: Deals characteristics of M&A for the main ownership structures

This table details characteristics of the M&A deals for the entire sample and for the main ownership structures. The table presents the mean of the different variables, as well as the results of the difference in means tests between the major groups, that is, between family firms (FF) and nonfamily firms (NFF), between family firms (FF) and widely held firms (WH), and between family firms (FF) and other blockholder firms (OB). A more detailed description of the variables is given in Table 29. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder	Difference in means tests		
	Mean	Mean	Mean	Mean	Mean	FF vs. NFF	FF vs. WH	FF vs. OB
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Transaction value (in mio CHF)	531	257	649	709	396	-393**	-452**	-139
Mean of payment								
Cash deals	0.92	0.96	0.90	0.89	0.93	0.0572	0.0651*	0.0248
Equity deals	0.05	0.04	0.06	0.06	0.07	-0.0167	-0.0147	-0.0248
Other means	0.03	0.00	0.04	0.05	0.00	-0.0405**	-0.0504**	0.0000
Undiversified deals	0.54	0.49	0.56	0.59	0.44	-0.0707	-0.0996	0.0523
Origin of target								
Swiss target	0.14	0.19	0.12	0.11	0.18	0.0719	0.0845	0.0183
European target	0.40	0.39	0.40	0.38	0.50	-0.0126	0.0103	-0.1104
North-American target	0.03	0.03	0.03	0.03	0.03	-0.0075	-0.0085	-0.0034
Other target	0.43	0.39	0.44	0.48	0.29	-0.0517	-0.0863	0.0955
N	256	77	179	145	34			

The mean transaction value is 531 million Swiss Francs. Deals made by family firms are smaller in value (257 million CHF) than those made by other firms. The large majority of the deals are paid in cash (92%), whereas only a few are paid with stock (5%).[73] This is even more pronounced among family firms, where only 4% of the deals are paid with stock and 96% with cash. Regarding the relatedness of the deals, based on Basu et al. (2009), I determine whether both the target and the acquirer have the same 2-digit SIC codes. This turns out to be true for 54% of the cases.

Although family firms show a higher number of diversified acquisitions (which is consistent with previous studies such as Defrancq et al. (2014) and Aktas et al. (2016)), the difference is not statistically significant at the level chosen (p-value=14%) when compared to widely held firms. Finally, looking at the origin of the target, 14% of the deals involve acquiring another Swiss firm, 40% a European one, 3% a U.S. one, and 43% a firm from elsewhere in the world. Statistical tests reveal no significant differences among the ownership structure groups when it comes to the origin of the target.

3.4. Summary statistics

Table 29 Panels C and D provide the definitions of the control variables for firm characteristics used in this study, as well as the main dependent variables. The summary statistics for the main variables and control variables, as well as the results of the difference in means tests pairings such as: family and nonfamily firms, family and widely held firms, and family firms and firms held by another blockholder, are shown in Table 33. Overall, only an average of 11% of the firms took part in at least one M&A during the year. This proportion is rather low, but is explained by the fact that a large number of M&A were stricken from the sample in the selection process described in Table 30. The following results are therefore valid only for this subsample containing sufficient data.

The results suggest that family firms are more reluctant to make acquisitions than nonfamily firms and widely held firms. During the eleven-year period, only 9% of the firm-year observations had at least one acquisition made by family firms, whereas this percentage is 16% for widely held firms (the difference is highly significant). The difference is even higher

[73] Some of the deals are paid using other means (i.e. a future payment or contingent payment) or are associated with an undisclosed amount of cash and stock.

Table 33: Descriptive statistics for the main ownership structures

This table presents the descriptive statistics for the entire sample and for the main ownership structures. The table presents the mean of the different variables, as well as the results of the difference in means tests between the major groups, that is, between family firms (FF) and nonfamily firms (NFF), between family firms (FF) and widely held firms (WH), and between family firms (FF) and other blockholder firms (OB). A more detailed description of the variables is given in Table 29. Except for the M&A dummy, all other variables are winsorized at 0.01 and 0.99. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder	Difference in means tests		
	Mean	Mean	Mean	Mean	Mean	FF vs. NFF	FF vs. WH	FF vs. OB
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
M&A	0.11	0.09	0.12	0.16	0.06	-0.0212	-0.0677***	0.0370**
N_M&A	0.15	0.13	0.16	0.24	0.07	-0.0354	-0.1098***	0.0578**
Size (in mio CHF)	4827	5146	4658	7208	1359	488	-2061	3787***
Tangible assets	0.29	0.26	0.30	0.26	0.36	-0.0426***	0.0044	-0.1033***
Cash holding	0.18	0.19	0.18	0.20	0.15	0.0126	-0.0089	0.0404***
Leverage	0.19	0.17	0.20	0.18	0.22	-0.0271***	-0.0080	-0.0518***
Market-to-book	2.51	2.59	2.47	2.58	2.34	0.1146	0.0104	0.2493
Return-on-assets	0.09	0.11	0.07	0.09	0.06	0.0333***	0.0178**	0.0531***
Sales growth	0.11	0.10	0.11	0.10	0.11	-0.0035	-0.0018	-0.0059
N	1703	604	1099	611	488			

when looking at the total number of M&A (13% vs. 24%). When compared to firms held by another blockholder, however, family firms engage in more M&A.

The difference in means tests for the other main variables reveal some significant differences between family firms and the more general group of nonfamily firms, but only one statistically significant difference between family firms and widely held firms; the return-on-assets is significantly higher for family firms when compared to widely held firms. The large majority of control variables are different between family firms and firms held by another blockholder. This emphasizes the need for making a clear distinction between these two types of firms so that one may evaluate the impact of family ownership.

4. Empirical results

4.1. Propensity for engaging in mergers and acquisitions

In the preceding section, we saw in a univariate framework that family firms might be more reluctant to take part in M&A. In this section, a multivariate analysis is performed to determine whether the results hold after considering the influence of several other firm characteristics. Based on the methodologies used by Caprio et al. (2011), Shim and Okamuro (2011), and Miller et al. (2010), the following two regression models are estimated:

$$\begin{aligned} \text{M\&A dummy}_{it} = {} & \beta_0 \\ & + \beta_1(\text{Ownership variables})_{it} \\ & + \beta_2(\text{Control variables})_{it} \\ & + \beta_3(\text{Industry dummies})_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Number of M\&A}_{it} = {} & \beta_0 \\ & + \beta_1(\text{Ownership variables})_{it} \\ & + \beta_2(\text{Control variables})_{it} \\ & + \beta_3(\text{Industry dummies})_{it} \\ & + \beta_3(\text{Year dummies})_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

In Model 1 the dependent variable is a dummy variable that takes on the value 1, if firm *i* is engaging in at least one M&A in year *t*, and 0 otherwise. Logit regressions are then used to estimate the parameters, with standard errors double-clustered as suggested by Petersen (2009) to account for unobserved time and firm effects. In Model 2 the dependent variable is a count variable which represents the number of M&A undertaken by a given firm in a given

year. Parameters are estimated using standard negative binomial regressions with robust standard errors (see Cameron and Trivedi (1986)).

With regard to the main independent variables, depending on the model tested, *FAMILY*, *WH* and *OB* serve as dummy variables taking on the value of 1 if the firm is classified as 'held by a family', 'held by no one', or 'held by another blockholder', respectively. *STAKE FAMILY* and *STAKE FAMILY^2*, representing the voting percentage held by the family and its square, respectively, are also used. With regard to the control variables, variables commonly used in literature on the determinants of mergers and acquisitions, and which are both correlated with the probability of acquiring and with the stock market reaction at announcements, are used (see, for example, Caprio et al. (2011); Faccio and Masulis (2005)). Firm size (*SIZE*), proxied by the natural logarithm of the firm's market capitalization, is initially used. The larger the firm, the higher the likelihood of making acquisitions. Additionally, the better a firm is performing, the more money it should have to make an acquisition. So, the return-on-assets (*ROA*)—a measure of firm profitability—the growth rate in sales (*SALES GROWTH*), and the firm's liquidity (*CASH HOLDINGS*) are included as variables potentially influencing the probability of bidding. *TANGIBLE ASSETS* and *LEVERAGE* are also included as control variables, as debt can be a way of increasing finances for making acquisitions. Finally, *MARKET-TO-BOOK*, a proxy for stock price valuation, is added, as overvalued firms are more prone to making acquisitions, according to Shleifer and Vishny (2003). Industry dummies based on the 1-digit ICB classification are included in both models, and year dummies are included in the second, to control for fixed effects. The results of both models (Columns 1-5 for Model 1 and Columns 6-10 for Model 2) are presented in Table 34.

Multivariate analysis confirms the preceding finding that family firms are less inclined to engage in M&A. Both the 'family dummy' (Columns 1 and 6) and the 'family stake' variable (Columns 2 and 7) are negative and statistically significant. Thus, a family being the largest shareholder decreases the likelihood of engaging in M&A, and the larger the stake is, the smaller this probability is. In concrete terms, family firms would take part in about half as many M&A than other firms, and an increase of 10% in the family stake would decrease by about 10% the probability of engaging in M&A, if all other factors remained constant. Columns 3 and 8 determine if there is a nonlinear relationship by adding the square of the family stake. No such relationship is found. The two other main types of ownership structure, widely held firms (Columns 4 and 9) and firms held by another blockholder (Columns 5 and 10), are then further examined. The results indicate that widely held firms engage in more M&A than the others (statistically significant), but no relationship is found with firms held by another

Table 34: Determinants of the propensity to acquire for the main ownership structures

This table presents the coefficients and standard errors of the multivariate analysis. In Columns 1-5, the dependent variable is a dummy variable that takes on the value 1 if firm *i* is engaging in at least one M&A in year *t*; otherwise, its value is 0. Regressions are performed using a logit method with standard errors double-clustered, as suggested by Petersen (2009), to account for unobserved time and firm effects. In Columns 6-10, the dependent variable is a count variable which represents the number of acquisitions made by a given firm in a given year. Parameters are estimated using standard negative binomial regressions with robust standard errors (see Cameron and Trivedi (1986)). All regressions include as independent variables different ownership variables, control variables, year dummies, and industry dummies, depending on the model tested. The period of analysis runs from January 2003 to December 2013. Ownership variables may include: FAMILY, WH, and OB, three dummy variables indicating whether the founding family is the largest shareholder, whether the firm is widely held, or whether the firm is held by another blockholder, respectively. They may also include: STAKE FAMILY, the percentage of the family voting rights, and STAKE FAMILY^2, its square, to allow for nonlinearity. All regressions include the following control variables: SIZE, TANGIBLE ASSETS, CASH HOLDING, LEVERAGE, MARKET-TO-BOOK, RETURN-ON-ASSETS, and SALES GROWTH. Further information on all variables is provided in Table 29. Except for the ownership variables, all other independent variables are winsorized at 0.01 and 0.99, and lagged for one year. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Standard errors are in parentheses. α is a *t*-test for overdispersion.

	M&A dummy (Model 1)					Number of M&A (Model 2)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Family firms	-0.499*					-0.448***				
	(0.264)					(0.154)				
Stake family		-0.995*	-0.591				-0.943***	-0.465		
		(0.550)	(1.435)				(0.307)	(1.032)		
(Stake family)^2			-0.662					-0.816		
			(2.315)					(1.697)		
Widely held				0.574***					0.496***	
				(0.210)					(0.147)	
Other blockholder					-0.195					-0.173
					(0.328)					(0.243)
Size	0.473***	0.469***	0.467***	0.454***	0.462***	0.445***	0.443***	0.443***	0.428***	0.445***
	(0.054)	(0.055)	(0.054)	(0.054)	(0.059)	(0.036)	(0.037)	(0.037)	(0.037)	(0.037)
Tangible assets	-2.829***	-2.811***	-2.805***	-2.730***	-2.783***	-2.366***	-2.325***	-2.315***	-2.225***	-2.333***
	(0.953)	(0.954)	(0.955)	(0.993)	(0.980)	(0.581)	(0.575)	(0.571)	(0.587)	(0.584)
Cash holding	-0.637	-0.610	-0.606	-0.809	-0.749	-0.228	-0.181	-0.175	-0.347	-0.385
	(0.797)	(0.802)	(0.809)	(0.820)	(0.807)	(0.683)	(0.680)	(0.679)	(0.689)	(0.678)
Leverage	0.598	0.607	0.608	0.488	0.535	0.664	0.680	0.683	0.565	0.565
	(0.838)	(0.851)	(0.853)	(0.850)	(0.831)	(0.569)	(0.572)	(0.573)	(0.573)	(0.570)

Market-to-book	-0.063	-0.063	-0.063	-0.051	-0.053	-0.037	-0.038	-0.039	-0.029	-0.036
	(0.054)	(0.054)	(0.054)	(0.055)	(0.057)	(0.046)	(0.045)	(0.045)	(0.045)	(0.045)
Return-on-assets	0.922	0.924	0.912	0.734	0.569	1.122	1.134	1.117	0.978	0.769
	(0.910)	(0.895)	(0.891)	(0.903)	(0.922)	(0.839)	(0.835)	(0.832)	(0.819)	(0.867)
Growth sales	0.167	0.159	0.157	0.165	0.177	0.057	0.050	0.050	0.055	0.088
	(0.438)	(0.439)	(0.440)	(0.433)	(0.445)	(0.289)	(0.288)	(0.288)	(0.285)	(0.298)
Intercept	-7.273***	-7.224***	-7.208***	-7.484***	-7.233***	-7.775***	-7.757***	-7.748***	-7.943***	-7.781***
	(0.829)	(0.838)	(0.820)	(0.839)	(0.888)	(0.631)	(0.632)	(0.631)	(0.632)	(0.633)
α (Overdispersion)						-0.561	-0.581	-0.587	-0.588	-0.480
						(0.399)	(0.403)	(0.407)	(0.405)	(0.392)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
N	1’521	1’521	1’521	1’521	1’521	1’563	1’563	1’563	1’563	1’563
Log-likelihood	-458.63	-458.28	-458.23	-456.99	-461.87	-580.52	-579.86	-579.76	-579.20	-584.28
X^2 (LR test)	170.72***	169.71***	169.42***	174.58***	170.02***	9822.89***	13970.51***	10722.30***	10522.67***	9770.68***
Pseudo R^2	0.1767	0.1773	0.1774	0.1796	0.1709	0.1855	0.1864	0.1865	0.1873	0.1802

blockholder. Overall, the results show that family firms in Switzerland are more reluctant to make acquisitions and are therefore not empire-builders; this confirms the hypotheses and results from past literature (Caprio et al. (2011); Shim and Okamuro (2011); Miller et al. (2010); Bauguess and Stegemoller (2008)).

4.2. Means of payment and relatedness of deals

The univariate framework proposed in Section 3 reveals that ownership structure may have an influence on the means of payment and the diversification of the deal. In this section, the same multivariate analysis as in Section 4.1 is used, but this time the dependent variable is a dummy variable that takes on the value 1 if the firm makes at least one equity deal that year, otherwise the value is 0; or, it is a dummy variable that takes on the value 1 if the firm makes at least one undiversified deal that year, otherwise the value is 0.

In the regressions using the means of payment as a dependent variable, I add the relative size of the deals to the previous control variables, since smaller deals tend to be financed by cash and larger deals by equity (Caprio et al. (2011)). *RELATIVE SIZE* is calculated as the value of the transaction, divided by the acquirer's market value of equity. I remove the industry dummies due to a lack of variation in the dependent variable within industries, which would have required dropping a large number of observations.[74] In the regressions using the undiversified deals as a dependent variable, the set of control variables are the same as in Table 34. The results for the first dependent variable are presented in Table 35, and those for the second dependent variable in Table 36.

Concerning the means of payment (Table 35), even though the coefficients for the family dummy and the family stake are negative, they are not statistically significant. However, the coefficient for the 'widely held firms' dummy is positive and significant (at the 5% confidence level). The results reveal no significant nonlinear relationship. The analysis of the means of payment is therefore only partially in line with the results of Basu et al. (2009) and Faccio and Masulis (2005), but the difference and the non-significance of the results might be explained by the very small number of firms (only 5%, regardless of ownership structure) using stock as a means of payment in Switzerland.

[74] The results are similar when I include industry dummies, but the number of observations drops to 1,150.

Table 35: Determinants of equity deals for the main ownership structures

This table presents the coefficients and standard errors of the multivariate analysis. The dependent variable is a dummy variable that takes on the value 1 if firm *i* is engaging in at least one equity deal in year *t*; otherwise, its value is 0. Regressions are performed using a logit method with standard errors double-clustered, as suggested by Petersen (2009), to account for unobserved time and firm effects. All regressions include as independent variables different ownership variables and control variables, depending on the model tested. Industry dummies are omitted due to the limited number of equity deals dummies equals to 1. The period of analysis runs from January 2003 to December 2013. Ownership variables may include: FAMILY, WH, and OB, three dummy variables indicating whether the founding family is the largest shareholder, whether the firm is widely held, or whether the firm is held by another blockholder, respectively. They may also include: STAKE FAMILY, the percentage of the family voting rights, and STAKE FAMILY^2, its square, to allow for nonlinearity. All regressions include the following control variables: SIZE, TANGIBLE ASSETS, CASH HOLDING, LEVERAGE, MARKET-TO-BOOK, RETURN-ON-ASSETS, and SALES GROWTH. Further information on all variables is provided in Table 29. Except for the ownership variables and RELATIVE SIZE, all other independent variables are winsorized at 0.01 and 0.99, and lagged for one year. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Standard errors are in parentheses.

	Equity deals dummy				
	(1)	(2)	(3)	(4)	(5)
Family firms	-1.014				
	(0.927)				
Stake family		-2.056	-0.089		
		(1.765)	(5.576)		
(Stake family)^2			-3.569		
			(6.984)		
Widely held				1.223**	
				(0.618)	
Other blockholder					-0.518
					(0.787)
Relative size	59.820***	58.288***	57.565***	64.085***	60.871***
	(13.302)	(12.266)	(12.888)	(13.350)	(9.917)
Size	-0.139	-0.151	-0.157	-0.205	-0.138
	(0.113)	(0.114)	(0.111)	(0.130)	(0.108)
Tangible assets	-6.922*	-6.768*	-6.682*	-6.691*	-6.308
	(3.922)	(3.773)	(3.870)	(3.859)	(3.900)
Cash holding	0.008	-0.052	-0.081	-0.347	-0.205
	(1.393)	(1.427)	(1.425)	(1.645)	(1.558)
Leverage	-1.345	-1.355	-1.347	-1.351	-1.390
	(2.169)	(2.208)	(2.242)	(2.560)	(2.476)
Market-to-book	-0.034	-0.030	-0.027	-0.028	-0.020
	(0.065)	(0.063)	(0.061)	(0.063)	(0.069)
Return-on-assets	-0.793	-0.773	-0.778	-0.729	-1.356
	(1.162)	(1.199)	(1.204)	(1.009)	(1.163)
Growth sales	0.376	0.391	0.400	0.310	0.417
	(0.422)	(0.420)	(0.429)	(0.387)	(0.414)
Intercept	-1.627	-1.499	-1.453	-1.670	-1.847
	(1.940)	(1.945)	(1.898)	(1.927)	(1.803)
Industry dummies	No	No	No	No	No
Year dummies	No	No	No	No	No
N	1’563	1’563	1’563	1’563	1’563
Log-likelihood	-51.49	-51.52	-51.45	-50.76	-52.17
X^2 (LR test)	50.25***	47.81***	84.78***	40.31***	62.24***
Pseudo R^2	0.2137	0.2132	0.2143	0.2249	0.2033

Table 36: Determinants of undiversified deals for the main ownership structures

This table presents the coefficients and standard errors of the multivariate analysis. The dependent variable is a dummy variable that takes on the value 1 if firm *i* is engaging in at least one undiversified deal in year *t*; otherwise, its value is 0. Regressions are performed using a logit method with standard errors double-clustered, as suggested by Petersen (2009), to account for unobserved time and firm effects. All regressions include as independent variables different ownership variables, control variables, and industry dummies, depending on the model tested. The period of analysis runs from January 2003 to December 2013. Ownership variables may include: FAMILY, WH, and OB, three dummy variables indicating whether the founding family is the largest shareholder, whether the firm is widely held, or whether the firm is held by another blockholder, respectively. They may also include: STAKE FAMILY, the percentage of the family voting rights, and STAKE FAMILY^2, its square, to allow for nonlinearity. All regressions include the following control variables: SIZE, TANGIBLE ASSETS, CASH HOLDING, LEVERAGE, MARKET-TO-BOOK, RETURN-ON-ASSETS, and SALES GROWTH. Further information on all variables is provided in Table 29. Except for the ownership variables, all other independent variables are winsorized at 0.01 and 0.99, and lagged for one year. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Standard errors are in parentheses.

	Undiversified deals dummy				
	(1)	(2)	(3)	(4)	(5)
Family firms	-0.531*				
	(0.315)				
Stake family		-1.196**	0.242		
		(0.571)	(2.004)		
(Stake family)^2			-2.455		
			(3.245)		
Widely held				0.729***	
				(0.249)	
Other blockholder					-0.484
					(0.362)
Size	0.388***	0.385***	0.381***	0.364***	0.377***
	(0.042)	(0.042)	(0.042)	(0.043)	(0.042)
Tangible assets	-3.492***	-3.468***	-3.443***	-3.384***	-3.401***
	(1.041)	(1.027)	(1.004)	(1.074)	(1.052)
Cash holding	-3.244***	-3.211***	-3.199***	-3.526***	-3.465***
	(1.023)	(1.011)	(0.991)	(1.040)	(0.981)
Leverage	0.799	0.827	0.843	0.666	0.688
	(0.914)	(0.919)	(0.930)	(0.936)	(0.944)
Market-to-book	-0.056	-0.058	-0.059	-0.039	-0.045
	(0.056)	(0.056)	(0.056)	(0.057)	(0.065)
Return-on-assets	0.820	0.842	0.797	0.621	0.380
	(1.232)	(1.225)	(1.225)	(1.225)	(1.316)
Growth sales	0.135	0.124	0.115	0.152	0.136
	(0.538)	(0.535)	(0.537)	(0.527)	(0.558)
Intercept	-6.360***	-6.308***	-6.279***	-6.616***	-6.272***
	(0.961)	(0.946)	(0.948)	(0.929)	(1.007)
Industry dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	No	No	No	No	No
N	1’521	1’521	1’521	1’521	1’521
Log-likelihood	-313.88	-313.04	-312.66	-311.29	-315.28
X^2 (LR test)	98.10***	96.99***	97.02***	99.33***	100.67***
Pseudo R^2	0.1551	0.1573	0.1583	0.1620	0.1513

Table 36 confirms previous results showing that family firms make fewer undiversified deals than other types of firms (Aktas et al. (2016); Miller et al. (2010)). This becomes more pronounced the higher the family stake is. Given that the majority of family wealth is invested in the company, acquiring firms in other industries is a means of diversifying their portfolio. On the contrary, widely held firms prefer to acquire firms within the same industry (highly significant).

4.3. Bidder returns

So far, we have seen that family ownership is negatively associated with the frequency of M&A. This section examines whether ownership structure influences value creation for an acquirer's shareholders during M&A transactions. Market reaction around the announcement date is the best way to measure this value creation, as argued by Andrade et al. (2001).

To calculate the change in value for the acquiring shareholders, the event study methodology developed by Ball and Brown (1968) and Fama et al. (1969), and discussed in Brown and Warner (1980, 1985), is used. For each M&A, FactSet provides the announcement date of the deal, which is used as the reference date (t=0). The beta and alpha coefficients are then estimated using a market model and an estimation window of -220 days to -21 days before the announcement date.[75] They are then used to calculate the predicted returns for the period -20 days to +20 days, which are subtracted from the real returns to obtain the abnormal returns (AR). The cumulative abnormal returns (CAR) are then calculated by adding the abnormal returns over the three-day period surrounding the announcement date (-1, 0, +1). This event window is a typical one used in this kind of study, and provides the most economically significant results for Defrancq et al. (2014), who tested several periods.[76]

Figure 4 graphs the evolution of the average abnormal returns for the period -20 days to +20 days, and Table 37 presents the average CAR in the three-day period surrounding the announcement date for the entire sample (Column 1), as well as for the main ownership groups (Columns 2-5). Parametric tests that determine whether the CAR are statistically different from 'zero' are also performed, and are presented in the table. Finally, Columns 6, 7, and 8 show the results of the difference in means tests regarding the CAR between family

[75] For newly listed firms, a record of at least 100 days before the announcement date is required to calculate the coefficients. Due to this condition, two M&A transactions are dropped from the sample, which leads to a final sample of 254 M&A transactions for calculating the CAR.

[76] Appendices 13 and 14 present the results for different event windows. The results are quite similar.

firms and nonfamily firms, between family firms and widely held firms, and between family firms and firms held by another blockholder.

Figure 4: Representation of abnormal returns surrounding announcement date

This figure presents the average abnormal returns for the entire sample of M&A (254 observations). They are calculated using the event study methodology. The *x*-axis shows the -20/+20 window surrounding the announcement date (time=0) and the *y*-axis shows the average abnormal returns.

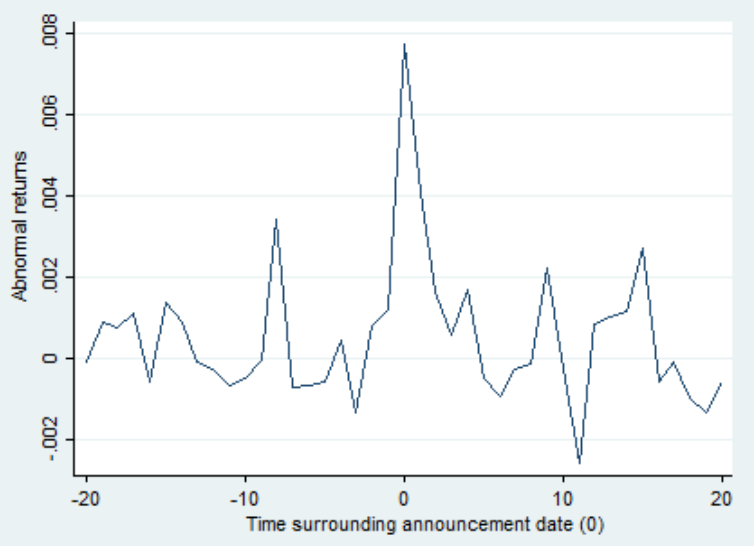

Figure 4 shows that a larger abnormal return (nearly 0.8%) is clearly visible the day of the announcement (*t*=0), whereas no large movements are seen before or after the event. This positive reaction at the announcement is also confirmed in Table 37 (Column 1), where the overall average CAR (1.31%) and the average CAR of the different subdivisions are positive and statistically highly different from zero. This result might be rather surprising, since the general consensus, based on early summary papers (Jarrell et al. (1988); Jensen and Ruback (1983)), is that the overall gain in M&A is accrued entirely by the target and not by the acquirer. However, as pointed out by Moeller et al. (2004), results from earlier studies as well as recent ones that find negative or insignificant abnormal returns, such as Andrade et al. (2001), are quite different because they are largely restricted to acquisitions of public companies. Recent studies that cover all types of acquisitions (for example Martynova and Renneboog (2011) for the European market, or Moeller et al. (2004) and Masulis et al. (2007) for the USA) find that acquirers also exhibit positive and significant abnormal returns surrounding the announcement date. The overall value creation with regard to M&A for the acquirer in Switzerland (1.31%) is slightly larger than that found in previous studies (1.10%

Table 37: Descriptive statistics for cumulative abnormal returns for the main ownership structures

This table presents the descriptive statistics for the entire sample and for the main ownership structures. The table presents the mean for the Cumulative Abnormal Returns (CAR), as well as the results of the difference in means tests between the major groups, that is, between family firms (FF) and nonfamily firms (NFF), between family firms (FF) and widely held firms (WH), and between family firms (FF) and other blockholder firms (OB). A market model and an estimation window of -220 days to -21 days before the announcement date is used to calculate the beta and alpha coefficients. They are then used to calculate the predicted returns for the period -20 days to +20 days, which are subtracted from the real returns to obtain abnormal returns (AR). CAR is calculated by adding the AR over the three-day period surrounding the announcement date (-1, 0, +1). Parametric tests that determine whether CAR is statistically different from zero are also performed, and presented with stars next to the coefficients. A more detailed description of the variables is given in Table 29. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder	Difference in means tests		
	Mean	Mean	Mean	Mean	Mean	FF vs. NFF	FF vs. WH	FF vs. OB
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cumulative abnormal returns (CAR)	0.0131***	0.0148***	0.0123***	0.0118***	0.0145**	0.0025	0.0030	0.0003
N	254	77	177	144	33			

in Moeller et al. (2004), 0.72% in Martynova and Renneboog (2011), and 0.22% in Masulis et al. (2007)). This might be explained by the relatively few M&A paid with stock in Switzerland; these are, in fact, what decrease value creation in previous studies.[77]

Concerning the subdivisions according to the main ownership structure, family firms present the highest average CAR (1.48%), whereas widely held firms present the lowest (1.18%). However, the difference in means tests reveal no statistically significant differences.

In a second step, a multivariate analysis is performed to control for other firm characteristics that could influence the CAR. As proposed by Caprio et al. (2011), the following regression is estimated:

$$\begin{aligned} CAR_{it} = \quad & \beta_0 \\ & + \beta_1(\text{Ownership variables})_{it} \\ & + \beta_2(\text{Control variables})_{it} \\ & + \beta_3(\text{Industry dummies})_{it} + \varepsilon_{it} \end{aligned} \tag{3}$$

Coefficients are estimated using ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level. The dependent variable is the CAR for each M&A, as calculated above. The independent variables are the same as in Section 4.1 (see Table 29 for the definitions of the variables). In accordance with past literature on market reaction at the announcement of takeover deals, I add to the list of control variables: *RELATIVE SIZE*, the value of the transaction divided by the acquirer's market value of equity;[78] *PUBLIC*, a dummy variable taking on the value of 1 if the target is a public company,[79] otherwise the value is 0; and *UNDIVERSIFIED DEALS*, a dummy variable that takes on the value 1 if both the acquirer and the target have the same 2-digit SIC code,[80] otherwise the value is 0.

The method of payment might also be a factor explaining the CAR at announcement. Past literature (Shleifer and Vishny (2003); Myers and Majluf (1984)) shows that acquirers favor paying with stock when stock price is overvalued, and with cash when stock price is undervalued. However, firms are not obliged to disclose details on the method of payment,

[77] Masulis et al. (2007) find a CAR of 0.8% for deals paid entirely in cash, while Martynova and Renneboog (2011) find a CAR of 0.8% for deals paid entirely in cash and a CAR of 1.17% for those with mixed means of payment.

[78] Previous studies (Alexandridis et al. (2013); Moeller et al. (2004); Loderer and Martin (1990)) show that acquirers stand to gain less (or lose more) with relatively large deals.

[79] Masulis et al. (2007) show that acquisitions of public targets are the ones that generate the most negative CAR surrounding the announcement dates, possibly due to a liquidity discount for private firms (Fuller et al. (2002)).

[80] Adhikari and Sutton (2016) find that diversification among family firms creates long-term value, which is consistent with Stein's model.

and this information is missing in 40 out of 252 observations. The method of payment is therefore not included in the following analyses.[81] By the same token, the premium paid for the acquisition might be a variable influencing the CAR (Jensen and Ruback (1983)). If the acquirer is paying too high a premium, this might affect any gain from the acquisition. However, even in acquisitions of publicly traded firms, the premium data are not always available (Moeller et al. (2004)). For this reason, few studies use it in their set of control variables.[82] As my sample of M&A includes both publicly and non-publicly traded targets, there is little available data on premiums (45 out of 252 M&A), so I do not include it as a control variable in the following tables.

The results of the multivariate analysis for the main groups are presented in Table 38, and confirm those of the univariate tests. Ownership structure is weakly associated with the value creation surrounding the M&A announcement date, which is consistent with the findings of Caprio et al. (2011) for Europe. However, the results show that family ownership is not value-destructive, as suggested by some studies, such as the one by Bauguess and Stegemoller (2008) on the USA. When both the stake and the squared stake are added together in order to test for a nonlinear relationship (Column 3), I find a significant convex relationship between family ownership and value creation at the announcement date. This result is consistent with Basu et al. (2009) and Bouzgarrou and Navatte (2013), and suggests that at high levels of family ownership, the incentive effect dominates the entrenchment effect, whereas at low levels of family ownership the opposite occurs. Therefore, family firms with greater control benefit from a stronger market reaction at the acquisition announcement. The estimated relationship reaches its minimum at an inflection point of 32.5%, quite similar to the 28% found by Basu et al. (2009) for their sample of U.S. firms. At this lowest point, the difference in the CAR between family firms and nonfamily firms is equal to -1.01%. The effect of family ownership becomes positive for the CAR at a stake of approximately 65%. Thus, only family firms with relatively high levels of ownership, and that are potentially more prone to expropriation problems, have a positive effect on the CAR.[83]

[81] When adding the dummy variable EQUITY DEALS in the regressions, I find similar results (not reported) to those presented in the main tables. The coefficients of EQUITY DEALS are, as expected, negative, but not statistically significant.

[82] Moeller et al. (2004) find a significant negative relationship between the CAR and the premium, but only for large firms.

[83] It is nevertheless worth mentioning that out of the entire sample, only slightly more than one quarter of all family firms reach this level, and only 7 out of the 77 M&A undertaken by a family firm have been made by firms at this level. The positive effect occurs in only a few cases.

Table 38: Multivariate analysis for bidder returns and the main ownership structures

This table presents the coefficients and standard errors of the multivariate analysis. The dependent variable is the cumulative abnormal returns (CAR). A market model and an estimation window of -220 days to -21 days before the announcement date is used to calculate the beta and alpha coefficients. They are then used to calculate the predicted returns for the period -20 days to +20 days, which are subtracted from the real returns to obtain abnormal returns (AR). CAR is calculated by adding the AR over the three-day period surrounding the announcement date (-1, 0, +1). Parameters are estimated using ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level. All regressions include as independent variables different ownership variables, control variables, and industry dummies, depending on the model tested. The period of analysis runs from January 2003 to December 2013. Ownership variables may include: FAMILY, WH, and OB, three dummy variables indicating whether the founding family is the largest shareholder, whether the firm is widely held, or whether the firm is held by another blockholder, respectively. They may also include: STAKE FAMILY, the percentage of the family voting rights, and STAKE FAMILY^2, its square, to allow for nonlinearity. All regressions include the following control variables: PUBLIC TARGET, UNDIVERSIFIED DEALS, RELATIVE SIZE, SIZE, TANGIBLE ASSETS, CASH HOLDING, LEVERAGE, MARKET-TO-BOOK, RETURN-ON-ASSETS, and SALES GROWTH. Further information on all variables is provided in Table 29. Except for the ownership variables and the first three control variables, all other independent variables are winsorized at 0.01 and 0.99, and lagged for one year. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Standard errors are in parentheses.

	(1)	(2)	(3)	(4)	(5)
Family firms	-0.006				
	(0.006)				
Stake family		-0.008	-0.062**		
		(0.013)	(0.025)		
(Stake family)^2			0.095**		
			(0.045)		
Widely held				0.006	
				(0.006)	
Other blockholder					-0.001
					(0.012)
Public target	-0.001	-0.001	-0.001	-0.000	-0.001
	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)
Undiversified deals	0.006	0.006	0.007*	0.006	0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Relative size	0.348	0.346	0.372	0.384	0.365
	(0.253)	(0.251)	(0.256)	(0.258)	(0.277)
Size	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tangible assets	-0.032	-0.030	-0.041	-0.032	-0.032
	(0.027)	(0.028)	(0.029)	(0.027)	(0.028)
Cash holding	0.052*	0.051*	0.053**	0.049*	0.048*
	(0.027)	(0.026)	(0.027)	(0.027)	(0.027)
Leverage	0.013	0.011	0.013	0.011	0.009
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Market-to-book	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Return-on-assets	0.128***	0.123**	0.134***	0.127***	0.117**
	(0.049)	(0.048)	(0.050)	(0.047)	(0.049)
Growth sales	-0.020	-0.020	-0.021	-0.021	-0.020
	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)
Intercept	0.077***	0.077***	0.077***	0.075***	0.077***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Industry dummies	Yes	Yes	Yes	Yes	Yes
N	252	252	252	252	252
R^2	0.1886	0.1864	0.1915	0.1886	0.1850

4.4. Characteristics of family firms

As discussed in Section 2.4, family firms are not a homogenous group, and some characteristics of family firms may help explain the results found in previous sections. This section focuses on family firms and analyzes the influence of generation, involvement in management, and presence of multiple (or just one) family members on the variables of interest analyzed thus far.

Table 39 presents deal characteristics, summary statistics, and bidder returns for the subsample of family firms and firm characteristics. It provides the results of the difference in means tests as well. Panel A shows that family firms at founder stage make more cash payments (100%) and more undiversified acquisitions (79%) compared to those at descendant stage (93% and 36%, respectively). The deal characteristics of family firms with one family member involved are not statistically different from those of family firms with several family members involved, similar to the relationship between active and passive family firms. Panel B shows that the generation is not an important characteristic for the number of M&A, with relatively close means (Columns 2-3) and no statistically significant differences (Column 8). The presence of only one family member has a more pronounced influence (Columns 4-5). The difference between family firms with only one member (regardless of whether they are the founder or a descendant) and firms with several family members is negative and statistically significant (Column 9). Finally, the involvement or not of the family in the management of the firm has the largest spread between means for the number of M&A undertaken (Columns 6-7), and the difference is highly significant (Column 10). Family firms with active participation in the management are less inclined to engage in M&A. Panel B also shows that control variables differ between groups, reinforcing the need for a multivariate analysis to control for this. Panel C shows that acquisitions made by family firms with only one member involved, as well as those made by actively managed family firms, are significantly better-valued by market participants (higher CAR) than acquisitions made by family firms with several members involved, or those made by family firms not managed by family members.

Table 40 presents the results of the multivariate analysis using the different characteristics of family firms. Except for the regressions with the method of payment and the relatedness of the deals, the models and control variables used in Table 40 are the same as in Table 34 (for Models 1 and 2) and Table 38 (for Model 5). Due to the lack of variation in the dependent variable for the method of payment and for the relatedness of the deals in some regressions

Table 39: Deals characteristics, descriptive statistics, and bidder returns for family firms, based on firm characteristics

This table details the characteristics of the M&A deals (Panel A), the summary statistics (Panel B), and the bidder returns (Panel C) for the subsample of family firms based on firm characteristics. Column 1 shows the means for the main variables for the entire subsample of family firms. Columns 2-3 decompose the subsample according to the generation of the firm, Columns 4-5 decompose the subsample according to the presence of either one family member or several, and Columns 6-7 decompose the subsample according to the active or passive involvement of the family in the management. The table also provides the results of the difference in means tests between the groups, that is, between family firms at the founder stage (FFF) and family firms at the descendant stage (FFD), between family firms with only one family member involved (LM) and family firms with several ones (SM), and family firms actively involved in management (AFF) and family firms not actively involved in management (PFF). A more detailed description of the variables is given in Table 29. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	Family firms	Founder stage	Descen-dant stage	Lone member	Several members	Active family	Passive family	Difference in means tests		
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	FFF vs. FFD	LM vs. SM	AFF vs. PFF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Deals characteristics										
Transaction value (in mio CHF)	257	258	256	233	261	195	301	1	-27	-106
Mean of payment										
Cash deals	0.96	1.00	0.93	0.91	0.96	0.96	0.95	0.0652*	-0.0558	0.0117
Equity deals	0.04	0.00	0.07	0.09	0.04	0.04	0.05	-0.0652*	0.0558	-0.0117
Other means	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Undiversified deals	0.49	0.79	0.36	0.42	0.51	0.53	0.47	0.4332***	-0.0910	0.0646
N	77	24	53	12	65	32	45			

Panel B: Descriptive statistics										
M&A	0.09	0.09	0.10	0.06	0.10	0.07	0.14	-0.0100	-0.0432*	-0.0670**
N_M&A	0.13	0.11	0.14	0.08	0.14	0.08	0.21	-0.0349	-0.0597	-0.1331***
Size (in mio CHF)	5146	3329	6301	5778	4952	3005	8808	-2972**	827	-5803***
Tangible assets	0.26	0.22	0.28	0.27	0.26	0.26	0.25	-0.0602***	0.0077	0.0133
Cash holding	0.19	0.20	0.19	0.16	0.20	0.21	0.17	0.0073	-0.0367**	0.0408***
Leverage	0.17	0.16	0.17	0.19	0.17	0.17	0.18	-0.0096	0.0204	-0.0152
Market-to-book	2.59	2.66	2.54	3.10	2.43	2.56	2.63	0.1179	0.6750***	-0.0661
Return-on-assets	0.11	0.08	0.13	0.13	0.10	0.10	0.12	-0.0471***	0.0334***	-0.0227**
Sales growth	0.10	0.15	0.08	0.12	0.10	0.10	0.11	0.0712***	0.0197	-0.0094
N	604	227	377	146	458	394	210			

Panel C: Bidder return										
Cumulative abnormal returns (CAR)	0.0148***	0.0155	0.0145***	0.0419**	0.0098**	0.0282***	0.0053	0.0010	0.0321*	0.0229**
N	77	24	53	12	65	32	45			

Table 40: Multivariate analysis based on firm characteristics of family firms

This table presents the coefficients and standard errors of the multivariate analysis. In Columns 1-3 (Model 1), the dependent variable is a dummy variable that takes on the value 1 if firm *i* is engaging in at least one M&A in year *t*; otherwise, its value is 0. Regressions are performed using a logit method with standard errors double-clustered, as suggested by Petersen (2009), to account for unobserved time and firm effects. In Columns 4-6 (Model 2), the dependent variable is a count variable which represents the number of acquisitions made by a given firm in a given year. Parameters are estimated using standard negative binomial regressions with robust standard errors (see Cameron and Trivedi (1986)). In Columns 7-9 (Model 3) and 10-12 (Model 4), the dependent variable is a dummy variable that takes on the value 1 if firm *i* is engaging in at least one equity deal or at least one undiversified deal, respectively, in year *t*; otherwise, its value is 0. Regressions are performed using a logit method with standard errors double-clustered, as suggested by Petersen (2009), to account for unobserved time and firm effects. In Columns 13-15 (Model 5), the dependent variable is the cumulative abnormal returns (CAR). A market model and an estimation window of -220 days to -21 days before the announcement date is used to calculate the beta and alpha coefficients. They are then used to calculate the predicted returns for the period -20 days to +20 days, which are subtracted from the real returns to obtain abnormal returns (AR). CAR is calculated by adding the AR over the three-day period surrounding the announcement date (-1, 0, +1). Parameters are estimated using ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level. All regressions include as independent variables different ownership variables, control variables, year dummies, and industry dummies, depending on the model tested. The period of analysis runs from January 2003 to December 2013. Ownership variables may include: FOUNDER STAGE and DESCENDANT STAGE, LONE MEMBER and SEVERAL MEMBERS, and ACTIVE FAMILY and PASSIVE FAMILY. All regressions include the following control variables: SIZE, TANGIBLE ASSETS, CASH HOLDING, LEVERAGE, MARKET-TO-BOOK, RETURN-ON-ASSETS, and SALES GROWTH. Model 3 also includes RELATIVE SIZE and Model 5 also includes PUBLIC TARGET, UNDIVERSIFIED DEALS, and RELATIVE SIZE. Further information on all variables is provided in Table 29. Except for the ownership variables, PUBLIC TARGET, UNDIVERSIFIED DEALS, and RELATIVE SIZE, all other independent variables are winsorized at 0.01 and 0.99, and lagged for one year. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively. Standard errors are in parentheses. α is a *t*-test for overdispersion. For Models 1, 2, and 4, Pseudo R^2 is presented, whereas for Models 3 and 5, R^2 is presented.

	M&A dummy (model 1)			Number of M&A (model 2)			Equity deals dummy (model 3)			Undiversified deals dummy (model 4)			Bidder returns (model 5)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Founder stage	-0.746**			-0.718***			-0.010**			-0.011			-0.014*		
	(0.345)			(0.248)			(0.004)			(0.027)			(0.008)		
Descendant stage	-0.349			-0.286			-0.001			-0.039**			-0.002		
	(0.293)			(0.179)			(0.005)			(0.016)			(0.006)		
Lone member		-1.248**			-1.036***			-0.007*			-0.072***			0.008	
		(0.556)			(0.349)			(0.004)			(0.023)			(0.012)	
Several members		-0.290			-0.287*			-0.004			-0.016			-0.009*	
		(0.260)			(0.162)			(0.005)			(0.020)			(0.005)	
Active family			-0.739**			-0.776***			-0.008**			-0.031**			0.001
			(0.299)			(0.215)			(0.003)			(0.014)			(0.010)
Passive family			-0.203			-0.097			0.001			-0.025			-0.012*
			(0.273)			(0.190)			(0.008)			(0.026)			(0.007)

Public target													-0.000	-0.000	0.000
													(0.007)	(0.007)	(0.007)
Undiversified deals													0.007*	0.006*	0.006
													(0.004)	(0.004)	(0.004)
Relative size							2.339***	2.344***	2.334***				0.346	0.331	0.352
							(0.854)	(0.852)	(0.853)				(0.252)	(0.253)	(0.254)
Size	0.469***	0.484***	0.466***	0.436***	0.445***	0.430***	-0.001	-0.001	-0.001	0.028***	0.028***	0.028***	-0.009***	-0.008***	-0.008***
	(0.054)	(0.051)	(0.053)	(0.036)	(0.036)	(0.035)	(0.001)	(0.001)	(0.001)	(0.006)	(0.005)	(0.006)	(0.001)	(0.001)	(0.001)
Tangible assets	-3.005***	-2.700***	-2.943***	-2.623***	-2.298***	-2.605***	-0.017	-0.016	-0.016	-0.120***	-0.123***	-0.123***	-0.046	-0.031	-0.023
	(0.970)	(0.937)	(0.962)	(0.612)	(0.582)	(0.607)	(0.011)	(0.011)	(0.011)	(0.041)	(0.041)	(0.041)	(0.031)	(0.026)	(0.030)
Cash holding	-0.805	-0.779	-0.590	-0.430	-0.365	-0.182	0.015	0.016	0.017	-0.143***	-0.157***	-0.149***	0.046*	0.053**	0.050*
	(0.800)	(0.822)	(0.787)	(0.699)	(0.703)	(0.688)	(0.021)	(0.021)	(0.021)	(0.052)	(0.054)	(0.054)	(0.027)	(0.026)	(0.026)
Leverage	0.561	0.400	0.544	0.600	0.457	0.559	-0.009	-0.009	-0.009	0.059	0.061	0.059	0.016	0.020	0.011
	(0.828)	(0.833)	(0.840)	(0.568)	(0.573)	(0.576)	(0.014)	(0.014)	(0.014)	(0.045)	(0.045)	(0.045)	(0.023)	(0.028)	(0.024)
Market-to-book	-0.065	-0.058	-0.064	-0.040	-0.033	-0.042	-0.000	-0.000	-0.000	-0.003	-0.003	-0.003	-0.000	-0.000	-0.000
	(0.054)	(0.055)	(0.054)	(0.044)	(0.045)	(0.044)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
Return-on-assets	0.914	0.852	0.981	1.115	1.102	1.212	-0.023	-0.022	-0.022	0.001	-0.001	-0.002	0.131**	0.119**	0.125***
	(0.910)	(0.923)	(0.910)	(0.844)	(0.849)	(0.844)	(0.020)	(0.020)	(0.020)	(0.039)	(0.040)	(0.041)	(0.051)	(0.049)	(0.047)
Growth sales	0.189	0.191	0.158	0.074	0.080	0.039	0.010	0.009	0.009	0.000	0.002	0.002	-0.021	-0.020	-0.019
	(0.440)	(0.433)	(0.433)	(0.289)	(0.290)	(0.285)	(0.012)	(0.012)	(0.012)	(0.021)	(0.021)	(0.021)	(0.015)	(0.015)	(0.015)
Intercept	-7.127***	-7.397***	-7.167***	-7.560***	-7.755***	-7.554***	0.027*	0.026	0.026*	-0.216***	-0.212***	-0.207**	0.086***	0.074***	0.070***
	(0.842)	(0.803)	(0.819)	(0.627)	(0.624)	(0.609)	(0.016)	(0.016)	(0.016)	(0.084)	(0.081)	(0.082)	(0.019)	(0.017)	(0.019)
α (Overdispersion)				-0.601	-0.641	-0.710									
				(0.414)	(0.438)	(0.462)									
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
N	1521	1521	1521	1563	1563	1563	1563	1563	1563	1563	1563	1563	252	252	252
Log-likelihood	-457.69	-455.22	-456.94	-579.41	-577.82	-577.38									
X^2 (LR test)	167.4***	170.8***	168.9***	12488***	95223***	12292***									
Pseudo R^2 / R^2	0.1784	0.1828	0.1797	0.1870	0.1892	0.1899	0.0464	0.0457	0.0466	0.0802	0.0824	0.0792	0.1918	0.1940	0.1942
Method	Logit			Standard negative binomial			OLS			OLS			OLS		
Standard errors	Double-clustered (time and firm level)			Robust			Double-clustered (time and firm level)			Double-clustered (time and firm level)			Double-clustered (time and firm level)		

(few observations), the parameters of Models 3 and 4 are estimated using Ordinary Least Squares with two-dimensional clustering of standard errors at time and firm level, instead of the logit method. To go deeper into some analyses, Appendix 15 presents the results for the regressions using interaction terms between the different characteristics of family firms.

Consistent with the hypothesis and the univariate tests, family firms with the least disputable power have a more negative effect on the probability (Columns 1-3) and the number of M&A (Columns 3-6), and on the use of stock as a means of payment (Columns 7-9). Thus, family firms at the founder stage, family firms with only one family member involved, and family firms actively managed by the family dislike using M&A as an investment opportunity to grow; when they decide to engage in M&A, they prefer to pay in cash to avoid diluting their share capital. This result is consistent with Bauguess and Stegemoller (2008), who find a negative effect of founder- and descendant-CEO's on the probability of engaging in M&A. Therefore, the negative coefficients found for family firms in Tables 34 and 35 are driven by family firms whose main shareholder is powerful and can directly influence firm decisions. Appendix 15 (Columns 2 and 5) shows that the negative effect on the frequency of M&A is mainly driven by founders who operate alone.

Concerning the relatedness of the deals (Columns 10-12), the results support the portfolio diversification hypothesis (Miller et al. (2010)) and add to the results from Table 36. Family firms with only one family member involved (Column 11) and those actively managed by the family (Column 12) can more easily influence firm decisions; they prefer to engage in M&A with firms in other industries so as to diversify their own asset allocation and reduce their portfolio risk. As expected, this effect is more important for family firms at the descendant stage (Column 10) than for those at the founder stage, especially when descendants are actively involved in the firm (Appendix 15, Column 10). Contrary to descendants, founders are more concerned with the success and growth of their firms than with diversifying their own wealth.

As discussed in Section 2.4, the relationship between firm characteristics of family firms and value creation concerning M&A is not straightforward and depends on how the alignment effect and the expropriation effect vary among family firms. The results from Model 5 using the CAR as dependent variables (Columns 13-15) show slightly significant associations.

Family firms at the founder stage generate less value surrounding the announcement date than family firms at the descendant stage (Column 13). This result is surprising since past literature on family firms and performance (e.g. Isakov and Weisskopf (2014a); Fahlenbrach (2009); Villalonga and Amit (2006)) finds a positive relationship between different

performance measures[84] and the founder (i.e. the 'founder effect'). Furthermore, André et al. (2014) find that founder-CEO firms engage in more value-enhancing high-technology M&A (higher CAR) than descendant-CEO firms or hired-CEO firms. However, the interaction between the generation and the active involvement of the family (Appendix 15, Column 13) helps make sense of this puzzle and shows that the aforementioned negative effect of the founder originates with family firms at the founder stage that are not actively managed by the family (coefficient negative and highly significant). Similar to Bauguess and Stegemoller (2008), I do not find statistically significant relationships among the active founders nor among the active descendants.

Concerning the presence of one or several family members (Column 14) and the active involvement of the family (Column 15), the positive and significant difference found in the univariate analysis is due to a significant decrease in value for family firms with several family members as well as those not actively managed by the family. Family firms with several family members involved in the company might therefore perform acquisitions that serve the family's interests more than the interests of all shareholders (higher expropriation effect). In the same way, outside managers of family firms might extract private benefits when engaging in M&A (smaller alignment effect). In both cases, market participants see their acquisitions negatively and there is a decline in value creation surrounding the announcement date of the M&A.

5. Discussion

As pointed out in past studies, the results found thus far might suffer from the problem of endogeneity (Demsetz and Villalonga (2001); Himmelberg et al. (1999); Loderer and Martin (1997); Demsetz and Lehn (1985)). They might be affected by this issue with respect to reversed causality[85] and omitted variables[86].

In its most common and simplest form, the observed relationship between ownership characteristics and performance is the result of reversed causality (Bouzgarrou and Navatte (2013)). In the case of family ownership, strong performance might make families want to keep their shares, whereas poor performance might be a reason for families to sell their shares (Andres (2008)). In this scenario, family members might not incite better performance,

[84] Tobin's Q, ROA, or stock market returns.

[85] Reversed causality means that Y causes changes in X, instead of the initial (supposed) relationship in which X causes changes in Y.

[86] The relationships previously found concerning the ownership structure variables might not actually be driven by them, but by other factors which have not been considered in the models.

but better performance could cause family members to stay with the firm. In the case of value creation around the announcement date of the M&A, the same reasoning can be applied. However, this is not the only relationship in this study that might suffer from the endogeneity issue. Each of the other four main dependent variables[87] may also wrestle with the problem of reversed causality. For example, an increase in the number of M&A undertaken by a family firm might cause the company to issue new shares, which might dilute the family stake. This is even more likely when deals are paid with equity. By the same token, an increase in the number of undiversified M&A undertaken by a family firm can cause the family to sell their shares, if they want to diversify their wealth by using the money to buy other assets.

However, the argument of reversed causality, originally associated with managerial ownership (Himmelberg et al. (1999)), is questionable when applied to family ownership. Family firms are often older companies with family members who have stayed with their companies through good and bad times (Andres (2008)). During the observed period, ownership stakes of families remain stable from year to year, with few of them increasing or decreasing their position. Per year, family firms have only changed their stake by an average of +0.05%, and those engaging in more M&A have not changed differently their position relative to those who are less active.[88] However, one concern is that this stability might be in itself endogenous.[89]

To provide evidence that reversed causality is unlikely in this setting, the main tests are rerun using two different approaches.[90] In the first one, cross-sectional regressions are performed instead of firm-year, and only one observation per company is used.[91] This approach eliminates the problem of non-stability, but reduces the power of the tests, as sample size significantly decreases. In the second approach, family firms that have at least one absolute stake change greater than 10% during the observed period are excluded from the panel data set. This new sample includes only family firms with a relatively stable ownership structure

[87] M&A dummy, number of M&A, equity deals dummy, and undiversified deals dummy.

[88] When ranked by the average percentage of M&A engaged in per year, family firms in the higher 75th (90th) percentile have annually changed their stake by an average of -0.5% (+2.35%), versus +0.2% (-0.2%) for their counterparts. The results are therefore small and not consistent.

[89] For example, the stability might itself be caused by the performance of firms that end up staying under family control.

[90] I thank Prof. Francesco D'Acunto of the University of Maryland (USA) for this suggestion. These tests do not completely rule out the issue, but they make reverse causality concerns much less relevant.

[91] For the cross-sectional regressions, in order to maximize the number of observations and avoid the hazards of choosing only one year, I use the following method to end up with one observation per company. The M&A dummy, the equity dummy, and the undiversified dummy are equal to 1 if at least one M&A, one equity deal, or one undiversified deal is made during the eleven-year period by a given firm. The number of M&A is equal to the total number of M&A engaged in during the eleven-year period by a given firm. Medians over the eleven-year period for each firm are used for the ownership and dummy variables, and averages are used for the remaining control variables.

and remains large enough to ensure the power of the tests. Both tests support with evidence the claim that family firm ownership status is stable, and therefore it is unlikely that family ownership status would react to events like M&A. If reversed causality was a bigger issue, then the effects found in the primary regressions would be driven by firms whose ownership structure changed more frequently across the sample. In fact, for these firms, changes in family ownership are more likely, and therefore the owners are more likely to react to events. Moreover, the cross-sectional test helps mitigate the issue that the panel regression results are partly obtained by using several observations for the same firm over time that are highly correlated with each other. Running the cross-sectional regressions allows for ruling out this concern. The results (see Appendices 16 and 17 for the family dummy), though less significant in the cross-sectional regressions, remain similar in terms of positive/negative designation and magnitude for both tests. The primary results should therefore not be attributed to either of these two issues.

Some studies formally address the endogeneity issue among family firms by using the Durbin-Wu-Hausman test and/or instrumental variables[92]. They find a rejection of endogeneity and/or estimates from IV regressions consistent with those from previous regressions. Similar to Roosenboom and Schramade (2006), I test for endogeneity using the Durbin-Wu-Hausman test as augmented by Davidson and MacKinnon (1993). In a first step, the possible endogenous variables are regressed against all exogenous variables, and their residuals are estimated. The test is then performed by including the residuals in a regression of the original model and seeing whether the coefficients of the residuals are significantly different from 'zero'. I find that none of the ownership variables are endogenous.[93]

Another way to alleviate the endogeneity issues of reversed causality and omitted variables is to use matching estimators (see for example, Anderson et al. (2017); Attig et al. (2016)). The aim is to match each treated firm (e.g. a family firm) with a nontreated firm (e.g. a nonfamily firm) that has very similar characteristics, compute the differences across all pairs for the variables of interest, then average the differences and test if the average is different from 'zero'. The matching method offers a solution to the endogeneity problem, but has the drawbacks of greatly reducing the sample size and the power of the test. I determine if the previous results are robust by performing propensity score matching. Treated and nontreated

[92] Tsoutsoura (2015) uses the gender of each entrepreneur's first-born child as an instrument for family succession. Bouzgarrou and Navatte (2013) instrument family control using the natural log of total assets, the monthly stock return volatility, and the alpha of stocks. Andres (2008) uses the lagged values of all ownership variables as instruments. Roosenboom and Schramade (2006) instrument CEO cash-flow ownership with CEO founder status and CEO tenure.

[93] For example, the M&A dummy, the number of M&A, the equity deals dummy, the undiversified deals dummy, and the CAR are not endogenous to the family dummy (*p*-values=0.87, 0.61, 0.69, 0.27, and 0.65, respectively).

firms are matched according to the closest propensity score, which is estimated using the same set of control variables as before.[94] For most of the main variables, the results obtained using the matching method are consistent with the previous results.[95]

Although these tests are open to criticism and do not provide a perfect solution to the endogeneity problem, the results presented in this paper should not suffer too much from it.

6. Conclusion

The presence of large shareholders—especially families—in listed companies around the world is widely documented. However, their investment decisions and their impact on firm performance remains unclear. This paper addresses this issue by looking at one of the most important strategic decisions a firm faces: mergers and acquisitions. Ownership structure—especially family ownership—might play a key role in explaining the engagement in M&A, since blockholders, or families, have enough power to influence decisions. On the one hand, they might prevent overly risky or non-value-enhancing acquisitions, which favors all shareholders (alignment effect); on the other hand, they might also choose to engage in M&A that favor their own interests at the expense of the other shareholders (entrenchment effect).

To conduct the study, panel data for the years 2003 to 2013 for a sample of 195 non-financial companies listed on the SIX Swiss Exchange (1,703 firms-year observations) and 256 M&A transactions are used. Both univariate and multivariate tests are performed. The paper first looks at the impact of different ownership structures on the number of completed deals and on the probability of engaging in M&A for a given firm in a given year, as well as the probability of engaging in equity deals and undiversified deals. It then analyzes the value creation surrounding the announcement date of the M&A by calculating abnormal returns using the event study methodology. Lastly, the paper focuses on family firms and looks at the impact of several unique characteristics of family firms, such as the generation of the family, the

[94] The inclusion of all variables means not having to justify which variables to include or exclude from the computation of the propensity score, but it has the drawback of providing less accurate matchings. In fact, in the case of family firms versus nonfamily firms, a *t*-test for the equality of the means of propensity scores between treated and control firms rejects the null that the two means are the same. However, as shown in Appendix 18, the distribution of the two propensity scores substantially overlaps. This provides some evidence that, ex post, the propensity scores of matched family and nonfamily firms are still similar enough for the matching to make sense.

[95] For example, the *t*-stats between family firms and nonfamily firms are -2.32** (M&A dummy), -2.36** (number of M&A), -0.95 (equity deals), -2.33** (undiversified deals), and -1.42 (CAR).

involvement of the family in the management, and the presence of one or several family members as shareholder.

First, the results show that family firms engage in fewer M&A than nonfamily firms and widely held firms. After taking into account other firm characteristics that could influence M&A decisions, both the family dummy and the family stake variables show negative and statistically significant coefficients. Having a family as the main shareholder decreases the number of M&A and the probability of initiating M&A, and the larger the stake is, the smaller the probability is. This result for Swiss family firms is consistent with the findings of past literature on different markets (Caprio et al. (2011); Shim and Okamuro (2011); Miller et al. (2010); Bauguess and Stegemoller (2008)). This decrease in the number of M&A is more pronounced among family firms with significantly more power, that is, family firms at the founder stage, family firms with only one family member involved, and family firms in which the family is actively managing the firm. When families have more say in the firm's decision-making, they prefer not to expand their business by engaging in M&A. This result is in line with Bauguess and Stegemoller (2008) who find a negative effect with both founder CEO's and descendant CEO's on the probability of taking part in M&A.

Second, the analysis of the propensity of equity deals shows less clear results. Family firms in Switzerland might engage in fewer equity deals, but results are not significant; this is partially consistent with the findings of Basu et al. (2009). However, widely held firms engage in more equity deals than other firms. Family firms with less contested power are also more reluctant to dilute their ownership stake by buying with stock. Family firms at the founder stage, with only one family member involved, or that are actively involved in management, make fewer equity deals than other firms.

Third, family firms in Switzerland engage in a higher number of diversified deals; the higher the stake, the more frequently this occurs, which is consistent with Aktas et al. (2016) for Europe, and Miller et al. (2010) for the USA. This result supports the hypothesis that acquiring firms in different sectors allows family members to diversify their asset allocation and reduce their portfolio risk. This relationship is even more pronounced in firms at the descendant stage, with only one family member involved or with the firm actively managed by the family.

Finally, concerning value creation, univariate tests of the cumulative abnormal returns (CAR) surrounding the announcement date reveal that the CAR for the entire sample and almost all types of ownership structure are statistically higher than 'zero'; this is consistent with recent literature on the positive effect of M&A on the acquirer's stock returns at the announcement (Martynova and Renneboog (2011); Masulis et al. (2007); Moeller et al. (2004)). However,

the results of the difference in means tests among the different ownership structures show no significant differences, except between family firms with one member involved and those with several members involved, and between family firms that are actively managed and those that are passively managed. Multivariate analysis confirms the non-existent relationship between the main ownership structure and value creation around the announcement date. Overall, family firms in Switzerland are neither value-destructive nor value-creating; this is consistent with the results of Caprio et al. (2011) for Continental Europe. However, in keeping with Basu et al. (2009) and Bouzgarrou and Navatte (2013), a significant nonlinear relationship (convex) is found between family ownership and value creation at the announcement. Family firms with high levels of family ownership generate higher abnormal returns than those with low levels of family ownership. Furthermore, acquisitions that are made by family firms at the founder stage without a key position in management, by family firms with several family members, and by family firms not actively managed by the family are less valued by market participants, and show a decrease in the CAR. The market sees these investments as less worthwhile because they might provide private benefits for the family at the expense of other shareholders.

To conclude, this study sheds light on the relationship between ownership structure, investment decisions, and value creation concerning M&A in Switzerland, a large market that has received little attention thus far. It contributes to the existing literature by providing evidence that the heterogeneity of family firms substantially shapes investment decisions and performance. Future research in that field should refrain from analyzing family firms as a homogenous group and address their specific characteristics. In addition, results show that a precise definition of family firms is important in order to capture the real effect of family ownership.

7. Appendix

Appendix 13: Descriptive statistics for cumulative abnormal returns for the main ownership structures

This table replicates Table 37, except that it shows the results for several event windows. The table presents the descriptive statistics for the entire sample and for the main ownership structures. The table presents the mean for the Cumulative Abnormal Returns (CAR), as well as the results of the difference in means tests between the major groups, that is, between family firms (FF) and nonfamily firms (NFF), between family firms (FF) and widely held firms (WH), and between family firms (FF) and other blockholder firms (OB). A market model and an estimation window of -220 days to -21 days before the announcement date is used to calculate the beta and alpha coefficients. They are then used to calculate the predicted returns for the period -20 days to +20 days, which are subtracted from the real returns to obtain abnormal returns (AR). CAR is calculated by adding the AR over the three-day period surrounding the announcement date (-1, 0, +1). Parametric tests that determine whether CAR is statistically different from zero are also performed, and presented with stars next to the coefficients. A more detailed description of the variables is given in Table 29. The number of observations is in firm-years. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	All	Family firms	Nonfamily firms	Widely held firms	Other blockholder	Difference in means tests		
	Mean	Mean	Mean	Mean	Mean	FF vs. NFF	FF vs. WH	FF vs. OB
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CAR [-1;+1]	0.0131***	0.0148***	0.0123***	0.0118***	0.0145**	0.0025	0.0030	0.0003
CAR [-2;+2]	0.0155***	0.0165***	0.0151***	0.0140***	0.0199**	0.0014	0.0025	-0.0034
CAR [-5;+5]	0.0158***	0.0120*	0.0174***	0.0170**	0.0188*	-0.0053	-0.0050	-0.0068
CAR [-10;+10]	0.0178***	0.0142*	0.0194***	0.0223***	0.0063	-0.0051	-0.0081	0.0079
CAR [-20;+20]	0.0204**	0.0254**	0.0183*	0.0275**	-0.0216	0.0071	-0.0021	0.0470**
N	254	77	177	144	33			

Appendix 14: Descriptive statistics for cumulative abnormal returns based on firm characteristics of family firms

This table replicates Table 39 Panel C, except that it shows the results for several event windows. The table presents the bidder returns for the subsample of family firms based on firm characteristics. Column 1 shows the means for the entire subsample of family firms. Columns 2-3 decompose the subsample according to the generation of the firm, Columns 4-5 decompose the subsample according to the presence of either one family member or several, and Columns 6-7 decompose the subsample according to the active or passive involvement of the family in the management. A market model and an estimation window of -220 days to -21 days before the announcement date is used to calculate the beta and alpha coefficients. They are then used to calculate the predicted returns for the period -20 days to +20 days, which are subtracted from the real returns to obtain abnormal returns (AR). CAR is calculated by adding the AR over the three-day period surrounding the announcement date (-1, 0, +1). Parametric tests that determine whether CAR is statistically different from zero are also performed, and presented with stars next to the coefficients. Columns 8-10 provide the results of the difference in means tests between the groups, that is, between family firms at the founder stage (FFF) and family firms at the descendant stage (FFD), between family firms with only one family member involved (LM) and family firms with several ones (SM), and family firms actively involved in management (AFF) and family firms not actively involved in management (PFF). A more detailed description of the variables is given in Table 29. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	Family firms	Founder stage	Descen-dant stage	Lone member	Several members	Active family	Passive family	Difference in means tests		
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	FFF vs. FFD	LM vs. SM	AFF vs. PFF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CAR [-1;+1]	0.0148***	0.0155	0.0145***	0.0419**	0.0098**	0.0282***	0.0053	0.0010	0.0321*	0.0229**
CAR [-2;+2]	0.0165***	0.0222	0.0139**	0.0434**	0.0115*	0.0339***	0.0040	0.0084	0.0320*	0.0299**
CAR [-5;+5]	0.0120*	0.0104	0.0128**	0.0313	0.0085	0.0272**	0.0012	-0.0024	0.0228	0.0260*
CAR [-10;+10]	0.0142*	0.0124	0.0150*	0.0078	0.0154*	0.0236	0.0075	-0.0026	-0.0076	0.0161
CAR [-20;+20]	0.0254**	0.0126	0.0311**	0.0524	0.0204	0.0454*	0.0111	-0.0185	0.0321	0.0342
N	77	24	53	12	65	32	45			

Appendix 15: Multivariate analysis based on firm characteristics of family firms with interaction terms

This table presents the coefficients and standard errors of the multivariate analysis, which includes interaction terms between the main independent variables. In Columns 1-3 (Model 1), the dependent variable is a dummy variable that takes on the value 1 if firm *i* is engaging in at least one M&A in year *t*; otherwise, its value is 0. Regressions are performed using a logit method with standard errors double-clustered, as suggested by Petersen (2009), to account for unobserved time and firm effects. In Columns 4-6 (Model 2), the dependent variable is a count variable which represents the number of acquisitions made by a given firm in a given year. Parameters are estimated using standard negative binomial regressions with robust standard errors (see Cameron and Trivedi (1986)). In Columns 7-9 (Model 3) and 10-12 (Model 4), the dependent variable is a dummy variable that takes on the value 1 if firm *i* is engaging in at least one equity deal or at least one undiversified deal, respectively, in year *t*; otherwise, its value is 0. Regressions are performed using a logit method with standard errors double-clustered, as suggested by Petersen (2009), to account for unobserved time and firm effects. In Columns 13-15 (Model 5), the dependent variable is the cumulative abnormal returns (CAR). A market model and an estimation window of -220 days to -21 days before the announcement date is used to calculate the beta and alpha coefficients. They are then used to calculate the predicted returns for the period -20 days to +20 days, which are subtracted from the real returns to obtain abnormal returns (AR). CAR is calculated by adding the AR over the three-day period surrounding the announcement date (-1, 0, +1). Parameters are estimated using ordinary least squares regressions with two-dimensional clustering of standard errors at time and firm level. All regressions include as independent variables different interaction terms between the main independent variables, control variables, year dummies, and industry dummies, depending on the model tested. The period of analysis runs from January 2003 to December 2013. Ownership variables may include interactions between FOUNDER STAGE / DESCENDANT STAGE and LONE MEMBER / SEVERAL MEMBERS, between FOUNDER STAGE / DESCENDANT STAGE and ACTIVE / PASSIVE FAMILY, and between LONE MEMBER / SEVERAL MEMBERS and ACTIVE / PASSIVE FAMILY. All regressions include the following control variables: SIZE, TANGIBLE ASSETS, CASH HOLDING, LEVERAGE, MARKET-TO-BOOK, RETURN-ON-ASSETS, and SALES GROWTH. Model 3 also includes RELATIVE SIZE and Model 5 also includes PUBLIC TARGET, UNDIVERSIFIED DEALS, and RELATIVE SIZE. Further information on all variables is provided in Table 29. Except for the firm characteristics variables, PUBLIC TARGET, UNDIVERSIFIED DEALS, and RELATIVE SIZE, all other independent variables are winsorized at 0.01 and 0.99, and lagged for one year. For Models 1, 2, and 4, Pseudo R^2 is presented, whereas for Models 3 and 5, R^2 is presented.

	M&A dummy (model 1)			Number of M&A (model 2)			Equity deals dummy (model 3)			Undiversified deals dummy (model 4)			Bidder returns (model 5)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Founder stage * Active family	-0.634**			-0.664**			-0.009***			-0.009			-0.004		
	(0.321)			(0.280)			(0.004)			(0.019)			(0.010)		
Founder stage * Passive family	-0.942			-0.746			-0.008			0.000			-0.052***		
	(0.811)			(0.460)			(0.005)			(0.056)			(0.003)		
Descendant stage * Active family	-0.885*			-0.940***			-0.005*			-0.049***			0.006		
	(0.455)			(0.309)			(0.003)			(0.015)			(0.015)		
Descendant stage * Passive family	-0.004			0.060			0.005			-0.030			-0.004		
	(0.257)			(0.209)			(0.010)			(0.026)			(0.006)		
Founder stage * Lone member		-1.516**			-1.376***			-0.007*			-0.061*			0.003	
		(0.760)			(0.471)			(0.003)			(0.036)			(0.015)	
Founder stage * Several members		-0.338			-0.380			-0.011**			0.019			-0.019**	
		(0.366)			(0.262)			(0.005)			(0.038)			(0.009)	
Descendant stage * Lone member		-0.852			-0.578			-0.007			-0.087***			0.014	
		(0.574)			(0.504)			(0.005)			(0.027)			(0.014)	
Descendant stage * Several members		-0.272			-0.242			-0.000			-0.031*			-0.004	
		(0.304)			(0.190)			(0.006)			(0.017)			(0.006)	
Lone member * Active family			-1.220**			-1.066**			-0.008**			-0.057**			0.011
			(0.522)			(0.420)			(0.004)			(0.028)			(0.012)
Lone member * Passive family			-1.327			-0.942			-0.003			-0.117***			-0.006
			(0.976)			(0.683)			(0.004)			(0.025)			(0.010)
Several members * Active family			-0.535			-0.638***			-0.008**			-0.021			-0.004
			(0.334)			(0.234)			(0.003)			(0.019)			(0.011)
Several members * Passive family			-0.030			0.011			0.002			-0.009			-0.012*
			(0.267)			(0.196)			(0.010)			(0.028)			(0.007)
Public target													0.002	0.000	0.000
													(0.007)	(0.007)	(0.007)
Undiversified deals													0.008**	0.008**	0.006
													(0.004)	(0.004)	(0.004)
Relative size							2.328***	2.339***	2.331***				0.344	0.325	0.333
							(0.854)	(0.853)	(0.856)				(0.256)	(0.254)	(0.261)

Size	0.462***	0.482***	0.478***	0.426***	0.440***	0.432***	-0.001	-0.001	-0.001	0.028***	0.028***	0.028***	-0.008***	-0.008***	-0.008***
	(0.054)	(0.053)	(0.051)	(0.035)	(0.036)	(0.036)	(0.001)	(0.001)	(0.001)	(0.006)	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)
Tangible assets	-3.141***	-2.811***	-2.714***	-2.812***	-2.483***	-2.435***	-0.017	-0.018	-0.015	-0.116***	-0.117***	-0.116***	-0.050	-0.049	-0.025
	(1.004)	(0.970)	(0.957)	(0.646)	(0.618)	(0.620)	(0.011)	(0.011)	(0.011)	(0.041)	(0.040)	(0.040)	(0.031)	(0.032)	(0.030)
Cash holding	-0.665	-0.832	-0.681	-0.240	-0.458	-0.257	0.016	0.014	0.018	-0.135***	-0.148***	-0.153***	0.038	0.045*	0.052**
	(0.810)	(0.815)	(0.802)	(0.702)	(0.714)	(0.704)	(0.021)	(0.021)	(0.022)	(0.052)	(0.053)	(0.056)	(0.025)	(0.026)	(0.026)
Leverage	0.564	0.397	0.392	0.570	0.450	0.411	-0.009	-0.009	-0.009	0.060	0.061	0.060	0.017	0.025	0.016
	(0.835)	(0.833)	(0.830)	(0.578)	(0.568)	(0.579)	(0.014)	(0.014)	(0.014)	(0.046)	(0.046)	(0.045)	(0.023)	(0.028)	(0.028)
Market-to-book	-0.068	-0.063	-0.058	-0.046	-0.037	-0.036	-0.000	-0.000	-0.000	-0.003	-0.003	-0.003	-0.000	-0.001	-0.000
	(0.053)	(0.058)	(0.054)	(0.043)	(0.045)	(0.043)	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)
Return-on-assets	0.977	0.877	0.924	1.196	1.123	1.207	-0.023	-0.024	-0.022	0.003	0.006	-0.001	0.126**	0.122**	0.122**
	(0.899)	(0.916)	(0.935)	(0.842)	(0.856)	(0.856)	(0.020)	(0.020)	(0.020)	(0.039)	(0.039)	(0.040)	(0.050)	(0.052)	(0.049)
Growth sales	0.171	0.193	0.186	0.047	0.080	0.069	0.009	0.010	0.009	-0.000	-0.001	0.003	-0.020	-0.021	-0.019
	(0.437)	(0.438)	(0.431)	(0.285)	(0.289)	(0.287)	(0.012)	(0.012)	(0.012)	(0.021)	(0.022)	(0.021)	(0.015)	(0.015)	(0.015)
Intercept	-6.993***	-7.330***	-7.332***	-7.390***	-7.630***	-7.578***	0.028*	0.028*	0.026	-0.220***	-0.226***	-0.216***	0.083***	0.084***	0.070***
	(0.856)	(0.832)	(0.799)	(0.622)	(0.626)	(0.614)	(0.016)	(0.016)	(0.016)	(0.085)	(0.082)	(0.080)	(0.019)	(0.019)	(0.020)
α (Overdispersion)				-0.753	-0.658	-0.740									
				(0.475)	(0.440)	(0.484)									
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
N	1521	1521	1521	1563	1563	1563	1563	1563	1563	1563	1563	1563	252	252	252
Log-likelihood	-454.79	-454.83	-454.15	-574.90	-576.97	-575.44									
X^2 (LR test)	171.5***	168.3***	174.3***	12188***	13150***	12743***									
Pseudo R^2 / R^2	0.1836	0.1835	0.1847	0.1934	0.1904	0.1926	0.0472	0.0466	0.0467	0.0810	0.0848	0.0834	0.2126	0.1992	0.1970
Method	Logit			Standard negative binomial			OLS			OLS			OLS		
Standard errors	Double-clustered (time and firm level)			Robust			Double-clustered (time and firm level)			Double-clustered (time and firm level)			Double-clustered (time and firm level)		

Appendix 16: Multivariate cross-sectional regressions for the family dummy

This table replicates Tables 34 (Columns 1 and 6), 35 (Column 1), 36 (Column 1) and 38 (Column 1) by using cross-sectional regressions instead of firm-year for the family dummy. The M&A dummy (Model 1), the equity dummy (Model 3), and the undiversified dummy (Model 4) are equal to 1 if at least one M&A, one equity deal, or one undiversified deal is undertaken during the eleven-year period by a given firm. The number of M&A (Model 2) is equal to the total number of M&A undertaken during the eleven-year period by a given firm. The CAR (Model 5) is equal to the average CAR over the eleven-year period. Medians over the eleven-year period for each firm are used for the ownership and dummy variables, while averages are used for the remaining control variables. Further information on all variables is provided in Table 29, and for each Model in its respective table.

	M&A dummy	Number of M&A	Equity deals dummy	Undiversified deals dummy	Bidder returns
	(1)	(2)	(3)	(4)	(5)
Family firms	-0.532	-0.420*	-1.821	-0.746	0.002
	(0.426)	(0.238)	(1.557)	(0.495)	(0.009)
Public target					0.013
					(0.028)
Undiversified deals					0.002
					(0.010)
Relative size			473.487***		0.218
			(183.147)		(0.350)
Size	0.770***	0.583***	0.045	0.737***	-0.009***
	(0.191)	(0.066)	(0.128)	(0.141)	(0.002)
Tangible assets	-5.053***	-3.322***	-7.454*	-4.560***	-0.043
	(1.495)	(0.813)	(4.372)	(1.474)	(0.045)
Cash holding	-0.762	-1.279	-1.214	-5.399***	0.085*
	(1.837)	(1.200)	(1.724)	(2.015)	(0.044)
Leverage	2.542	1.140	2.309	3.858**	0.052
	(1.582)	(0.987)	(1.824)	(1.733)	(0.046)
Market-to-book	-0.329**	-0.198**	-0.040	-0.148	-0.004*
	(0.167)	(0.096)	(0.144)	(0.130)	(0.002)
Return-on-assets	2.744	0.751	-4.456**	0.634	0.136
	(2.556)	(1.406)	(1.888)	(2.238)	(0.087)
Growth sales	0.720	0.387	2.196*	-0.541	0.006
	(0.666)	(0.386)	(1.154)	(0.962)	(0.025)
Intercept	-8.753***	-6.077***	-1.821	-7.900***	0.078**
	(2.342)	(0.881)	(1.594)	(1.752)	(0.037)
α (Overdispersion)		-0.509*			
		(0.309)			
Industry dummies	Yes	Yes	No	Yes	Yes
N	179	185	185	179	67
Log-likelihood	-83.21	-214.27	-27.28	-72.85	
X2 (LR test)	35.21***	.	38.46***	57.34***	
Pseudo R2 / R2	0.3181	0.2217	0.2989	0.3301	0.36
Method	Logit	Standard negative binomial	Logit	Logit	OLS
Standard errors	Clustered (firm level)	Robust	Clustered (firm level)	Clustered (firm level)	Clustered (firm level)

Appendix 17: Multivariate regressions for the family dummy for family firms with stable ownership

This table replicates Tables 34 (Columns 1 and 6), 35 (Column 1), 36 (Column 1), and 38 (Column 1), except that it excludes family firms that had at least one absolute stake change greater than 10% during the eleven-year period. Further information on all variables is provided in Table 29, and for each Model in its respective table.

	M&A dummy	Number of M&A	Equity deals dummy	Undiversified deals dummy	Bidder returns
	(1)	(2)	(3)	(4)	(5)
Family firms	-0.628**	-0.536***	-0.584	-0.720**	-0.005
	(0.299)	(0.189)	(0.977)	(0.367)	(0.005)
Public target					-0.004
					(0.007)
Undiversified deals					0.007**
					(0.003)
Relative size			58.033***		0.239
			(13.226)		(0.309)
Size	0.496***	0.453***	-0.164	0.396***	-0.009***
	(0.066)	(0.039)	(0.127)	(0.055)	(0.001)
Tangible assets	-2.879***	-2.329***	-6.888*	-2.906***	-0.039
	(0.909)	(0.591)	(3.995)	(0.898)	(0.034)
Cash holding	-1.056	-0.492	-0.207	-2.972**	0.061*
	(0.943)	(0.816)	(1.382)	(1.226)	(0.032)
Leverage	0.277	0.553	-1.450	0.700	0.017
	(1.003)	(0.611)	(2.239)	(1.124)	(0.024)
Market-to-book	-0.083**	-0.049	-0.009	-0.100*	-0.002
	(0.038)	(0.049)	(0.080)	(0.055)	(0.001)
Return-on-assets	1.191	1.387	-1.012	1.737	0.171***
	(0.886)	(0.892)	(1.222)	(1.304)	(0.049)
Growth sales	0.183	0.064	0.463	0.251	-0.018
	(0.457)	(0.332)	(0.442)	(0.582)	(0.017)
Intercept	-7.410***	-7.735***	-1.288	-6.509***	0.074***
	(0.964)	(0.668)	(2.030)	(1.073)	(0.022)
α (Overdispersion)		-0.388			
		(0.371)			
Industry dummies	Yes	Yes	No	Yes	Yes
Year dummies	No	Yes	No	No	No
N	1318	1360	1360	1318	221
Log-likelihood	-392.54	-505.01	-50.50	-268.24	
X2 (LR test)	136.19***	9256.40***	55.89***	81.80***	
Pseudo R2 / R2	0.1844	0. 1864	0.2103	0.1561	0.2102
Method	Logit	Standard negative binomial	Logit	Logit	OLS
Standard errors	Double-clustered (time and firm level)	Robust	Double-clustered (time and firm level)	Double-clustered (time and firm level)	Double-clustered (time and firm level)

Appendix 18: Distribution of the propensity scores

This figure presents the distribution of the propensity scores using the entire set of control variables for family firms (blue line) and nonfamily firms (red line). The x-axis shows the propensity score and the y-axis shows the Kernel density.

Conclusion

The family firm is one of the most common forms of business entity in the world. Family ownership is widespread among unlisted firms (Colli (2003); Gersick et al. (1997)) as well as listed firms (Carney and Child (2013); Villalonga and Amit (2010); Barontini and Caprio (2006); Anderson and Reeb (2003a); Faccio and Lang (2002)). Families are a special and unique type of shareholder (Bennedsen and Fan (2014)) and are different from other shareholders or blockholders. Their wealth is almost fully invested in their company (Anderson et al. (2003)), they are more long-term-oriented and seek the firm's survival (Cheng (2014)), and they face more reputation concerns (Sageder et al. (2016)). Furthermore, family firms are not a homogenous group (Arregle et al. (2007)) and firms may differ considerably within the group. For example, the generation of the family, the involvement of the family in the management of the firm, or the presence of multiple family members may have an impact on the behavior of the firm.

Although there is no unique and fully accepted 'theory of the family firm' (Chrisman et al. (2005)), several theoretical explanations have been provided to explain the differences between family firms and nonfamily firms. The most widespread one—particularly in finance—is the agency conflict framework (Pindado and Requejo (2015); Villalonga et al. (2015)). In short, family firms face more severe Type II agency problems between majority and minority shareholders (entrenchment effect), and less severe Type I agency problems between managers and shareholders (alignment effect).

The impact of family firms has been one of the leading research subjects in finance since the early 2000's (Villalonga et al. (2015)). A growing body of literature focuses on the impact of family firms on corporate and financial decisions, and their differences from other firms. Empirical studies address this question by looking at several specific features, such as board composition (e.g. Villalonga and Amit (2009); Anderson and Reeb (2004)), dividend policy (e.g. Isakov and Weisskopf (2015); Gonzáles et al. (2014); Villalonga and Amit (2006)), diversification (e.g. Schmid et al. (2015); Anderson and Reeb (2003b)), taxation (e.g. Chen et al. (2010)), opacity and informativeness (e.g. Anderson et al. (2009); Chen et al. (2008); Ali et al. (2007)), or financial structure and indebtedness (e.g. Diéguez-Soto et al. (2015); Anderson et al. (2003); McConaughy et al. (2001)). One of the areas that has received the most attention by researchers on family firms is firm performance (Mazzi (2011)), yet the results are not unanimous (e.g. Villalonga and Amit (2006); Maury (2006); Barontini and

Caprio (2006); Anderson and Reeb (2003a); La Porta et al. (2002); McConnell and Servaes (1990); Morck et al. (1988)). Nevertheless, the results are usually more in favor of family firms.

Academics are not the only ones interested in the financial behavior of family firms. Many different market participants have also been attracted to family firms. Media, large private investors (e.g. Warren Buffet), and banks are examples of practitioners interested in both family firms and their market performance. However, few scholars take the perspective of the investor, so evidence on these issues is scarce. The aim of this thesis is to fill this gap and provide a better understanding of the relationship between ownership structure and market behavior. It does so by analyzing, from a financial point of view, three different aspects associated with the stock market perception of family firms in Switzerland: stock market performance, analyst coverage, and mergers and acquisitions activity.

In order to achieve this goal, a comprehensive sample of nearly all non-financial firms listed on the Swiss market between 2003 and 2013 is used (195 companies). There are several ways to define a family firm (Harms (2014); Kraus et al. (2011); Miller et al. (2007); Chrisman et al. (2005)). The definition chosen in this work is based on family ownership, and is commonly used in the finance literature (e.g. Barontini and Caprio (2006); Faccio and Lang (2002); La Porta et al. (1999)). Family firms are defined as firms with one or more individuals having at least 20% of the ultimate voting rights and having either founded or inherited the company, or, in some special cases, having shaped it in a substantial way over a long period of time. Firms with a large shareholder not categorized as a family are classified as held by another blockholder. Lastly, firms with no shareholders having at least 20% of the voting rights are classified as widely held firms. In all three parts, a special focus on family firms is accompanied by a deeper insight into their firm characteristics.

In the first part, the relationship between founding family ownership and stock market performance is analyzed. The study seeks to empirically explore whether family firms exhibit higher stock returns than other types of firms, and to provide and test explanations based on the increase in risk of expropriation faced by investors. Unlike previous studies which look at accounting performance measures (ROA or Tobin's Q), this study takes the investor's point of view. The results are unanimous across all analyses (gross returns, abnormal returns, and multivariate analysis). Family firms outperform other firms by 2.8-7.1% annually on the Swiss stock market and represent an interesting investment opportunity. This outperformance is positively related to the percentage of voting rights held by the family and to the active involvement of the family in the management of the firm. Market participants are unable to

correctly assess the value of family firms, because they tend to overestimate the risk of expropriation resulting from having a strong and controlling family. Once these firms announce their earnings, the market corrects its assessment, which leads to more positive earnings surprises and abnormal returns.

The second study examines the relationship between ownership structure and analyst activity. It looks at analyst coverage and the precision of the earnings estimates. The results show that family firms are less often followed by analysts than widely held firms, and the higher the family stake, the lower the attractiveness for analysts. Monitoring by analysts can be more costly and less desirable to outside investors when a family is the largest owner of a company, because of the higher expropriation risks. Furthermore, the better alignment effect among family firms may also decrease the need and importance of outside monitoring. When looking only at family firms, the association is reversed. Family firms using control-enhancing mechanisms—such as dual class shares and active positions in management—or firms that display a discrepancy between voting rights and cash-flow rights, experience more frequent coverage by analysts than family firms with more contested power. The result is similar for family firms at the descendant stage. More analyst services are requested by outside investors when the likelihood of expropriation in a family firm increases. The analysis of forecast error shows that family firms have a smaller forecast error than other firms (about twice as small), and the higher the family stake, the smaller the forecast error. Family firms might release more accurate information to outside investors to show that they are not expropriating minority shareholders and/or provide analysts with privileged information. In both cases, analysts are able to better estimate their earnings, which is what decreases forecast error. The relationship between firm characteristics of family firms and the accuracy of the analysts is less clear. Only family firms at the founder stage using dual class shares exhibit a slightly significant smaller forecast error.

The third part investigates the relationship between ownership structure and an important investment decision a firm faces: mergers and acquisitions. It determines whether different ownership structures and certain characteristics of family firms are associated with: the probability of engaging in M&A, the characteristics of the deals, and the value creation for shareholders surrounding the announcement date. The results show that family firms engage in fewer M&A than nonfamily firms and widely held firms. Family firms in Switzerland are therefore not empire-builders, and avoid expanding their business through taking part in M&A. This is more pronounced the larger the family stake is, as well as in family firms with significant power—such as those at the founder stage, those with only one family member involved, and those actively managed by the family. These family firms with less contested

power are more reluctant to dilute their ownership stake by buying with stock, whereas widely held firms engage in more equity deals. Moreover, family firms take part in fewer undiversified deals than other firms, and the higher the family stake, the smaller the probability. Acquiring firms in different sectors allows family members to diversify their asset allocation and reduce their portfolio risk, since almost all their personal wealth is invested in their firm. This mechanism of diversification is more pronounced in family firms at the descendant stage than in firms at the founder stage, in family firms with only one family member involved, and in firms actively managed by the family. Finally, the relationship between ownership structure and value creation around the announcement is less obvious. Market participants do not place more value on M&A decisions from family firms than on those from other types of firms. However, family firms with high levels of family ownership provide higher abnormal returns than those with low levels of family ownership (convex relationship). Furthermore, M&A undertaken by family firms at the founder stage without key positions in management, by family firms with several family members involved, and by family firms not actively managed by the family, are seen as less attractive opportunities by market participants, and exhibit smaller abnormal returns surrounding the announcement date. Their decisions to engage in M&A might be driven by factors other than the wealth maximization of all shareholders.

This thesis fills the gap of academic analysis on a topic that might interest several stakeholders. First, it provides scientific support to banks newly offering funds for investing in family firms. Banks' reports are limited to a graphical presentation of gross returns compared to an index, whereas this thesis provides a deeper analysis, with returns adjusted for different risk factors and firm characteristics. Explanations are provided to justify this outperformance. Second, investors typically fear family firms due to the higher risk of expropriation. This is emphasized by media which relay scandals involving families. However, these cases are exceptions rather than the rule. As demonstrated by this work, family firms are more conservative and avoid wasting money via engaging in excessive M&A, as empire-builders would do. Analysts forecast their earnings better due to more accurate release of information, or to more privileged communication with family members, and better business stability. However, market participants do not value family firms correctly, which leads to abnormal performance and surprises at earnings announcement dates. Lastly, the vast majority of past academic work on the performance of family firms concentrates on accounting performance measures and ignores stock market performance; meanwhile, stock market performance is an investor's main concern, as it is the better way to measure gain in real monetary terms.

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