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Family Firms and Financial Analyst Activity

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Family Firms and Financial Analyst Activity

Abstract

This paper examines the relationship between ownership structure, analyst coverage, and forecast error for the entire population of non-financial companies listed on the Swiss Exchange for the period 2003-2013. The results show a negative association between concentrated ownership and analyst coverage for both family firms and firms held by a nonfamily blockholder. Furthermore, forecasts of analysts are shown to be more accurate for family firms than for other firms. These results suggest that family ownership improves the quality of the firm's information environment. This situation can be explained by a better alignment of interests between majority and minority shareholders among family firms.

JEL Classification: G32, G34

Keywords: ownership structure; concentrated ownership; family firms; nonfamily blockholder; widely held firms; analyst coverage; forecast error; information environment.

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. Concentrated ownership—more specifically, family ownership—is the prevailing form of ownership structure around the world (La Porta et al. (1999)). Family firms are an important component of the world economy[1] and recent research in finance has analyzed different facets of their behavior (see Villalonga et al. (2015) for a literature review). In this paper, I investigate a topic which has received little attention so far in the financial literature: the relationship between family ownership and financial analyst activity.

Financial analysts, who provide information to market participants (e.g. earnings forecasts, price targets, or buy-sell recommendations), serve as independent monitors and play the important role of informational intermediaries between the firm and the market (Lang et al. (2004)). They analyze and interpret public information, as well as seek out private information by interacting directly with management and raising questions during earnings release conferences (Yu (2008)). In addition to their role as intermediaries, they also act as information providers, supplying external investors with independent information (Lobo et al. (2012)). Their work enhances corporate governance[2] and the informational efficiency of security prices (Frankel et al. (2006)). In the context of concentrated ownership, and more specifically family ownership, monitoring from analysts could have a significant impact. Analysts can mitigate the information asymmetry that derives from the separation of ownership and control, and can ensure that the interests of minority and majority shareholders are aligned (Sun and Liu (2016)).

Motivated by agency theory, the aim of this paper is to understand how ownership concentration—and more particularly, family ownership—influences analyst coverage and forecast error. Firms with concentrated ownership are potentially affected by more severe Type II agency problems (between majority and minority shareholders) and less severe Type I agency problems (between managers and shareholders), in comparison to firms with more diffuse ownership. Claessens et al. (2002) document two effects that large shareholders may have on firms' agency costs. The alignment effect—or, incentive effect—frames large

[1] 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)).

[2] For example, Dyck et al. (2010) find that analysts account for about 15% of corporate fraud detection cases.

shareholders as monitors that ensure firm decisions serve the best interests of shareholders, thereby reducing agency problems for the firm. The entrenchment effect postulates that large shareholders might seek private benefits of control, which exacerbates agency costs. Due to their strong voting power and the fact that they often hold positions in management, large shareholders are more able to influence firm decisions. One of these decisions might be the firm's rate of information disclosure, thereby influencing the quality of the firm's information environment. The alignment effect postulates better earnings quality (Wang (2006)), more voluntary disclosures (Chen et al. (2008)), and higher quality in financial reporting (Cascino et al. (2010)) for firms with concentrated ownership. The entrenchment effect postulates the opposite, and favors the opacity of the firm (Fan and Wong (2002a)). Therefore, the various ways in which large shareholders can affect agency costs directly impact the information environment. Because analysts serve as information intermediaries, the quality of the information environment has, in turn, a direct impact on analyst activity. I thus hypothesize that analyst coverage and analyst accuracy are significantly affected by ownership concentration.

The severity of agency problems that derive from ownership concentration might differ depending on the nature of the blockholder. Large shareholders are heterogeneous and do not necessarily share the same motivations and incentives, and, therefore, might have different impacts on agency costs. This is especially true for families who are a unique type of shareholder (Bennedsen and Fan (2014)) with a strong voice in the firm and powerful motives to manage the firm (Anderson et al. (2003)). Thus, family ownership might have a different impact on agency costs (positive or negative) than nonfamily ownership (e.g. the State or a private investor). Based on this assumption, I differentiate between these two types of concentrated ownership in my analyses.

The empirical evidence provided in this paper documents an inverse association between ownership concentration and analyst coverage for both family ownership and nonfamily ownership. Thus, having a large shareholder in a company is associated with a lower number of analysts. Moreover, I find that the proportion of voting rights of the controlling shareholder is negatively related to analyst coverage. The negative association remains after controlling for several characteristics that are known in the literature to affect analyst coverage and is robust with regard to the endogeneity issue. In a second step, the accuracy of the analysts is investigated. I assume that the analysts' forecast accuracy is positively associated with disclosure level (Hope (2003)), as corporate disclosure is one of the primary information sources used by analysts to provide estimates (Brown et al. (2011)). Since the information environment has been shown to be related to the strength of agency problems in concentrated ownership, forecast error should be smaller if the alignment effect dominates, and larger

otherwise. The empirical evidence reveals that family firms' earnings are better predicted by analysts (smaller forecast error) in comparison to widely held firms, whereas firms held by a nonfamily blockholder do not present this pattern. Furthermore, the greater the voting rights of the family, the better the forecast. I obtain similar results when I control for characteristics that have been reported in the literature to influence forecast error. These results are robust with regard to the endogeneity issue. They suggest that family ownership is more likely to have a positive impact on agency costs (i.e. the alignment effect dominates the entrenchment effect), whereas, nonfamily ownership at best does not impact agency costs though it is more likely to have a negative impact on agency costs. Finally, further investigation on the subsample of family firms provides evidence that analyst activity is affected by differences in the severity of agency costs for concentrated ownership. Motivated by the fact that family firms are not a homogenous group (Arregle et al. (2007)) and that agency costs do not affect all family firms in the same way, I compare a group of family firms that has been largely documented as having a positive impact on agency costs[3]—founder-CEO firms—with family firms with a descendant- or hired-CEO. The results show that the negative association with analyst coverage and with forecast error is stronger in founder-CEO firms (where agency costs are lower), which supports the theory that differences in agency costs are responsible for previous findings.

Although several endogeneity tests are conducted, it is not possible to fully exclude causality concerns. Nevertheless, the results remain relevant for investors interested in firms with concentrated ownership. They show that analysts' estimates are more reliable for family firms than for other firms, and that information released by family firms might be of better quality and less manipulated. Extraction of private benefits is therefore less likely with family firms than with firms held by a nonfamily blockholder, and the interests of minority and majority shareholders are better aligned. The results might also interest regulators, as they show that analysts are unable to predict accurately earnings from certain firms with blockholders (e.g. private investors). The information environment of these firms might be of lower quality and originate from accounting manipulation or non-disclosures. Regulation could be more stringent regarding information disclosure by these firms.

This paper extends the existing literature by analyzing panel data from 2003 to 2013 for the entire population of non-financial companies listed on the SIX Swiss Exchange. Switzerland is an interesting market to investigate for different reasons. First, it is a typical stakeholder-based country (Luo et al. (2017))—as opposed to a shareholder-based country (e.g. USA)—and is therefore a representative market whose results can be generalized for the majority of other

[3] See for example, Villalonga and Amit (2006), Fahlenbrach (2009), or Adams et al. (2009).

markets. As reported by La Porta et al. (1999), most markets in the world are characterized by the same features as the Swiss market: high ownership concentration, large presence of family firms, and low shareholder protection, which might lead to the extraction of private benefits. However, a large majority of the studies are performed using data from the U.S., where minority investors are better protected by law and ownership concentration is lower[4]. Those results are then less transferable to stakeholder-based countries. Second, the Swiss market has the advantage of having a small number of listed firms, which allows for hand-collecting data on ownership structure for the entire market. This process avoids inaccurate data coming from commercial databases (Holderness (2009)), and avoids using subsamples of the population, both of which might bias the results.

The paper contributes to the literature in several ways. First, it contributes to the accounting and finance literature with regard to the determinants of analyst activity. It shows that ownership concentration is associated with both the number of analysts following the firm and the accuracy of their earnings forecasts. Contrary to previous studies that have investigated this relationship[5], this paper disentangles the effects of family ownership from that of other large blockholders, and it looks at the differences between concentrated family ownership and concentrated nonfamily ownership. This distinction is primarily important for understanding the relationship between ownership concentration and analyst activity, as the motivations and incentives of different blockholders are not identical, and, therefore, their impact on agency costs differs. Second, it contributes to the literature on ownership concentration and corporate informativeness[6]. By using the analysts' forecast error as a proxy for the quality of the information environment, it shows that family firms are more likely to release reliable information (via public or private channels) than firms held by another large shareholder or firms with diffuse ownership. Finally, it adds to the growing finance literature on family firms and explores how differences in the severity of agency costs between concentrated family ownership, concentrated nonfamily ownership, and diffuse ownership affect analyst activity. It also looks at specific characteristics of family firms that are known to affect agency costs—that is, founder-CEO firms versus descendant- and hired-CEO firms.

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.

[4] Families in the U.S. hold an average stake of 17.88% of the voting rights in their company (Anderson and Reeb (2003)), whereas this percentage is 55% in Switzerland (Isakov and Weisskopf (2014)).

[5] E.g. Baik et al. (2010); Ali et al. (2007); Lang et al. (2004); Moyer et al. (1989).

[6] E.g. Cascino et al. (2010); Givoly et al. (2010); Anderson et al. (2009); Chen et al. (2008); Ali et al. (2007); Wang (2006).

Section 4 presents the descriptive statistics and results of univariate tests. Section 5 shows the results of multivariate tests and discusses endogeneity issue. Section 6 summarizes and concludes.

2. Related literature and hypotheses

2.1. Ownership concentration, agency problems, and information environment

Agency theory provides a framework which might explain the relationship between the ownership structure of a firm and analyst activity. Within this framework, a firm faces 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)). Ownership concentration decreases this conflict in several ways. First, large shareholders 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 large shareholders are not involved in management, they have strong incentives to monitor and control managers. Ownership concentration serves, therefore, as a mechanism for mitigating the first agency problem (Villalonga et al. (2015)). This positive outcome as a result of concentrated ownership is referred to as ‘the alignment effect’.

The second agency conflict arises when majority shareholders seek to expropriate minority shareholders (Shleifer and Vishny (1986)) 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. Large shareholders 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 (Faccio and Lang (2002)), or through obtaining disproportionate board representation (Villalonga and Amit (2009)). This could lead to suboptimal corporate decisions which serve the main shareholder (to the detriment of minority shareholders) and aggravate the second type of agency conflict (Villalonga et al. (2015)). This negative outcome as a result of ownership concentration is referred to as ‘the entrenchment effect’.

In summary, compared to widely held firms, firms with concentrated ownership 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).

However, not all large shareholders have the same motivations and incentives, and therefore may have different impacts on agency costs. Families are a unique type of shareholder (Bennedsen and Fan (2014)), with a strong voice in the firm and powerful motives to manage the firm (Anderson et al. (2003)). Unlike other large shareholders, families hold an undiversified portfolio, seek the firm's long-term survival, and face more reputation concerns. They also want to pass the firm to the next generation and keep control in the hands of the family. These characteristics motivate a family's actions, and families will use their dominant position to influence firm decisions and pursue their strategy. This behavior may be beneficial for all shareholders, if the family is seeking long-term sustainability and value-maximization for the firm. However, it can be negative for minority shareholders if the family is motivated by factors that satisfy their own interests instead of the interests of all the shareholders. For example, family feuds and nepotism are problems that might exist among family firms and might reduce overall firm value. Thus, family members may more conscientiously control management and decrease Agency Costs I, but the effect on Agency Costs II can be both positive and negative. Nonfamily large shareholders usually have different incentives, and might not be affected in the same way by agency costs. For example, a private investor who has not founded the company has other motivations and values than a family member. A private investor usually seeks undervalued or poorly managed firms, with the goal of making a quick profit and then leaving. Firms with a large private investor are less prone to Agency Costs I, but are likely suffering from Agency Costs II. Firms held by the State are another factor that motivates the distinction between family and nonfamily blockholders. As a public entity, the State is less likely to extract private benefits of control, resulting in better alignment between majority and minority shareholders. However, it has less incentive to monitor managers, leading to greater Agency Costs I. Depending on the type of blockholder, the alignment effect could dominate the entrenchment effect, leading to lower agency costs (or vice versa).

A key assumption in this paper is that the information environment[7] is associated with agency costs of concentrated ownership, and therefore, a decrease (increase) in agency costs leads to a better (worse) information environment. In other words, this might be formulated as: the information environment has better quality if the alignment effect dominates the entrenchment

[7] In this context, 'information environment' is a broad multidimensional notion that might include, for example, earnings quality, financial disclosure, reported accounting information, earnings warnings, or voluntary disclosure.

effect (i.e. agency costs decrease) in concentrated ownership, whereas the information environment has worse quality if the entrenchment effect dominates the alignment effect (i.e. agency costs increase) in concentrated ownership. Several arguments support this assumption.

The alignment hypothesis postulates that large shareholders might be better at monitoring and controlling managers (Demsetz and Lehn (1985)). Therefore, managers are less likely to be compensated based on observable earnings-based performance measures (Chen (2005)), rather than observed information about managers' work (Ali et al. (2007)). Thus, managerial opportunism should decrease, and reported numbers should not be manipulated (Healy and Palepu (2001)). Furthermore, large shareholders usually have better knowledge of the firm (Anderson and Reeb (2003)) and are better able to check that the accounting numbers are well reported. Therefore, monitoring mechanisms increase financial reporting quality, and reduce the attention paid to short-term stock market fluctuations (Chen et al. (2008)). Accounting information relies on the underlying economic performance of the firm rather than misleading information provided by managers to satisfy their own interests (Warfield et al. (1995)). Additionally, the risk of damaging the reputation, wealth, and long-term value of the firm leads large shareholders to forgo the short-term benefits of engaging in opportunistic behavior such as managing earnings (Wang (2006)), and increases their incentive to remain well informed about the firm's activities (Klein (2002)). These concerns also favor voluntary disclosure (Chen et al. (2008)) and warnings about bad news (Ali et al. (2007)) in order to mitigate the possibility of negative earnings surprises or potential lawsuits (Givoly et al. (2010)).

Conversely, the entrenchment effect postulates that large shareholders might extract private benefits at the expense of minority shareholders. In this setting, large shareholders have incentives to manipulate accounting information and manage earnings for their own benefit (Wang (2006)), which leads to lower-quality earnings (Hope et al. (2013)). Entrenched large shareholders might withhold bad news to reduce scrutiny of their private benefits extraction (Ali et al. (2007)) and hide their opportunistic behavior (Givoly et al. (2010)). Furthermore, large shareholders might perceive sharing private information with external investors as not very beneficial, leading them to keep it internal while providing outside parties with low-quality accounting information (Fan and Wong (2002a)).

Therefore, if the alignment effect dominates the entrenchment effect in concentrated ownership, the information environment should be of higher quality (and vice versa).

2.2. Ownership concentration and analyst coverage

Based on the agency conflict framework previously described, there are several arguments which might explain the nature of the relationship between ownership concentration and analyst coverage. Figure 1 presents the four plausible scenarios.

[Insert Figure 1 here]

Scenarios 1 and 3 imply that ownership concentration decreases analyst coverage, however, their assumptions about the effect of ownership concentration on agency costs differ. Scenario 1 considers that ownership concentration decreases agency costs. Since large shareholders may monitor managers and ensure that the interests of both sides are aligned, outside monitoring by analysts is less important and less needed by external shareholders (Moyer et al. (1989)). Furthermore, since the information environment is of better quality if agency costs are lower and analysts serve as information providers, there is less usefulness of, and demand for, the analyst report (Jiraporn et al. (2014)). Moyer et al. (1989) provide empirical evidence supporting this scenario and find that managerial ownership decreases analyst coverage for firms in the S&P 500. Alternatively, Scenario 3 assumes that ownership concentration increases agency costs. Large shareholders might be able to extract private benefits and favor maintaining the opacity of the firm's financial performance (Lang et al. (2004)). Therefore, acquiring information becomes more difficult and costly for analysts, and the risk of coverage is higher (Healy et al. (1999)). This makes analysts more reluctant to follow firms with entrenched large shareholders. Empirical evidence in favor of this argument is provided for family/management control in 27 countries by Lang et al. (2004), and for managerial ownership in the USA by Baik et al. (2010).

Conversely, Scenarios 2 and 4 present a positive association between ownership concentration and analyst coverage. In Scenario 2, it is assumed that ownership concentration decreases agency costs and that firms with large shareholders provide more transparent information. It is therefore more easy and less costly for analysts to gather information for their reports, since acquiring information independently from other sources is more time- and money-consuming (Jiraporn et al. (2014)). Ultimately, more analysts are attracted to this kind of firm. Ali et al. (2007) provide empirical evidence in this regard for family firms in the S&P 500. Finally, Scenario 4 assumes that ownership concentration increases agency costs, which might favor the opacity of the firm. This means less information is provided by the firm; however, since analysts serve as information providers, the usefulness of analyst coverage actually improves and the demand for analyst reports increases (Jiraporn et al. (2014)). Therefore, the number of analysts following this kind of firm increases. Haw et al. (2004) and

Boubaker and Labégorre (2008) provide empirical evidence partially supporting this argument. They 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.

As both Scenarios 1 and 3 (2 and 4) posit the same negative (positive) relationship between ownership concentration and analyst coverage, I merge them and posit the following two hypotheses:

Hypothesis 1a: *The relationship between ownership concentration and analyst coverage is negative, regardless of the effect of ownership concentration on agency costs.*

Hypothesis 1b: *The relationship between ownership concentration and analyst coverage is positive, regardless of the effect of ownership concentration on agency costs.*

2.3. Ownership concentration 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 (Lilienfeld-Toal and Ruenzi (2014)). Performance can be influenced either by the ability of the analyst[8] or by the quality of the information (public or private) released by the firms[9]. 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[10]. It is therefore assumed that the analysts' forecast accuracy is positively associated with disclosure, as corporate disclosure is one of the primary sources used by analysts to provide estimates (Brown et al. (2011)). In other words, the more complete and reliable the information that a firm releases (via public or private channels), the better the analysts' predictions should be (Lang and Lundholm (1996)).

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

[9] 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.

[10] Analyst-based measures are used as a proxy for informativeness in several studies (e.g., Liu (2016); Leary and Roberts (2010); Anderson et al. (2009); Ali et al. (2007); Flannery et al. (2004); Hope (2003); Brennan and Subrahmanyam (1995)).

As discussed in Section 2.1, agency theory provides two competing views on predicting the quality of information release in a concentrated ownership framework (Givoly et al. (2010)). On the one hand, the alignment hypothesis suggests that ownership concentration leads to greater information disclosure and better earnings quality (i.e. a better information environment). Information flow is less likely to be manipulated and disclosures are more likely to be unbiased (Baik et al. (2010)); therefore, analysts should be able to provide more accurate estimates, resulting in smaller forecast error. Empirical evidence supporting the positive association between ownership concentration and forecast accuracy is provided for managerial ownership by Ajinkya et al. (2005), Karamanou and Vafeas (2005), Bhat et al. (2006) and Liu (2016), for institutional ownership by Brushan (1989) and Ackert and Athanassakos (2003), for foreign ownership by Liu (2016), and for family ownership by Ali et al. (2007). On the other hand, the entrenchment hypothesis postulates that ownership concentration increases the risk of expropriation and decreases the incentive to provide high quality accounting information (i.e. a lesser information environment). As the flow of information released by the firm and the accuracy of the disclosures are reduced (Baik et al. (2010)), it becomes more difficult for analysts to provide precise estimates. Furthermore, analysts asking or searching for more information might aggravate entrenched firms by over-monitoring, leading firms to provide less information as retaliation. Therefore, the lower quality of the information environment should increase forecast error. Empirical evidence supporting a negative relationship between analyst accuracy and ownership concentration is provided for institutional ownership in China by Liu et al. (2013), for managerial ownership by Cheng and Warfield (2005) and Kanagaretnam et al. (2012), and for high state ownership in China by Liu (2016).

Thus, the effect of ownership concentration on forecast error depends on the ways agency costs are affected. If the alignment effect dominates the entrenchment effect, the information environment should be of better quality, resulting in lower forecast error. Conversely, if the entrenchment effect is larger, the information environment should be of lower quality, which increases forecast error. This leads to the following hypotheses:

Hypothesis 2a: *The relationship between ownership concentration and forecast error is negative if the alignment effect is larger than the entrenchment effect (i.e. lower agency costs).*

Hypothesis 2b: *The relationship between ownership concentration and forecast error is positive if the entrenchment effect is larger than the alignment effect (i.e. higher agency costs).*

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)[11]. 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)[12]. 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 in the management (i.e. active or passive), and the difference between voting rights and cash-flow rights for the largest shareholder.

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[13]. After merging the data on analyst forecast with that

[11] I am grateful to Isakov and Weisskopf (2014) 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.

[12] This is relatively uncommon.

[13] 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. Furthermore, firms followed by a very low number of analysts may be the ones that are less transparent (Yu (2008)), making it relevant to include them in the analysis. However, the tests are also rerun after dropping firms followed by fewer than 3 analysts and are available upon request. The results are similar to when firms followed by fewer than 3 analysts are not dropped.

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 1 summarizes the different variables used in this study.

[Insert Table 1 here]

4. Descriptive statistics and univariate tests

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

[Insert Table 2 here]

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 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 1), 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). Overall, firms with concentrated ownership have lower analyst coverage (6.69) than firms with diffuse ownership. Finally, I find an average forecast error of 6.77% for the entire sample. Widely held firms and firms held by another blockholder have a forecast error around twice as large as that of family firms (7.97% and 7.85% respectively, versus 4.67%). The lower forecast error found for firms with concentrated ownership (5.96%) is therefore mainly attributed to family firms.

So far, our descriptive statistics allow us to see that even though family firms are less frequently followed by analysts, their earnings are better forecasted than those of widely held firms. Firms held by another blockholder also have less analyst coverage than widely held firms, however their earnings are not better forecasted. Univariate tests presented in Table 3 confirm these results from a statistical point of view with highly significant differences between the averages. This analysis emphasizes the importance of making a clear distinction between family and nonfamily blockholders, as some of the variables of interest differ significantly.

[Insert Table 3 here]

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 that might influence the variables of interest. Moreover, the endogeneity issue is discussed, and causality tests are provided. 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:

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

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 *CONCENTRATED OWNERSHIP*, *FAMILY*, and *OB*—three dummy variables equaling 'one' if the firm has a large shareholder, if the founding family is the largest shareholder, or if the firm is held by another blockholder, respectively. They may also include *FAMILY STAKE*, representing the percentage of the family's voting rights, *OTHER BLOCKHOLDER STAKE*, representing the percentage of other blockholder'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. 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 'one' if the firm has an ADR traded in the U.S., and 'zero' 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 2 shows.

[Insert Figure 2 here]

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[14] (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 4 presents regression results between analyst coverage and ownership structure. The first equation regresses analyst coverage against the 'concentrated ownership' dummy along with the full set of control variables and industry and year dummies (Model 1). I find a negative and highly significant coefficient, meaning that ownership concentration leads to a decrease in analyst coverage compared to firms with diffuse ownership. In the second regression, the 'concentrated ownership' dummy is broken up into two variables, the 'family firm' dummy and the 'other blockholder' dummy (Model 2). Both coefficients are negative and significant, but the effect is larger for firms with another large blockholder than for family firms. In concrete terms, if all other factors remain constant, family firms and firms held by another large blockholder would be followed by 7.28% and 20.40% fewer analysts, respectively, than widely held firms. In Model 3, the dummy variables representing family firms and firms held by another blockholder are replaced by continuous variables, i.e. the percentage of voting rights held by the respective largest shareholder. Again, both coefficients are negative and highly significant,

[14] 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)). 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.

meaning that the more voting rights the largest shareholder has, the fewer analysts follow the firm. In concrete terms, an increase of 10% of the stake would decrease the number of analysts following the firm by about 5.8% for family firms and 10.3% for firms held by another blockholder, if all other factors remain constant. 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.

[Insert Table 4 here]

In conclusion, the results from Table 4 are consistent with the findings of the univariate tests and support Hypothesis H1a. They show that the number of analysts following a firm is associated with the ownership structure of the firm, and that firms with concentrated ownership are less often followed by analysts than firms with diffuse ownership.

So far, the assumption has been that ownership structure variables, such as family ownership, have an impact on the number of analysts following the firm. However, it is plausible for the direction of causality to be reversed (i.e. for analyst coverage to have an impact on ownership structure). In order to address this endogeneity problem and provide support for the previous results, I use a two-stage least-squares (2SLS) model and instrument the percentage of voting rights[15] with two instrumental variables[16] that are related to ownership structure, but not correlated with analyst coverage except through ownership structure. The first instrument is the first ownership structure variable for each firm (Model 1). The logic behind this is that analyst coverage in subsequent years would not be related to the ownership structure of the first year. The second instrument is industry-level ownership (Model 2). Analyst coverage of a particular firm may influence the ownership of that firm; however, firm-level coverage is unlikely to be related to industry-level ownership. The results are presented in Table 5. The 2SLS results are in line with those reported in Column 3 of Table 4, which provides evidence that causality runs from family ownership to analyst coverage, and not in the reverse direction.

[Insert Table 5 here]

[15] For potential endogenous binary variables, treatment effects estimations are more suitable than instrumental variables estimations (Knyazeva et al. (2013)).

[16] These instruments have been used in a number of recent studies, such as Bebchuk and Cohen (2005), John and Knyazeva (2006), Cheng and Subrahmanyam (2008), Jiraporn et al. (2014), and Liu (2016).

In addition, one might ask whether the relationships previously found between the ownership variables and analyst coverage 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))[17]. 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*)[18]. I use the different main independent dummy variables[19] 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 (Table 4). The results are presented in Table 6 (Panel A for *m*-to-*n* and Panel B for *k*-to-*k*) and are consistent with those of Table 4 for both CEM methods.

[Insert Table 6 here]

Overall, the results of Tables 5 and 6 provide a degree of comfort that the initial results are not spurious due to endogeneity concerns coming from reverse causality or omitted variables.

5.2. Ownership structure and forecast error

To 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:

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

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

[17] See Blackwell et al. (2009) for a guide on the implementation of CEM in Stata (with examples).
[18] The second option strongly decreases the number of observations.
[19] Concentrated ownership, family, and OB.

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. *CONCENTRATED OWNERSHIP*, *FAMILY*, *OB*, *FAMILY STAKE*, or *OTHER BLOCKHOLDER STAKE*). Based on past literature, control variables include *SIZE* and *VOLATILITY* (defined earlier), 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 7. Appendix 2 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.

[Insert Table 7 here]

In Model 1, the coefficient for the 'concentrated ownership' dummy is negative, but not statistically significant. When broken up into the two kinds of blockholder (Model 2), the result shows that family firms' earnings are better predicted by analysts (smaller forecast error) compared to those of widely held firms (statistically significant), confirming the results of the univariate tests. Conversely, firms held by another blockholder have a slightly higher forecast error than widely held firms, but the coefficient is not statistically different from zero. When using continuous variables instead of dummy variables (Model 3), results remain similar and indicate that the higher the family stake, the better the forecast. 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).

As in Section 5.1, I control for possible endogeneity problems between the ownership variables and forecast error by running instrumental variables regressions and matching regressions. The results of both models using instrumental variables (Table 8) are similar to those obtained in Column 3 of Table 7. Again, the causality is more likely to run from ownership variables to forecast error, rather than the opposite direction. The results of matching regressions (Table 9) are also consistent with those of Table 7, making the problem of omitted variables less relevant.

[Insert Tables 8 and 9 here]

The results of this section suggest that family ownership supports Hypothesis 2a, whereas ownership by nonfamily blockholders supports Hypothesis 2b. The alignment effect is therefore

larger than the entrenchment effect in family firms, which has a positive effect on the information environment and allows analysts to better forecast their earnings. This result supports findings from past literature (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. Conversely, the entrenchment effect is larger than the alignment effect among firms held by another blockholder, leading to a lesser information environment and higher forecast error. By breaking up the 'other blockholder' variable (unreported results), I find that the negative association with forecast accuracy is mainly driven by firms held by a private investor and firms held by another widely held nonfinancial corporation. Among these firms, the entrenchment effect dominates, and firm decisions are more likely to serve the largest shareholder rather than all shareholders.

5.3. Further evidence

The two previous subsections show that family ownership is differently associated with analyst coverage and forecast error than widely held firms or firms held by another blockholder, due to differences in the severity of agency costs. To provide further evidence of this argument, I analyze the subsample of family firms and investigate if analyst coverage and forecast error are related to characteristics of family firms that are known to affect agency costs. In concrete terms, I rerun the previous tests after breaking up the family dummy variable into three dummy variables depending on the relationship of the CEO to the family, as follows: founder-CEO, if the CEO is a founder of the company; descendant-CEO, if the CEO is a descendant of the founding family; and hired-CEO, if the CEO has no affiliation with the family. This classification is motivated by the findings of several studies that have documented that founder-CEO firms face less severe agency costs than descendant- or hired-CEO firms (Fahlenbrach (2009); Adams et al. (2009); Villalonga and Amit (2006)). Firms run by descendants are more likely to cause an increase in agency costs because of potential conflict between heirs (Gordon and Nicholson (2010)), lack of competence (Morck and Yeung (2003)), or personal extraction of benefits (Villalonga and Amit (2006)). These might lead to sub-optimal decisions that maximize personal interests rather than the interests of all the shareholders. Conversely, founder-CEOs are more likely to pursue the optimal shareholder-value maximizing strategy (Fahlenbrach (2009)) since they are fully involved (in terms of energy and wealth) in the firm and seek its long-term survival.

Thus, if the previously found negative associations between family ownership and analyst coverage—and between family ownership and forecast error—are due to a decrease in agency

costs (i.e. the alignment effect dominating the entrenchment effect), I should find a negative association among founder-CEO firms, when compared to descendant- and hired-CEO firms. Results are presented in Table 10 (control variables are not reported).

[Insert Table 10 here]

In Column 1, the dependent variable 'analyst coverage' is regressed against the three groups of family firms instead of the family dummy. The coefficient for founder-CEO firms is the most negative out of the three, and the only statistically significant one. In Column 2, 'forecast error' serves as the dependent variable. Again, the most negative and only significant coefficient is that of founder-CEO firms. The results of Table 10 are therefore consistent with the hypothesis and support the idea that differences in agency costs are responsible for the previous results.

6. Conclusion

This paper investigates the association between ownership structure and analyst activity by using panel data from 2003 to 2013 for the entire population of non-financial companies listed on the SIX Swiss Exchange. It examines how concentrated ownership—and more particularly family ownership—is associated with analyst coverage, and analysts' forecast error.

The empirical analyses show that firms with concentrated ownership are less followed by analysts than widely held firms. Univariate analyses show that family firms are followed by an average of 7.82 analysts and firms controlled by another blockholder are followed by an average of 5.03 analysts. Comparatively, widely held firms are followed by an average of 10.18 analysts. This negative association persists after controlling for several characteristics which might explain the extent of analyst coverage. The results further show that the more voting rights the largest shareholder has, the smaller the number of analysts following the firm. Concerning the relationship between ownership structure and forecast error, both univariate and multivariate tests show that family firms' earnings are better predicted by analysts (forecast error is about twice as small) when compared to widely held firms, whereas firms held by a nonfamily blockholder do not present a similar pattern. Furthermore, the higher the family stake, the smaller the forecast error. Finally, in both analyses, instrumental variable regressions and matching regressions show consistent results. Although causality issues cannot be fully excluded, these tests provide a degree of comfort that the initial results are not affected by endogeneity problems coming from reverse causality or omitted variables.

In conclusion, the evidence can be related to the differences in severity of agency problems affecting both analyst coverage and forecast error. Lower agency costs (i.e. the alignment effect is superior to the entrenchment effect) lead to a better information environment, resulting in less importance and need for external services by analysts, but in more precise earnings forecasts. Conversely, higher agency costs (i.e. the entrenchment effect is superior to the alignment effect) worsen the information environment, resulting in lower analyst coverage—due to lower demand and higher costs and risks of coverage—and in more inaccurate earnings forecasts. Thus, the findings of the study suggest that the alignment effect is more likely to dominate the entrenchment effect only among family firms, whereas the inverse prevails among firms controlled by another blockholder.

This study contributes to the finance and accounting 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 held by another blockholder and those widely held. Past studies on earnings quality and informativeness usually focus on concentrated ownership (rather than family ownership) versus dispersed ownership (e.g. Anderson et al. (2009); Ali et al. (2007)), or on family ownership versus nonfamily ownership (e.g. Cascino et al. (2010)). Second, this research takes into consideration the heterogeneity of family firms (Arregle et al. (2007)) and focuses on characteristics of family firms that impact agency costs. Third, unlike most of the studies on corporate disclosure and informativeness (e.g. Chen et al. (2008); Wang (2006)), 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 in the literature, and whose results are likely to be transferable to other stakeholder-based countries.

To conclude, the paper shows that ownership concentration—specifically, family ownership—is associated with firm outcomes relating to information environment and analyst activity. The results may have implications for both investors and regulators, as analysts play the important role of informational intermediaries between the firm and the market. In particular, more transparency and disclosure by firms controlled by nonfamily blockholders could be required by regulators.

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Figure 1: Association between ownership concentration and analyst coverage

This figure presents four plausible scenarios describing the association between ownership concentration and analyst coverage, based on the impact of ownership concentration on agency costs.

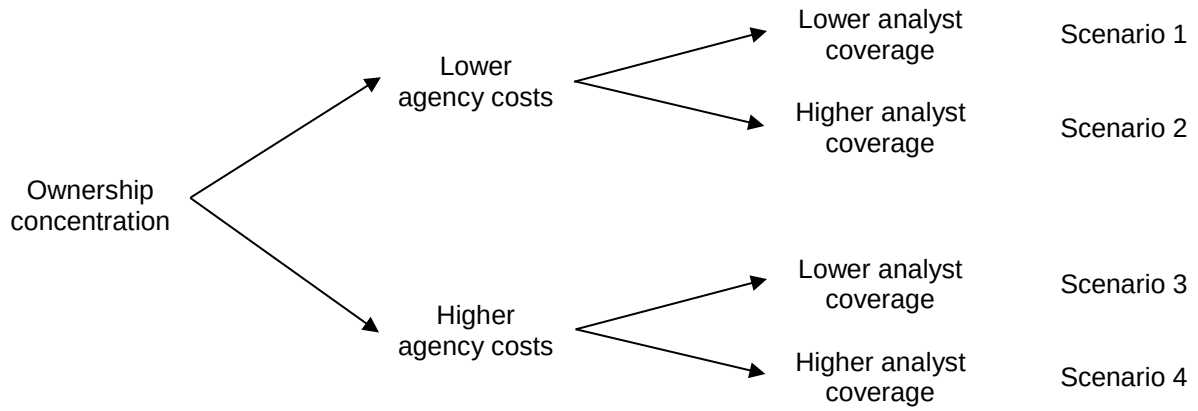

Table 1: Variable definitions

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 (2014) 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.
Concentrated ownership (*CO*)	Dummy variable that takes on the value 1 if a 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.
Family stake	The percentage of voting rights held by the largest shareholder in a family firm.
Family firms with founder-CEO (*Fceo*)	Dummy variable that takes on the value 1 if the CEO in a family firm is the founder, otherwise it equals 0.
Family firms with descendant-CEO (*Dceo*)	Dummy variable that takes on the value 1 if the CEO in a family firm is a descendant of the founding family, otherwise it equals 0.
Family firms with hired-CEO (*Hceo*)	Dummy variable that takes on the value 1 if the CEO in a family firm is not related to the founding family, 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.
Other blockholder stake	The percentage of voting rights held by the largest shareholder in a firm that is held by a nonfamily blockholder.
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.
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 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 (*ROE*)	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 2: 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 1. 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 firms with concentrated ownership (Column 2), family firms (Column 3), firms held by another blockholder (Column 4), and widely held firms (Column 5).

	All	Firms with concentrated ownership	Family firms	Other blockholder firms	Widely held firms
	Mean	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)
Family firms	0.35				
Widely held firms	0.40				
Other blockholder firms	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	33.69	19.49	54.39	9.92
Earnings per share (in CHF)	21.79	31.49	18.21	50.84	7.53
Analyst coverage	8.10	6.69	7.82	5.03	10.18
Forecast error	0.0677	0.0596	0.0467	0.0785	0.0797
N	1255	747	443	304	508

Table 3: Univariate tests for the main ownership structures

This table presents the results of the difference in means tests for consensus estimate, earnings per share, analyst coverage, and forecast error between the major groups, that is, between firms with concentrated ownership and widely held firms (Column 1), between family firms and widely held firms (Column 2), between family firms and other blockholder firms (Column 3), and between other blockholder firms and widely held firms (Column 4). A more detailed description of the variables is given in Table 1. *, **, *** indicate significance levels at 10%, 5%, and 1%, respectively, based on the t-statistic while assuming unequal variance.

	Firms with concentrated ownership – Widely held firms	Family firms – Widely held firms	Family firms – Other blockholder firms	Other blockholder firms – Widely held firms
	Difference	Difference	Difference	Difference
	(1)	(2)	(3)	(4)
Consensus estimate	23.7691***	9.5663***	-34.8996***	44.4660***
Earnings per share	23.9583***	10.6803***	-32.6272***	43.3075***
Analysts coverage	-3.4944***	-2.3572***	2.7943***	-5.1515***
Forecast error	-0.0201	-0.0330**	-0.0318**	-0.0013
N	1255	951	747	812

Figure 2: 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.

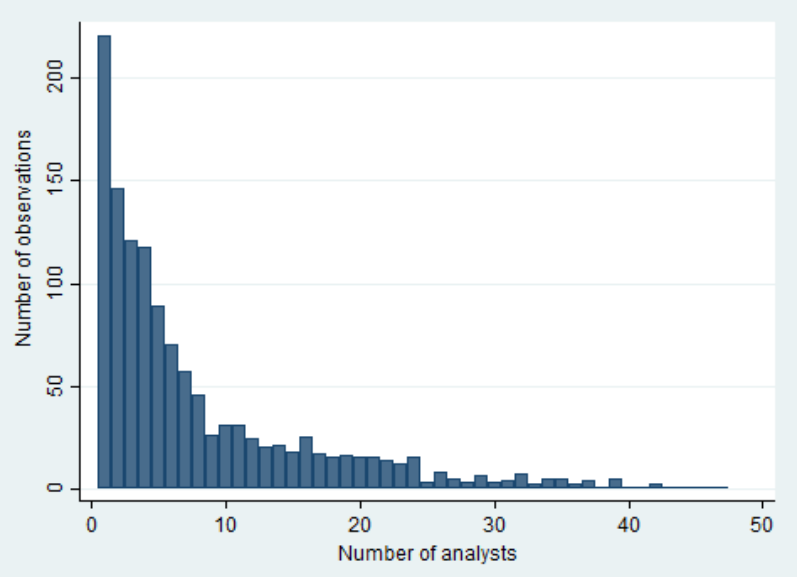

Table 4: Multivariate analysis of analyst coverage for the main ownership structures

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 structures. 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 CO, FAMILY, and OB; these three dummy variables indicate whether the firm has a large shareholder, if the founding family is the largest shareholder, or if another blockholder is the largest shareholder, respectively. They may also include FAMILY STAKE, which represents the percentage of family voting rights, OTHER BLOCKHOLDER STAKE, which represents the percentage of other blockholder voting rights, and EXCESS CONTROL, which represents the discrepancy between voting rights (VR) and cash-flow rights (CR)—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
Concentrated ownership dummy	-0.1223*** (0.041)		
Family dummy		-0.0728* (0.043)	
Other blockholder dummy		-0.2040*** (0.055)	
Family stake			-0.5888*** (0.080)
Other blockholder stake			-1.0291*** (0.142)
Excess control	0.0794*** (0.030)	0.0616** (0.027)	0.1471*** (0.037)
ADR	0.3159*** (0.048)	0.3161*** (0.049)	0.2773*** (0.048)
Size	0.4003*** (0.013)	0.3966*** (0.013)	0.4012*** (0.012)
Float	0.4566*** (0.081)	0.4743*** (0.080)	0.1489* (0.081)
Volatility	13.7054*** (2.745)	14.1927*** (2.703)	13.7706*** (2.667)
ROE	0.0006* (0.000)	0.0006 (0.000)	0.0005 (0.000)
Earnings surprise	-0.1824** (0.091)	-0.1770** (0.088)	-0.1697* (0.087)
Intercept	-4.0646*** (0.277)	-4.0463*** (0.278)	-3.8299*** 0.1471***
α (Overdispersion)	-2.1837*** (0.085)	-2.1837*** (0.085)	-2.3111*** (0.095)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
N	1137	1137	1137
Log-likelihood	-2848.22	-2848.22	-2814.40
X^2 (LR test)	2890.10***	2890.10***	3493.06***
Pseudo R^2	0.2126	0.2126	0.2220

Table 5: Instrumental variable regressions of analyst coverage on concentrated ownership

This table presents the coefficients and robust standard errors of the instrumental variables regressions of the dependent variable ANALYST COVERAGE on the ownership variables, control variables, year dummies, and industry dummies. 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 two-stage least-squares Poisson regressions. ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. The main independent variables are FAMILY STAKE and OTHER BLOCKHOLDER STAKE, the percentage of family voting rights and the percentage of other blockholder voting rights, respectively, and are instrumented by the first ownership of each firm (Model 1) and by the industry-level ownership (Model 2). All regressions include the following control variables: EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR; 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.

	Model 1	Model 2
Family stake	-0.7739***	-0.5602***
	(0.089)	(0.100)
Other blockholder stake	-1.3721***	-0.8699***
	(0.160)	(0.156)
Excess control	0.1120***	0.0850***
	(0.027)	(0.026)
ADR	0.2492***	0.2733***
	(0.051)	(0.049)
Size	0.4527***	0.4494***
	(0.013)	(0.013)
Float	0.1245	0.3125***
	(0.089)	(0.094)
Volatility	12.9379***	12.5417***
	(2.892)	(2.847)
ROE	0.0001	0.0002
	(0.000)	(0.000)
Earnings surprise	-0.1304**	-0.1394**
	(0.054)	(0.056)
Intercept	-4.7180***	-4.8013***
	(0.280)	(0.275)
Year dummies	Yes	Yes
Industry dummies	Yes	Yes
N	1137	1137

Table 6: Causal effect of the main ownership structures on analyst coverage

This table replicates Table 4, 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 CO, FAMILY, and OB; these three dummy variables indicate whether the firm has a large shareholder, if the founding family is the largest shareholder, or if another blockholder is the largest shareholder, respectively. They may also include FAMILY STAKE, which represents the percentage of family voting rights, OTHER BLOCKHOLDER STAKE, which represents the percentage of other blockholder voting rights, and EXCESS CONTROL, which represents the discrepancy between voting rights (VR) and cash-flow rights (CR)—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.

	Panel A: *m*-to-*n* match			Panel B: *k*-to-*k* match		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
CO dummy	-0.1311***			-0.2714***		
	(0.047)			(0.050)		
Family dummy		-0.0955*			-0.1699***	
		(0.050)			(0.053)	
OB dummy		-0.1725***			-0.2983***	
		(0.058)			(0.066)	
Family stake			-0.5751***			-0.5309***
			(0.087)			(0.093)
OB stake			-0.8644***			-0.9084***
			(0.161)			(0.191)
Excess control	0.1176***	0.1029***	0.1764***	0.1060***	0.0968***	0.1152***
	(0.037)	(0.034)	(0.046)	(0.035)	(0.036)	(0.037)
ADR	0.3904***	0.3922***	0.3438***	0.3620***	0.4246***	0.3502***
	(0.057)	(0.058)	(0.058)	(0.059)	(0.062)	(0.061)
Size	0.4423***	0.4401***	0.4448***	0.4573***	0.4510***	0.4501***
	(0.016)	(0.016)	(0.016)	(0.018)	(0.019)	(0.017)
Float	0.6507***	0.6677***	0.3483***	0.6437***	0.7231***	0.5162***
	(0.090)	(0.092)	(0.094)	(0.108)	(0.106)	(0.104)
Volatility	10.7186***	11.1235***	10.7052***	9.3943***	8.4636**	10.7582***
	(3.103)	(3.065)	(3.018)	(3.374)	(3.577)	(3.588)
ROE	0.0007	0.0007	0.0005	0.0017**	0.0013**	0.0014***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Earnings surprise	-0.2575**	-0.2509**	-0.2433**	-0.0690	-0.0977	-0.1406
	(0.107)	(0.104)	(0.108)	(0.103)	(0.129)	(0.156)
Intercept	-4.9025***	-4.9074***	-4.6490***	-4.9212***	-5.1472***	-4.8759***
	(0.255)	(0.255)	(0.253)	(0.286)	(0.292)	(0.276)
α (Overdispersion)	-2.4366***	-2.4406***	-2.5444***	-2.6229***	-2.6434***	-2.7433***
	(0.127)	(0.128)	(0.145)	(0.159)	(0.167)	(0.182)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	963	963	963	643	650	650
Log-likelihood	-2259.62	-2258.46	-2236.01	-1521.48	-1517.02	-1505.90
X^2 (LR test)	1543.50***	1547.87***	1586.09***	1468.27***	1501.11***	1494.18***
Pseudo R^2	0.1977	0.1981	0.2060	0.1975	0.2003	0.2061

Table 7: 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 CO, FAMILY, and OB; these three dummy variables indicate whether the firm has a large shareholder, if the founding family is the largest shareholder, or if another blockholder is the largest shareholder, respectively. They may also include FAMILY STAKE, which represents the percentage of family voting rights, and OTHER BLOCKHOLDER STAKE, which represents the percentage of other blockholder 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
Concentrated ownership dummy	-0.0102 (0.013)		
Family dummy		-0.0206** (0.010)	
Other blockholder dummy		0.0082 (0.016)	
Widely held dummy			
Family stake			-0.0494** (0.022)
Other blockholder stake			0.0325 (0.044)
Size	-0.0077* (0.004)	-0.0070* (0.004)	-0.0072* (0.004)
Book-to-market	0.0562*** (0.015)	0.0568*** (0.015)	0.0580*** (0.015)
Volatility	4.9523*** (1.418)	4.7588*** (1.385)	4.6051*** (1.391)
Intercept	0.1457 (0.097)	0.1543 (0.096)	0.1624* (0.094)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
N	1141	1141	1141
Adj. R^2	0.1728	0.1754	0.1791

Table 8: Instrumental variable regressions of forecast error on family ownership

This table presents the coefficients and clustered standard errors of the instrumental variables regressions of the dependent variable FORECAST ERROR on the ownership variables, control variables, year dummies, and industry dummies. 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 two-stage least-squares regressions 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. The main independent variables are FAMILY STAKE, the percentage of family voting rights and OTHER BLOCKHOLDER STAKE, the percentage of other blockholder voting rights, and are instrumented by the first ownership of each firm (Model 1) and by the industry-level ownership (Model 2). 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
Family stake	-0.0388*	-0.0443*
	(0.022)	(0.024)
Other blockholder stake	0.0647	0.0263
	(0.055)	(0.045)
Size	-0.0070*	-0.0073*
	(0.004)	(0.004)
Book-to-market	0.0566***	0.0578***
	(0.015)	(0.015)
Volatility	4.5722***	4.6557***
	(1.364)	(1.366)
Intercept	0.1598*	0.1611*
	(0.091)	(0.092)
Year dummies	Yes	Yes
Industry dummies	Yes	Yes
N	1141	1141
Adj. R^2	0.1783	0.1956

Table 9: Causal effect of the main ownership structures on forecast error

This table replicates Table 7, 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 CO, FAMILY, and OB; these three dummy variables indicate whether the firm has a large shareholder, if the founding family is the largest shareholder, or if another blockholder is the largest shareholder, respectively. They may also include FAMILY STAKE, which represents the percentage of family voting rights, and OTHER BLOCKHOLDER STAKE, which represents the percentage of other blockholder 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 1	Model 2	Model 3
CO dummy	-0.0128 (0.013)			-0.0057 (0.017)		
Family dummy		-0.0258** (0.013)			-0.0292* (0.017)	
OB dummy		0.0064 (0.015)			-0.0180 (0.021)	
Family stake			-0.0502** (0.021)			-0.0662** (0.027)
OB stake			0.0562 (0.042)			-0.0164 (0.066)
Size	-0.0096** (0.004)	-0.0088* (0.005)	-0.0094** (0.004)	-0.0101* (0.006)	-0.0135** (0.006)	-0.0135** (0.006)
Book-to-market	0.0437*** (0.013)	0.0446*** (0.013)	0.0454*** (0.013)	0.0597*** (0.021)	0.0627*** (0.018)	0.0656*** (0.018)
Volatility	4.6052*** (1.390)	4.3260*** (1.329)	4.0814*** (1.294)	7.1214*** (2.082)	5.1650*** (1.828)	4.9922*** (1.874)
Intercept	0.1996** (0.088)	0.1964** (0.087)	0.2063** (0.085)	0.1847* (0.109)	0.1972* (0.103)	0.1993* (0.103)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	967	967	967	646	653	653
Adj. R^2	0.1607	0.1647	0.1710	0.2123	0.1940	0.1971

Table 10: Multivariate analysis of family firm characteristics

This table presents the coefficients and standard errors of multivariate regressions of dependent variables ANALYST COVERAGE (Model 1) and FORECAST ERROR (Model 2) against different ownership variables characterizing family firms, control variables, year dummies, and industry dummies. These regressions are based on 1,137 and 1,141 firm-year observations for the eleven-year period between January 2003 and December 2013. The regression in Model 1 is performed using a Standard Negative Binomial Model, as defined by Cameron and Trivedi (1986), and the regression in Model 2 using panel regression and clustered standard errors at the firm level. ANALYST COVERAGE is measured as the number of analysts issuing nine-month-horizon earnings per share estimates for a particular firm and year. 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 characterizing family firms include FOUNDER-CEO, DESCENDANT-CEO, and HIRED-CEO; these three dummy variables indicate whether the family firm is run by the founder, by a descendant of the founding family, or by a professional who has no affiliation with the founding family. Ownership variables also include OB, a dummy variable indicating if the firm is held by another blockholder. Model 1 includes the following control variables: EXCESS CONTROL, the discrepancy between voting rights (VR) and cash-flow rights (CR), which is measured as (VR-CR)/VR; 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. Model 2 includes 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. Robust standard errors are in parentheses for Model 1 and clustered standard errors for Model 2. Only ownership variables are presented in the Table.

	Dependent variable	
	Analyst coverage	Forecast error
	Model 1	Model 2
Founder-CEO	-0.1805*	-0.0666***
	(0.092)	(0.024)
Descendant-CEO	-0.0681	-0.0097
	(0.055)	(0.028)
Hired-CEO	-0.0738	-0.0196
	(0.050)	(0.013)
Other blockholder dummy	-0.1999***	0.0084
	(0.054)	(0.016)
Intercept	Yes	Yes
Control variables	Yes	Yes
Year dummies	Yes	Yes
Industry dummies	Yes	Yes
N	1137	1141
Log-likelihood	-2844.50	
X^2 (LR test)	2963.95***	
Pseudo R^2 / Adj. R^2	0.2136	0.1758

Appendix

Appendix 1: Composition of the sample and descriptive statistics for the main ownership structures for the largest firms

This table replicates Table 2, but only for a subsample of the 30 largest 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 1. 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 firms with concentrated ownership (Column 2), family firms (Column 3), firms held by another blockholder (Column 4), and widely held firms (Column 5).

	All	Firms with concentrated ownership	Family firms	Other blockholder firms	Widely held firms
	Mean	Mean		Mean	Mean
	(1)	(2)	(3)	(4)	(5)
Family firms	0.40				
Widely held firms	0.45				
Other blockholder firms	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	81.91	7.76	283.17	12.13
Earnings per share (in CHF)	47.57	78.51	7.10	272.32	9.56
Analyst coverage	19.69	17.12	18.66	12.95	22.83
Forecast error	0.0162	0.0139	0.0157	0.0090	0.0191
N	283	156	114	42	127

Appendix 2: Multivariate analysis of forecast error for the main ownership structures including the number of analysts

This table replicates Table 7, 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 CO, FAMILY, and OB; these three dummy variables indicate whether the firm has a large shareholder, if the founding family is the largest shareholder, or if another blockholder is the largest shareholder, respectively. They may also include FAMILY STAKE, which represents the percentage of family voting rights, and OTHER BLOCKHOLDER STAKE, which represents the percentage of other blockholder 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
Concentrated ownership dummy	-0.0096 (0.012)		
Family dummy		-0.0197* (0.011)	
Other blockholder dummy		0.0096 (0.015)	
Family stake			-0.0477** (0.022)
Other blockholder stake			0.0356 (0.042)
Analyst coverage	0.0003 (0.002)	0.0005 (0.001)	0.0004 (0.001)
Size	-0.0088 (0.009)	-0.0090 (0.008)	-0.0090 (0.008)
Book-to-market	0.0568*** (0.016)	0.0580*** (0.016)	0.0589*** (0.016)
Volatility	4.9284*** (1.438)	4.7138*** (1.401)	4.5635*** (1.402)
Intercept	0.1657 (0.125)	0.1714 (0.120)	0.1776 (0.115)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
N	1141	1141	1141
Adj. R^2	0.1721	0.1748	0.1785

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Abstract
This paper examines the relationship between ownership structure, analyst coverage, and forecast error for the entire population of non-financial companies listed on the Swiss Exchange for the period 2003-2013. The results show a negative association between concentrated ownership and analyst coverage for both family firms and firms held by a nonfamily blockholder. Furthermore, forecasts of analysts are shown to be more accurate for family firms than for other firms. These results suggest that family ownership improves the quality of the firm's information environment. This situation can be explained by a better alignment of interests between majority and minority shareholders among family firms.

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