

Protecting Minority Shareholders: Listed versus Unlisted Firms

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Listed firms have an incentive to render themselves attractive to investors at large. This paper examines whether listed and unlisted firms differ in their care for minority shareholders and finds supporting evidence. We examine control structure, disclosure, board architecture and processes, and director compensation. The corporate governance package in listed firms differs from that in unlisted firms in terms of levels and mix of the different provisions. The data also suggest that listed firms perform better.

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This paper compares listed and unlisted Swiss firms and explores whether listed firms structure their governance to better protect minority shareholders and raise funds from the capital markets. In our comparison, we examine disclosure policies and study board related characteristics such as nominating authority, tasks, composition, term, meeting frequency, and compensation. We also ask whether listed firms actually do more for their shareholders.

According to La Porta, Lopez-de-Silanes, and Shleifer (1999), the problem of minority protection is fairly acute in countries outside the United States since firms in other countries are often controlled by blockholders. In Switzerland, not surprisingly, protecting minority investors has been the main motivation driving corporate governance discussion and the revisions of corporate legislation during the past fifteen years. This paper investigates whether listed firms care more for shareholders at large than unlisted firms do.

Our investigation is ultimately related to the decision to go public.¹ In making that decision, the controlling shareholders compare marginal benefits and costs. The marginal benefits include the opportunity to dispose of shares in a more liquid market, the ability for shareholders to diversify risk (Bodnaruk, Kandel, Massa, and Simonov, 2007), gains from market timing (Burch, Christie, and Nanda, 2004; Pagano, Panetta, and Zingales, 1998), and a lower cost of capital (Pagano, Panetta, and Zingales, 1998). They also include the ability to tap new sources of capital (Kim and Weisbach, 2005), reputational advantages (Brau and Fawcett, 2006), and increased flexibility in designing performance based compensation (Schulze, Lubatkin, Dino, and Buchholtz, 2001). The marginal costs

¹ Listed firms that wish to raise capital can further protect minority shareholders by cross-listing on exchanges that subject them to stricter securities laws (Stulz, 1999; Pagano, Röell, and Zechner, 2002; Reese and Weisbach, 2002). On the decision on which exchange to list, see Anderson and Dyl (2008).

include giving up private benefits of control (Zingales, 1995; Benninga, Helmantel, and Sarig, 2005) and the cost of listing.

Whatever they might be, the benefits of going public hinge on being able to raise money in the public markets at the time of the IPO and subsequent rounds of financing (Kim and Weisbach, 2005).² Consequently, it would seem that listed firms have to find ways to attract minority shareholders (Jensen and Meckling, 1976; Baker and Gompers, 2003). Presumably, that requires giving them better protection from expropriation by controlling shareholders than that available while the company is privately held (type-2 agency problem). Moreover, since listing generally leads to a more diffused control structure, listed firms also have an added incentive to find ways to protect shareholders against self-serving managers (type-1 agency problem).

Our study should contribute to the literature in four ways. First, we investigate whether the corporate governance package of listed firms differs from that of unlisted firms. Second, we examine unlisted firms. We know very little about these firms (Zingales, 2000) and even less about their boards (Hermalin and Weisbach, 2003).³ Third, we hope to contribute to a better understanding of the actual relevance of governance problems. And fourth, by relying on a survey of chairmen of the board (COBs), we ask direct questions that would be difficult to answer using conventional data.

Investigating corporate Switzerland is not necessarily a restriction. The Swiss equity market capitalization is the tenth largest in the world and the fifth largest in Europe. Our sample includes global players such as ABB, Credit Suisse, Novartis, Roche,

² Unlisted firms could also sell out to public companies (Poulsen and Stegemoller, 2008).

³ The literature, however, has begun closing this gap (Cole and Mehran, 2008). For a survey that reviews board characteristics, see, among others, John and Senbet (1998) and Hermalin and Weisbach (2003).

Syngenta, and UBS. Switzerland is also an interesting case because of its institutions. Swiss legal guidelines are fairly tolerant in matters related to corporate governance. This means that many of the governance measures firms adopt are voluntary and not imposed by law or regulation.

The evidence we uncover is generally consistent with the hypothesis that listed firms are concerned about minority shareholders and that they address this problem with larger doses and a different mix of remedies. Unlike our observations of unlisted firms, controlling shareholders have a looser grip on listed corporations. Moreover, listed firms disclose additional and more detailed information even when not required to, and they opt for board design, composition, processes, and incentives that are consistent with the need to give minority shareholders more protection. The boards of unlisted firms are different in this regard, but they are in no way without real function. The evidence also suggests that listed firms perform better, at least as measured by their industry-adjusted sales growth, the only measure available to us. This finding, however, is tentative and needs to be buttressed further.

The remainder of the paper is organized as follows. The next section presents the investigation design in more detail. Section II discusses the data and their source. Section III examines the control structure of listed and unlisted firms. Section IV compares the disclosure practices of those firms. Section V contrasts board architecture and processes in the two groups of firms. Section VI investigates those differences in a multivariate context. Section VII inquires into the adoption of anti-takeover defenses. Section VIII examines differential firm performance, and Section IX draws conclusions.

I. Methodology

Since unlisted firms do not depend much on the capital markets, they have few incentives to disclose any information—and there is little they have to disclose under Swiss law. In addition, their boards might simply be there because the law prescribes their existence. In contrast, listed firms have different incentives. If they want to raise money from the general public on favorable terms, they have to attract investors (Jensen and Meckling, 1976). They have to solve a governance problem, namely the protection of minority investors (a type-2 agency problem), which unlisted firms do not have to deal with. That means becoming more transparent while at the same time choosing board structures and designing board processes that make it difficult for controlling shareholders to expropriate their fellow shareholders. Moreover, since listing relaxes the hold that controlling shareholders have on their firms, it would seem that listed firms have added reasons to address the issue of diverging interests of shareholders and managers, a type-1 agency problem. Hence, they have to provide managers and directors with the appropriate incentives. The purpose of this paper is to test these predictions. We also test whether listed firms have a more diffuse control structure, and whether they perform better.

In principle, the analysis should compare firms before listing and right afterward. Unfortunately, we only have data concerning a cross-section of listed and unlisted firms, and very little information about the listed firms when they go public. Hence, we conduct a cross-sectional comparison of listed and unlisted firms. In a paper with a similar purpose, Gertner and Kaplan (1996) examine the board structure of firms that undergo a reverse leveraged buyout. For comparable reasons, however, they investigate the years

immediately after the IPO. Baker and Gompers (2003) perform a study of the boards of firms that go public. Still, they do not compare pre- and post-IPO board characteristics, but rather board characteristics of venture and nonventure capital backed IPO firms. Crutchley, Garner, and Marshall (2002) could be an exception. They study how changes in board composition of firms that go public are related to post-IPO performance. The question is whether these firms adapt their board structure in anticipation of the IPO or only thereafter.

A critical difficulty in carrying out our investigation arises because many of the dimensions of corporate governance we are interested in could be the result of deliberate optimization and, therefore, be interdependent (see Hermalin and Weisbach, 2003). The problem is that we do not know of any paper that formally describes the result of such an optimization (Hermalin and Weisbach, 2006). What we can do, however, is focus on the reduced form of these hypothetical models, and examine whether being listed affects the equilibrium characteristics of interest, such as control structure or board independence. What follows explains the design of our investigation in the necessary detail.

Formally, suppose there are M structural equations and M endogenous variables represented by the vector y_t that describe the optimal structure and processes of corporate governance. Also, suppose there are K exogenous variables with an influence on corporate governance as summarized by the vector x_t . The structural form of the model is:

$$y_t' \Gamma + x_t' B = \varepsilon_t'$$

where Γ and B are parameter matrices, and ε_t is a vector of uncorrelated disturbances randomly drawn from an M -variate distribution with zero expected values and finite variance-covariance matrix (Greene, 2000). Assuming Γ is nonsingular, we can write the reduced form of the model as:

$$y_t' = -x_t' B \Gamma^{-1} + \varepsilon_t' \Gamma^{-1} = x_t' \Pi + v_t' \quad (1)$$

As pointed out above, we are unable to estimate the structural coefficients Γ and B of the model. We can, however, examine whether various dimensions of corporate governance in listed firms differ from those we observe in unlisted firms. This means comparing the left-hand side of the reduced form of the corporate governance model in listed firms with that of unlisted firms (Equation 1). We can do so without being concerned about the fact that the corporate governance dimensions we study are interdependent. In doing so, we have to take the listing decision as given. We investigate various internal governance mechanisms, namely control structure as well as board architecture and processes. This first step of the analysis can be carried out with a series of mean (median) comparison tests.

Finding a difference between listed and unlisted firms could be induced by different reduced form parameter coefficients, Π , or because the sample averages of the exogenous variables in the model differ across firms (e.g., listed firms could be larger). If the package of corporate governance provisions in listed firms is different, we would expect different coefficients since the various governance instruments have to be calibrated in a different ways. The second step of our analysis, therefore, investigates

differences in the parameters Π . We perform a Chow test to examine whether the unrestricted Regression (1) estimated for the pooled sample of firms does equally well in terms of explanatory power as a separate regression for each subsample of listed and unlisted firms. Conditional on finding a difference, we then look for differences in individual coefficients. For each governance dimension of interest, we estimate the regression equations in Equation (1) as follows:

$$y_{it} = \pi_{0i} + \pi_{1i}x_{1t} + \pi_{2i}x_{2t} + \dots + \delta_{0i} \times D_i + \delta_{1i}x_{1t} \times D_i + \delta_{2i}x_{2t} \times D_i + \dots v_{it}, \quad (2)$$

where D_i is a binary variable equal to one if the firm is listed, and equal to zero otherwise. If corporate governance solutions differ in listed firms, at least some of the δ_i coefficients will be significantly different from zero. Put differently, it is not enough to add the binary variable D_i in Equation (2) to assess the impact of listing. We also have to allow for changes in the parameters associated with the exogenous variables. Note that this analysis is also possible when the governance characteristics examined are not the result of deliberate optimization, but the cumulative result of past events such as the firm's financing history (Baker and Gompers, 2003).

Of course, the listing decision per se is endogenous at some point in the history of a corporation as well (Zingales, 1995; Pagano and Röell, 1998; Boot, Gopalan, and Thakor, 2003, 2006a, 2006b). In our discussion, we have taken that decision as given. However, in some cases, this potential endogeneity problem cannot be avoided completely, even if listing has occurred years in the past. These are cases in which the governance variable of interest (e.g., board independence) induces listing rather than

being affected by it. In these cases, it is difficult to interpret the preceding tests and say something about causality. To get around that problem, we replicate the analysis by instrumenting the binary variable D_i . We discuss the details of that procedure in the empirical section.

The second difficulty in testing our predictions is that listed firms have to do more about corporate governance by law or to meet the SWX Swiss Exchange's (SWX) mandatory guidelines. In and of itself, this does not contradict what we are saying since law and exchange guidelines are ostensibly meant to protect minority investors. Yet we cannot be sure. The law could be there to protect incumbent firms against their young competitors. If so, the type of governance firms adopt could be unrelated to their desire to attract investors. Our investigation, therefore, focuses on aspects of corporate governance that firms can adopt voluntarily.

II. Sample Characteristics

The governance related data for this study come from a survey conducted in 2003 when we sent a questionnaire to the COBs of the 1,102 largest firms headquartered in Switzerland.⁴ Those firms included 176 companies listed on the SWX in Zurich accounting for 97.8% of the exchange's total market capitalization. A total of 271 usable questionnaires were returned for a response rate of roughly 25%. The breakdown of the sample is 73 SWX listed firms (response rate of 41% representing 66% of the exchange's total market capitalization), 10 firms listed on foreign exchanges, 3 firms traded on the OTC market, and 185 unlisted firms (response rate of 21%). The sample therefore

⁴ This directory is from the publication "Top 2002 / Die grössten Unternehmen in der Schweiz," printed by Handelszeitung, a business weekly.

includes 86 firms, which we refer to as listed and 185 unlisted firms. All unlisted firms in our sample would meet the listing requirements of the Swiss Stock Exchange's local segment. The industry composition of the two subsamples is similar. We also use data on disclosure practices. We take these data from corporate web sites.

Actually, unlisted firms could have traded bonds outstanding. If so, they would be subject to the same SWX transparency and disclosure rules as if they had listed equity. However, only very few unlisted corporations issue public debt. Those that do are mainly electrical utilities and banks. As it turns out, none of our unlisted firms have listed bonds.

Most unlisted firms finance themselves with internally generated funds and bank loans. Of course, good credit terms require a certain amount of disclosure and good governance, too. However, disclosure to banks does not have to be public. Moreover, due to the shareholders' status as residual claimants, the standards that good governance has to meet to attract minority shareholders are probably tighter than those required by creditors and banks. Hence, we do expect the differences hypothesized in the preceding section even if unlisted firms borrow from banks.

The challenge in relying on a survey is that our firm sample is not necessarily random. First, we survey only large unlisted firms. Thus, the results cannot be generalized to all unlisted firms. Since large unlisted firms might be planning and preparing for an IPO, the sample of unlisted firms might, in fact, be quite atypical. We will investigate this issue. As it turns out, only one of our unlisted firms went public during the five years since the survey. Furthermore, in and of itself, having a sample of unusually large unlisted firms should work against finding a difference between listed and unlisted firms. The second potential selection bias is that it is possible that only firms

with good governance choose to participate in the survey. Again, this bias is a limitation only if we do not find a difference in governance practices between listed and unlisted firms.

Table I displays descriptive sample statistics. The listed firms are a median eight years younger than unlisted firms (49 versus 57 years since incorporation), but the difference is statistically zero. Consequently, both sets of firms contain rather mature firms. For the listed firms, this also holds true for the time since listing; only 13 have gone public during the five years before the year of the survey (not shown). In addition, the table indicates that listed firms employ significantly more people; the median listed firm has almost 30 times as many employees as the median unlisted firm (namely 8,000 versus 300). The median listed firm is also much larger in terms of share capital, 38 million USD as compared to 2 million USD, assuming an exchange rate of CHF 1.3 to the USD. There are, however, fairly large firms among our unlisted firms as well. In fact, 21% of them employ more than 1,000 people. Table II provides the definition of all the variables in the analysis.⁵

Insert Table I about here.

Insert Table II about here.

III. Control Structure

To be able to raise outside capital more cheaply, controlling investors may have to give up some control in an IPO as a precommitment to limit the expropriation threat

⁵ A letter in front of a given acronym identifies all binary variables in the analysis.

(Pagano and Röell, 1998). Listed firms should, therefore, be less closely held.

Additionally, and by the same argument, the controlling shareholders in listed firms should sit less frequently on the board. Our results are documented in Table III. In interpreting them, one should point out that in most unlisted firms, voting rights equal cash flow rights. Only 5% of these firms have dual classes of stock. In contrast, the fraction of listed firms with dual class structures is 12%, which creates a wedge between the voting and cash flow rights controlled by the largest shareholder and by the board.⁶

Insert Table III about here.

As predicted, listed firms are less closely-held. The largest shareholder holds a median 70% of the votes in an unlisted firm as compared to only 24% in a listed firm. There is a wide cross-sectional variation in these holdings in either sample. If the observed shareholdings are an equilibrium solution, there must be other presumably potent devices to align the interests of shareholders and managers or to limit private benefits of control. Aggregate blockholdings (defined as aggregate holdings of shareholders with a stake larger than 5%) are less significant in listed firms, as well. They make up a median 45% of the votes in listed firms as compared with 100% of the votes in unlisted ones. The cross-sectional variation is also substantial here. Interestingly, neither the largest shareholder nor blockholders are usually managers or directors in listed firms,

⁶ There were no changes in the tax law during the period under consideration. Hence, the ownership structure we observe is unrelated to tax changes. Interestingly, tax considerations would seem to discourage listing in Switzerland. On the one hand, there is a wealth tax, but it is usually only a few points every thousand Swiss francs. Still, wealthy individuals must come up with a significant amount of cash every year to pay that tax, and a listed stock enables stockholders to do so by selling in the open market. Conversely, unlisted firms have the advantage that their stock price must be estimated and the imputed prices typically have a significant downward bias.

since board and management control only a median 1.0% of the votes each. In contrast, the largest shareholder in an unlisted firm is generally a board member (directors as a group hold a median 75% of the votes, similar to what the largest median shareholder controls). However, the median holdings by managers are zero in unlisted firms as well. As it turns out, this latter result is not typical of unlisted firms, but only of the larger ones.⁷

Even though listed firms have a more dispersed control structure, both types of firms confront similar potential conflicts of interest. First, since the largest shareholder does not typically control 100% of the votes in either firm, both listed and unlisted firms face potential type-2 agency problems. However, only listed firms may wish to do something about this problem as they depend more strongly on outside financing. Second, since management owns little if any stock, both listed and unlisted firms face a potential separation of ownership and control problem (Berle and Means, 1932). In listed firms, this type-1 agency problem could be exacerbated by the fact that the board owns very little stock.

IV. Disclosure

Listed firms are required by law and the SWX guidelines to make various pieces of information publicly available, including their financial statements. In comparison, unlisted firms are not required to disclose much of anything. Corporate law asks them to file only the following information with the commercial register: a) name, place, and date

⁷ To document this, we collected ownership data for a large random sample of unlisted Swiss firms with at least 25 employees and sales in excess of CHF 3 million. The median firm in that sample has only 55 employees (as compared with 300 here) and its managers control 52% of the votes (as compared with 0% here).

of incorporation, b) purpose, c) corporate charter, d) number of shares outstanding, par value, and restrictions on the transferability of shares, and e) names of the directors. Since they do not want to attract investors at large, unlisted firms might choose to reveal as little information as possible. Doing otherwise would be costly and assist their competitors. Some disclosure, however, might be necessary to attract customers and employees.

Comparing the disclosure policy of listed and unlisted firms can be a problem, however, as it may be difficult to assess what listed firms would have disclosed had they not been forced to do so by law. To get around this issue, we focus on voluntary disclosure and investigate the amount of information provided by the corporate web sites of listed and unlisted firms. We expect listed firms to offer significantly more information (Healy and Palepu, 2001).

Table IV seems to bear out this prediction. All listed firms and an overwhelming majority of the unlisted ones (91%) have corporate web sites. Unlisted firms provide only scant financial information on their sites. Forty-seven percent do not provide any financial information, 15% disclose only last year's sales, 12% provide data about sales or earnings during the past three years, and merely 25% publish full balance sheets or income statements. In comparison, almost all listed firms (90%) post their full balance sheets and income statements. The difference is statistically significant.

Insert Table IV about here.

Additionally, about 91% of all listed firms make the annual report available and 57% display their organizational chart. Significantly fewer unlisted firms do so. Scarcely 25% include their annual reports and fewer yet list their organizational charts.

Listed firms tend reveal more, consistent with our contention that they want to be more transparent. To determine whether the results reflect a genuine listing effect rather than a size effect, the table replicates the comparison by restricting the attention to the larger firms in the unlisted sample (i.e., those with more than 1,000 employees). The results remain the same. Moreover, in multivariate logit regressions of whether or not firms make a particular item available on their corporate web sites, listing status has a positive and significant coefficient even after controlling for industry and age in addition to firm capitalization (not shown).

Overall, listed firms seem to voluntarily disclose more. In the following section, we ask whether they also structure their board to attract minority investors.

V. Board Architecture and Processes

Boards have an important role in protecting minority shareholders (Anderson and Reeb, 2004). However, there are hardly any provisions in Swiss corporate law or in the SWX's regulations concerning board structure. Corporate law, in particular, only says that the majority of directors have to be Swiss citizens, that all directors must own at least one share of stock, and that boards must have at least one member (three at the time of incorporation). Other than the law, only the Swiss Code of Best Practice (SCBP) addresses board-related matters. The SCBP recommends, for example, that the majority of the board consist of nonexecutives. Yet these recommendations are discretionary. The

code is issued by Economiesuisse, the largest private umbrella organization of Swiss businesses from all sectors of the economy. Unlike what happens in the U.K., firms that do not comply with the code do not even have to explain why.

We can, therefore, test whether listed firms voluntarily design their boards to give minority shareholders better protection. We begin with a discussion of board architecture. Section VI.2 examines the board's nominating authority. Section VI.3 reviews board processes, tasks, and incentives.

A. Board Architecture

To be effective, listed firms have to find appropriate board structures. Panel A of the table examines size, independence, the presence of blockholders on the board, as well as COB-CEO duality. The results are in Panel A of Table V.

Insert Table V about here.

1. Board Size

Being a publicly traded company would seem to complicate board activities as the firm has to interact with capital markets. Among other things, listed firms have compliance issues to deal with, they have to address delicate disclosure questions, and they have to protect minority investors. This complexity requires more resources and, possibly, larger boards. Of course, small boards have their advantages, too. They would seem to be more efficient and to make it more difficult for directors to free ride (Lipton

and Lorsch, 1992; Jensen, 1993).⁸ The net effect is an empirical issue. According to Jensen (1993), board effectiveness starts declining when board size exceeds seven-eight directors.

The data indicate that the boards of listed firms are significantly larger than those of unlisted firms, consistent with the hypothesis that listed firms face more complex issues. We find a median board size of six in listed firms and five in unlisted ones (the average numbers are seven and five, respectively).⁹ Economically, the difference does not appear to be very large. Remember, however, that the unlisted firms in the sample are larger than normal.¹⁰ Size alone, however, is not responsible for the difference. As illustrated in the table, listed firms have larger boards even when we compare them with the larger firms in the unlisted group.

We also asked COBs to indicate what board size would be optimal. In both types of firms, actual average size corresponds to ideal size (not shown). Thus, there is reason to believe that the various corporate governance dimensions we observe are equilibrium values. It is appropriate to think of them in terms of the simultaneous equations model discussed in Section II.

2. Board Independence

The preceding evidence suggests that controlling shareholders give up some control when the firm is listed. Taken alone, this would seem to exacerbate type-1 agency

⁸ Yermack (1996) and Eisenberg, Sundgren, and Wells (1998) find that smaller boards are associated with higher firm value. See also Bennedsen, Kongsted, and Nielsen (2006).

⁹ For a comparison, Loderer and Peyer (2002) document a median board size in SWX firms of nine in 1980 and seven in 1995. Therefore, board size in listed firms seems to have fallen over time. Interestingly, listed firms in the U.S. seem to have larger boards than their Swiss counterparts. Lehn, Patro, and Zhao (2004) report a median board size of 11.

¹⁰ The separate random sample of unlisted Swiss firms with at least 25 employees and sales in excess of CHF 3 million mentioned in Footnote 6 above has a median board size of four.

problems. Independent boards that care about their reputation as good monitors of managers and enforcers of effective management policies can help reduce the significance of those problems (Hermalin and Weisbach, 1998; Bhagat and Black, 1999). These same reputation concerns will also tend to induce independent directors to protect minority shareholders from expropriation.

We define independent directors as individuals without business ties to or a managerial job in the firm during the past three years (SCBP). Consistent with our prediction, the fraction of independent directors in listed firms is a median 80%, significantly larger than the 50% observed in unlisted firms.¹¹ The proportion of listed firms with a fraction of independent directors larger than 50% is also larger (89% versus 62%). We retain the same results when we drop the smaller firms from the unlisted sample. Note that the cross-sectional variation in board independence is once again substantial, especially among unlisted firms.

3. Blockholder Board Representation

In Table III, we documented that the largest shareholder sits less frequently on the board of listed firms. The reason, we argued, could be the need to signal a credible commitment to limit his private benefits of control. This empirical regularity seems to extend to blockholders in general. Sixty-one percent of listed firms have at least one blockholder on their board, as compared with 72% in unlisted firms. The difference is marginally significant. The subsequent analysis indicates that the difference becomes substantial in a multivariate context. Interestingly, however, when we restrict our

¹¹ In spite of intense discussion in the media and the pressure by regulators, board independence in listed firms in Switzerland is still about where it was during the past fifteen years (Loderer and Peyer, 2002).

attention to family firms, we find the opposite; namely that blockholders are significantly more likely to be directors, regardless as to whether the firm is listed (not shown).¹² It may be that keeping up family traditions is an overriding consideration in family firms.

4. CEO-COB and CEO-Director Dualities

The practice of CEO-COB duality is fairly controversial and differs significantly across countries (Dalton and Kesner, 1987; Dahya, McConnell, and Travlos, 2002). Whereas the media, shareholder activists, and regulators seem to believe that it is poor practice to have the same person serve as the CEO and the COB of a company, the evidence does not seem to bear this out (Brickley, Coles, and Jarrell, 1997).

We look for differences in duality between listed and unlisted firms. If this phenomenon does indeed create agency problems, we would expect listed firms to less frequently engage in this practice since they depend more on capital markets. According to the evidence, the fraction of firms with CEO-COB duality is 20% in listed firms and 28% in unlisted firms; the difference, however, is statistically zero, a result which will be confirmed in our subsequent multivariate analysis. Note that CEO-COB duality is reasonably diffused, but not as dispersed as in the U.S. According to Lipton (2008), 55% of the (listed) firms in his sample contain that characteristic.

Finding little differences in CEO-COB duality, however, does not necessarily mean that there are no problems associated with it. In fact, when we look at listed firms with that duality, we find that 73% have a lead director. That is consistent with what Lipton (2008) recommends and the SCBP suggests that firms do. Only 37% of unlisted

¹² Forty-four percent of the listed firms and 33% of the unlisted ones are family firms (defined as firms in which a member of the founding family sits on the board of directors).

firms have a lead director. The difference is statistically significant, even when we drop the smaller firms in the unlisted sample.

B. Nominating Authority

We ask the COBs to tell us which parties have a say in the nomination of directors. They can rate the influence of various parties on a scale of one to four, with one being the weakest influence. To guarantee separation of powers and cater to shareholders at large, listed firms should avoid giving nominating authority to management. Also, to limit the consumption of private benefits of control, they should restrict blockholders' ability to influence the composition of the board.

Panel B of Table V compares the average nominating authority of various groups of individuals inside and outside the firm. The first difference we notice is that the party with the greatest say in listed firms is the board, whereas in unlisted firms it is the blockholders. This is consistent with the claim that listed firms want to limit conflicts of interest and attract minority investors. Similarly, insiders, such as the CEO, have comparatively less nominating authority in listed firms, but the difference is not significant. In either type of firms, however, the CEO has less to say than the board or the blockholders. Separation of powers is, therefore, a principle practiced to some extent in all sample firms, regardless whether they are listed. We also find that institutional investors carry more nominating weight in listed firms.

C. Board Processes, Tasks, and Incentives

This section compares the functioning of boards, as well as the tasks that they are designed for. In addition, it takes a look at how directors are compensated.

1. Board Term and Meeting Frequency

Unless the corporate charter specifies otherwise, Swiss corporate law requires a term of three years; the legal maximum is six, and re-election possibilities are unrestricted. The evidence reveals a board term of three years in 64% of the listed firms (not shown). Three years is also the most common term in unlisted firms (46% of the cases). The difference is significant, but it disappears when we restrict our univariate analysis to the larger firms in the unlisted sample. The subsequent multivariate analysis confirms the existence of a difference.

According to Vafeas (1999), board meeting frequency is an important dimension of board operations. If board meetings have a real purpose, one would expect boards to meet more often in listed firms. Most listed firms (51%) meet between six and eight times a year, whereas 50% of the unlisted firms meet between three and five times (not shown).¹³ The difference is significant with confidence of 0.99, but it disappears once we limit our univariate analysis to the larger firms in the unlisted sample. The subsequent multivariate analysis indicates that there is indeed a difference.

2. Board Tasks

According to the literature, the three main functions boards fulfill are advising managers about business strategy (Fama and Jensen, 1983), monitoring managerial performance (Fama, 1980; Hermalin and Weisbach, 1998; Monks and Minow, 2001;

¹³ Adams (2003) reports an average 7.6 regular board meetings in Fortune 500 firms.

Adams, 2001), and looking after the interests of stakeholders (Adams, 2003). In Section IV, we have seen that unlisted firms are closely held and that their largest shareholder is usually a director. Even though the law places boards formally in charge of strategy definition and monitoring, this shareholder will want to have control. If so, the boards of unlisted firms will tend to be more like rubber stamp assemblies than effective organizations. In contrast, the boards of listed firms should have actual (as opposed to formal) responsibilities.

To find out whether this is true, we ask the COBs in our sample to indicate the activities that their boards are responsible for and to specify the importance of those activities. The activities range from strategy definition to company representation. The results in Panel C of Table V indicate that the boards of listed firms are significantly more engaged in the appointment and dismissal of managers, the monitoring of the CEO (consistent with Hermalin and Weisbach, 1998), and the management of the relations with key investors. This result also holds when dropping the smaller firms in the unlisted sample. There is no difference between the two sets of firms, however, when it comes to strategy definition and monitoring the firm's financial situation. An active supervision of the firm's finances is not surprising since directors are liable for delays in declaring bankruptcy regardless of whether the firm is listed.

3. Board Compensation

Listing and the associated need to protect minority investors should also have an impact on the composition of directors' compensation packages. Since they tend to be confronted with a greater type-1 agency problem, listed firms may want to link pay to

performance thereby introducing incentive mechanisms that replace the direct monitoring of the controlling shareholders.

The evidence supports this prediction, at least when we ignore the smaller firms in the unlisted sample. When we don't ignore them, we find that 18% of listed firms pay their directors on a variable basis as compared to 14% of unlisted firms (Panel C of Table V). Yet when we do ignore the smaller unlisted firms, the percentage of unlisted firms that rely on variable forms of director compensation falls to 3%, which is significantly smaller than 18%.

Overall, the boards of listed firms tend to differ from those of unlisted firms along the lines we would expect. They are larger and more independent, get paid more frequently on a variable basis, and are more likely to have a lead director in the case of CEO-COB duality. Moreover, nominating authority lies more often with the board itself and less often with blockholders. Also, the boards of listed firms are more extensively involved in the monitoring of the CEO and the appointment and dismissal of managers. Since there is evidence that board size and composition evolve after companies go public (Boone, Field, Karpoff, and Raheja, 2007), we repeated the analysis by restricting the sample of listed firms to those with an IPO in the past ten years (28 firms). The results are essentially the same (not shown).

VI. Multivariate Analysis

This section probes the observed differences in corporate governance dimensions between listed and unlisted firms in a multivariate context. The question it seeks to answer is whether the governance model that is optimal for listed firms differs from that

which is optimal for unlisted firms. We can find out by examining whether the reduced form (Equation 1) of the model in listed firms has different parameters Π than the one in unlisted firms. Those parameters are a function of the limitations of the structural form of the model. A difference would mean that the remedies in the governance package of listed firms have different dosages and mixes. In contrast, finding no difference would indicate that the evidence of different governance dimensions in our univariate analysis is due to different means in the exogenous variables of the model.

A. The Results

For simplicity, we formally report the results of our estimation of Equation (2) only for a subset of the governance dimensions discussed in Table V. We examine the control structure of the firm, namely the fraction of votes controlled by the largest stockholder, the board, and management, respectively. In addition, we investigate board size, independence, blockholder representation, and variable compensation. The regressions with a binary dependent variable are probit regressions; the rest are OLS regressions. The independent variables are firm size (LNSIZE), two binary variables that identify firms in the financial industry and the high-tech industry, respectively, and a binary variable that measures the firm's listing status.¹⁴ To allow for different doses of the remedies in the corporate governance package of listed and unlisted firms, each one of these variables is also multiplied by listing status and included as an interaction term.

The main body of Table VI illustrates the coefficient estimates of Regression (2) for the subset of governance dimensions in question. Unless stated otherwise, statistical

¹⁴ High-tech firms are in the chemical/pharmaceutical, med-tech, technology/information systems, or the telecommunications industry.

significance is with confidence of 0.95 in two-sided tests. The F-tests reported at the bottom of the table indicate that these coefficients are always jointly significant with confidence of 0.95 or better. The only exception is the regression that examines how intensely the board monitors the CEO. At the bottom of the table, we also report the results of a Chow test, which indicates that listed and unlisted firms have different regression coefficients (except when it comes to board size and board monitoring of the CEO). Consequently, the governance package in listed firms differs significantly from that in unlisted firms. The same conclusion applies when we omit the smaller firms in the unlisted sample (the Chow test for the fraction of votes controlled by management, however, is insignificant).

Insert Table VI about here.

As for the individual regression arguments, we find various instances in which listing status has a significant coefficient either by itself or in conjunction with other exogenous variables. These results suggest that the optimal corporate governance package of listed firms is different. In part, firms address their governance problems by simply adjusting the level of their governance tools (e.g., by choosing larger boards or opting for greater board independence). This is what the significant coefficient of listing status alone suggests. In part, however, tools are combined in a different way. This is what the significant joint effects imply since they suggest that the coefficients of the reduced form of the corporate governance models of listed and unlisted firms are different (remember that these coefficients are functions of the structural coefficients).

To gauge how the governance dimensions in the table differ across the two groups of firms, we can draw on the information provided in the table. First, we use the regression coefficient estimates of the listed firms to predict the level of a given governance dimension of interest (e.g., board size) for each listed firm in the sample. Then, we predict board size for the same set of listed firms using the coefficients reported for the unlisted firms. This latter prediction gives us the board size each individual listed firm would have if it were not listed. Finally, we run a median comparison test of the two sets of predictions. If listing affects board size, we should find a significant difference. We perform this test for each individual column in the table. The results are reported in the last row of Table VI. Listing has a significant impact on all the governance dimensions examined in the table. The largest shareholder, the board, and management control fewer votes in listed firms. Moreover, the boards of listed firms are larger, more independent, more involved in monitoring the CEO, and more likely to have variable compensation.

We performed the same investigation for all the governance dimensions discussed in Table V that are not reported in Table VI. They confirm the results of the univariate analysis. With one exception, the differences discussed there become statistically more significant. The exception is CEO-COB duality for which there is no difference even in a multivariate analysis.

Overall, the evidence suggests that if there is an optimal governance model, it differs across listed and unlisted firms. It seems that the dosage and the mix of governance tools used in listed firms differ from those used in unlisted firms.

B. Robustness Tests

As mentioned in Section II, the preceding analysis assumes that listing is exogenous to the various governance dimensions. As a robustness test, we drop that assumption and instrument listing status with the industry dummies bFINANCIAL and bHI-TECH, as well as firm age (AGE). A Stock-Yogo (2003) test rejects the hypothesis of weak instruments (not shown). Firm size is included as a control. Specifically, for the specifications in the first five columns of the table, we estimate a probit regression for listing status and follow Wooldridge's (2002) procedure 18.1 to estimate the parameters of our regression equations. In contrast, to estimate the specifications in the last two columns of the table, we use the ivprobit approach as implemented in Stata 10 for the case of binary dependent variables. In all specifications, we drop the interaction terms. The second to the last row in the table illustrates the resulting chi-square values for a Wald test of exogeneity (as implemented in Stata 10) for the first five columns in the table and Wu-Hausman F-test statistics for the last two specifications. The tests are unable to reject exogeneity of listing status, which is why the table reports the results that assume exogeneity.

In an additional robustness test, we replicated the analysis involving board size by measuring that variable as the relative deviation from the median board size of the firm's industry. The results are identical in terms of sign and significance of the coefficients. The results also remain unchanged when we include the fraction of votes controlled by the largest shareholder (LARGESTVOTE) as an additional exogenous variable in the regressions (the argument being that it is corporate governance that accommodates to the stake of the largest shareholder rather than the other way around).

VII. Buildup of Takeover Defenses

Control is generally contestable in listed firms since any investor can buy stock. In comparison, unlisted firms are less exposed to the threat of takeover as they are closely held and their shares are not traded on an organized exchange. The rationale for adopting takeover defenses could be the managers' attempts to avoid the discipline of capital markets and to protect their on-the-job consumption. These defenses, however, could also be justified on the basis of efficiency arguments. They could, for example, increase firms' bargaining power in takeover contests (DeAngelo and Rice, 1983; Stulz, 1988) or prevent managerial myopia (Stein, 1988). In what follows, we test for differences in takeover defenses in listed and unlisted firms. Daines and Klausner (2001) study a sample of firms that go public from 1994-1997 and find that anti-takeover provisions are common in IPO-stage charters. In that paper, the need to boost bargaining power and the threat of market myopia, however, cannot explain the existence of these provisions and neither can the managers' desire to protect their privileges.

Table VIII describes the frequency of three types of anti-takeover mechanisms: 1) voting restrictions, 2) dual-class structures, and 3) staggered boards. Voting restrictions exist in about 30% of listed firms as compared with roughly 10% of unlisted ones; the difference is statistically significant. As already previously mentioned, dual-class structures are comparatively infrequent, although more prevalent in listed firms (12% of listed firms as compared with 5% of unlisted ones). This difference is also statistically significant. Finally, there is essentially no difference in the frequency of staggered boards; 26% in listed firms versus 22% in unlisted firms. Note that in Switzerland, unlike

what happens in the U.S. (Bebchuk, Coates, and Subrahmanyam, 2002), it is not possible to install staggered boards in such a way that dismantling them would require shareholder and board approval.

The last row of the table extends the analysis to a multivariate context and demonstrates the results of a median comparison test of the importance of listing with an approach similar to that used in Table VI. Accordingly, all three anti-takeover mechanisms are more likely in listed firms.

Insert Table VIII about here.

VIII. Firm Performance

To be attractive, listed firms eventually have to deliver their implicit promises of protection for minority investors in dollars and cents. This section queries as to whether that is indeed the case. To find out, we need performance data. Unfortunately, as we have seen, unlisted firms disclose very little, least of all performance information. The only data we have are sales figures from Bureau van Dijk's Amadeus database and only for a limited subset of firms. Table IX compares the performance of listed and unlisted firms; performance is measured as the deviation of the firm's sales growth from the industry median. The years examined are 2003-2005 and 2004-2005. The survey year is 2003.

Insert Table IX about here.

The probit regressions control for firm size, voting stake of the largest shareholder, and industry (financial and high-tech). We assume that the stake of the largest shareholder is unrelated to firm performance, although the results do not depend on that assumption. According to Table IX, listed firms experience significantly faster industry-adjusted growth, especially if we focus on 2004-2005, the years after the survey year. For those years, the difference is larger than 10 percentage points.

It is unclear, though, which way causality goes. Does listing, with the increased scrutiny by the investment community it brings about, induce firms to perform better or are better firms more likely to list? To find out, we repeat the analysis with an instrumental variable approach. In that approach, we instrument listing status once again with the industry dummies *bFINANCIAL* and *bHI-TECH*. Firm size and the stake of the largest shareholder are included as controls. We then implement Wooldridge's (2002) procedure 18.1. The resulting Wu-Hausman F-test statistic at the bottom of the table is unable to reject exogeneity of listing status. Hence, our probit analysis is appropriate. Based on this evidence, listing status induces companies to achieve superior performance.

The obvious question is whether sales growth is an adequate measure of financial performance. While in the long run the answer seems to be yes, there are many reasons to doubt it in the short run. For a general answer, we estimate correlation coefficients between sales growth, book ROA, and Tobin's Q for all firms (excluding financials) listed on COMPUSTAT from 1950-2005. Sales growth has an average correlation coefficient of 0.274 with Tobin's Q and 0.247 with ROA. In comparison, ROA has a correlation of 0.280 with Tobin's Q. Based on these numbers, sales growth is roughly as

good a measure of performance as ROA would be. Still, our results of superior performance by listed firms should be taken with a sizable dose of skepticism.

IX. Conclusions

This paper compares corporate governance in listed and unlisted firms. When unlisted firms go public, they have to attract investors at large. Their main shareholders have to give up some control and guarantee investors against expropriation by controlling shareholders and managers. To find out whether that happens, we examine the control structure and the disclosure policy of listed firms. Also, we investigate whether listed companies design their board structures, choose board compositions, and set up board processes to attract minority shareholders. Moreover, we seek to determine whether listed firms actually perform better.

The results indicate that listed firms disclose more information. Unlisted firms are very reluctant to reveal much of anything. Moreover, listed firms have a more dispersed control structure and their managers and directors control fewer votes. The evidence is mostly consistent with the hypothesis that listed firms care for minority shareholders and that they address that problem with larger doses and a different mix of remedies. Listed firms have larger boards, they assign them real tasks and responsibilities (especially monitoring as well as hiring and firing of management), and they are more likely to pay them on a variable basis. We also determine that the way the boards of listed firms operate seems to respect the separation of powers since: 1) they are substantially independent (and significantly more so than those of unlisted firms), 2) they closely monitor the CEO (more closely than in unlisted firms), and 3) they assign the nomination

of directors to fellow board members (and not to blockholders, as in unlisted firms).

There is also evidence that, in the case of COB-CEO duality, listed firms more often have a lead director. Listed firms, however, are also more likely to erect anti-takeover defenses.

Finally, listed companies seem to perform better, at least based on their industry-adjusted sales growth which is currently the only performance measure we have. This finding, however, is only tentative and needs corroboration.

Even though the overall evidence is consistent with the hypothesis that listed firms take better care of minority investors, it also suggests that the boards of unlisted firms are more than rubber stamp institutions. The boards of unlisted firms, for example, are also fairly independent and bear significant responsibility for defining the firm's strategy.

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Table I. Descriptive Statistics

The table provides descriptive statistics for the total sample of firms as well as the subsamples of listed and unlisted firms. Age is the number of years since incorporation. Column (3) reports the statistics for mean comparison t-tests and median comparison z-tests (Wilcoxon rank-sum tests). The exception is the tests involving the number of firm employees for which we report a likelihood ratio chi-squared statistic. Column (4) indicates the associated p-values for two-sided tests against zero. The data refer to Swiss firms in 2003.

	Listed Firms (1)	Unlisted Firms (2)	Comparison Test (3)	P-values (4)
Number of Firms	86	185		
Median Company Age	49	57	0.123	(0.726)
Firms with:				
fewer than 100 employees	6.98%	29.19%		
between 100 and 199 employees	3.49%	14.05%		
between 200 and 499 employees	9.30%	24.86%		
between 500 and 999 employees	15.12%	11.35%		
more than 1,000 employees	65.12%	20.54%	61.91***	(0.000)
Share Capital (millions of CHF):				
Average	230.28	18.76	5.765***	(0.000)
Median	48.95	2.50	44.857***	(0.000)

*** Significant at the 0.01 level.

Table II. Variable Definitions

bLISTED	Binary variable equal to one if the company is listed, and equal to zero otherwise.
LNSIZE	Natural logarithm of the company's book value of equity.
AGE	Firm's age since incorporation in years.
bHI-TECH	Binary variable equal to one if the firm belongs to one of the following industries: chemical/pharmaceutical, medtech, technology/information systems, or telecommunication; the variable equals zero otherwise.
bFINANCIAL	Binary variable equal to one if the firm belongs to the financial industry (banking and insurance); the variable equals zero otherwise.

Table III. Distribution of Votes

The table illustrates the distribution of votes in the 271 sample firms by type of shareholder (largest shareholder, blockholders as a group, management, and board). Blockholders control more than 5% of total votes. Column (3) reports the statistics of mean comparison t-tests and median comparison z-tests (Wilcoxon rank-sum tests with Yates' continuity correction). Column (4) demonstrates the associated p-values for two-sided tests against zero. The data refer to Swiss firms as of the end of 2003.

	Listed Firms (1)	Unlisted Firms (2)	Comparison Test (3)	P-values (4)
Largest Shareholder:				
Number of firms	86	185		
Median	23.50%	70.00%	28.192***	(0.000)
First and third quartile	1%; 54%	49%; 100%		
Fraction of votes $\geq 50\%$	33.72%	74.05%	40.079***	(0.000)
Blockholders as a Group:				
Number of firms	77	174		
Median	45.00%	100.00%	84.310***	(0.000)
First and third quartile	27%; 69%	95%; 100%		
Fraction of votes $\geq 50\%$	48.05%	94.25%	67.475***	(0.000)
Management:				
Number of firms	78	181		
Median	1.00%	0.00%	0.407	(0.523)
First and third quartile	0%; 3%	0%; 51%		
Fraction of votes $\geq 50\%$	5.13%	28.18%	21.032***	(0.000)
Board:				
Number of firms	79	181		
Median	1.00%	75.00%	35.203***	(0.000)
First and third quartile	0%; 30%	1%; 100%		
Fraction of votes $\geq 50\%$	16.46%	61.33%	47.682***	(0.000)

*** Significant at the 0.01 level.

Table IV. Information Disclosed on Corporate Web Sites

The table reports descriptive statistics concerning the information reported on corporate Web sites. Comparison test statistics are z-values from proportion tests. The exception is the test involving the financial information that firms publish on their Web sites, for which we report the likelihood ratio chi-squared statistic. P-values are for two-sided tests of difference from zero. Large unlisted firms are those with more than 1,000 employees. The data refer to Swiss firms in 2003.

	Listed Firms	Unlisted Firms	Comparison Test	
			Listed vs. Unlisted	Listed vs. Large Unlisted
Number of Observations	86	185		
Number of Firms with Web Site	86	169		
Percentage of Firms with Web Site	100.0%	91.4%	2.81***	3.06***
Financial Information:			11.26***	6.77***
No financial information	4.65%	47.34%		
Only last year's sales	4.65%	15.38%		
Only earnings or sales in recent years	1.16%	12.43%		
Full balance sheet or income statement	89.53%	24.85%		
Corporate Information:				
Annual report	90.70%	25.44%	9.87***	6.58***
Organizational chart	56.98%	23.67%	5.28***	1.85*

*** Significant at the 0.01 level.

* Significant at the 0.10 level.

Table V. Board Architecture, Nominating Authority, and Board Tasks

The table compares the boards of directors of listed and unlisted firms. Panel A reports differences in the architecture of the board. Panel B examines what influence various parties have in the nomination of new directors. Panel C looks for differences in board tasks and incentives. The COBs rate the importance of each dimension listed in the table with scores from 1-4 (1 signifying lowest importance). The second and third column in the table reports average scores for various dimensions of interest or proportions of firms with a given characteristic. Columns (5) and (6) illustrate the z-values for two-sided Wilcoxon rank-sum or proportion tests of difference between listed and unlisted firms. Q1 and Q3 in the table refer to the first and the third quartile of the distribution, respectively. Large unlisted firms are those with more than 1,000 employees. The data refer to Swiss firms in 2003.

<i>Panel A: Board Architecture</i>						
	Listed Firms		Unlisted Firms		Comparison Tests	
	Median	Q1;Q3	Mean	Q1;Q3	Listed vs. Unlisted	Listed vs. Large Unlisted
Actual Board Size (median)	6.00	5;8	5.00	4;6	5.41***	2.38**
Optimal Board Size (median)	6.00	5;8	5.00	4;6	6.12***	1.99**
Board Independence (median)	0.8000	0.67; 1	0.5000	0.33; 0.8	5.96***	4.09***
Proportion of Firms with:						
Blockholder-directors	0.6057		0.7198		1.89*	-1.13
CEO-COB duality	0.1977		0.2757		-1.38	-1.73*
Lead directors (CEO-COB duality)	0.7333		0.3673		2.49**	2.25**
<i>Panel B: Nominating Authority</i>						
	Listed Firms		Unlisted Firms		Comparison Test	
	Mean	Q1;Q3	Mean	Q1;Q3	Listed vs. Unlisted	Listed vs. Large Unlisted
Board	3.6153	3; 4	3.3497	3; 4	1.90*	1.42
Blockholders	3.1831	3; 4	3.6257	4; 4	-4.29***	-2.20**
CEO	2.5972	2; 3	2.7958	2; 4	-1.55	-1.47
Institutional Investors	1.5593	1; 2	1.1746	1; 1	4.94***	2.67***
<i>Panel C: Board Tasks and Incentives</i>						
	Listed Firms		Unlisted Firms		Comparison Test	
	Mean	Q1;Q3	Mean	Q1;Q3	Listed vs. Unlisted	Listed vs. Large Unlisted
Board Tasks						
Strategy definition	3.7674	4; 4	3.7680	4; 4	0.24	1.73*
Monitoring the financial situation	3.941	4; 4	3.864	4; 4	1.34	1.36
Appointing/dismissing managers	3.8571	4; 4	3.5460	3; 4	3.49***	2.57***
Monitoring the CEO	3.7500	4; 4	3.4740	3; 4	2.31**	2.96***
Managing relations with key investors	2.052	1; 3	1.590	1; 2	2.11**	2.35**
Board Incentives						
Variable board compensation (proportion)	0.1786		0.1421		0.77	2.31**

*** Significant at the 0.01 level.

** Significant at the 0.05 level.

* Significant at the 0.10 level.

Table VI. Multivariate Analysis

This table explores whether the corporate governance model of listed firms differs from that of unlisted ones. Each column reports the estimated regression coefficient for one particular board dimension against determining factors and the associated robust standard errors (in parentheses). Specifications 1 and 2 are estimated with robust OLS regressions while Columns 3-6 report the results from robust probit regressions. Independent variable definitions are in Table II. The second to the last row of the table tests for exogeneity of listing status computed as follows. To estimate the specifications in the first five columns, we use the ivprobit approach as implemented in Stata 10. For the specifications in the last two columns, we estimate a probit regression for listing status and follow Wooldridge's (2002) procedure 18.1 to estimate the parameters of our regression equations. In either case, we instrument listing status with the industry dummies bFINANCIAL, bHI-TECH, and AGE. Firm size is included as a control in the second stage regression. The row in question reports the associated chi-squared values for a Wald test of exogeneity (as implemented in Stata 10) for the first five columns and Wu-Hausman F-test statistics for the remaining two specifications. The next to the last two rows in the table illustrate statistics from a Chow test of differences in the coefficients of listed and unlisted firms (Chi-squared values for the first five specifications and F-values for the last two). In the next to the last row, we exclude unlisted firms with fewer than 1,000 employees. The last row reports the results of a median comparison test of the predicted board dimensions for listed firms (using the coefficients estimated for listed firms versus using the coefficients for unlisted firms). The data refer to Swiss firms in 2003.

	Largest Shareholder (1)	Managerial Ownership (2)	Board Ownership (3)	Board Size (4)	Board Independence (5)	Monitoring of the CEO (6)	Variable Compensation (7)
LNSIZE	0.013 (0.013)	-0.062*** (0.016)	-0.053*** (0.017)	0.629*** (0.102)	0.031** (0.014)	-0.090 (0.061)	-0.104* (0.059)
bFINANCIAL	-0.204** (0.083)	-0.124** (0.056)	-0.230** (0.094)	0.918* (0.475)	0.182*** (0.059)	0.052 (0.309)	-0.649 (0.472)
bHITEC	-0.061 (0.071)	-0.001 (0.078)	-0.111 (0.091)	0.178 (0.343)	-0.009 (0.072)	-0.175 (0.289)	0.287 (0.310)
AGE	-0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.000 (0.003)	0.001*** (0.000)	-0.002 (0.002)	0.000 (0.003)
bLISTED	-0.240** (0.101)	-0.173** (0.085)	-0.198 (0.123)	0.849 (0.727)	0.310*** (0.083)	-0.412 (0.481)	-0.463 (0.579)
bLISTED×LNSIZE	-0.045** (0.019)	0.043** (0.018)	0.006 (0.023)	-0.181 (0.156)	-0.011 (0.018)	0.132 (0.097)	-0.012 (0.112)
bLISTED×bFINANCIAL	0.204* (0.115)	0.111* (0.065)	0.071 (0.106)	-0.538 (1.109)	-0.146 (0.090)		1.610** (0.709)
bLISTED×bHITEC	0.074 (0.100)	-0.017 (0.088)	-0.008 (0.117)	-0.388 (0.704)	0.011 (0.089)	0.657 (0.444)	-0.254 (0.530)
bLISTED×AGE	0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.002 (0.005)	-0.001** (0.001)	0.004 (0.004)	0.009** (0.004)

Table VII. Multivariate Analysis (Continued)

	Largest Shareholder (1)	Managerial Ownership (2)	Board Ownership (3)	Board Size (4)	Board Independence (5)	Monitoring of the CEO (6)	Variable Compensation (7)
Constant	0.714*** (0.048)	0.329*** (0.062)	0.635*** (0.066)	4.253*** (0.288)	0.363*** (0.051)	0.667*** (0.230)	−0.964*** (0.236)
Observations	271	259	260	271	265	247	267
F- resp. Chi-squared test	12.26***	9.04***	26.55***	14.47***	10.30***	7.69	20.29**
Pseudo R ²	22.92%	19.20%	26.90%	32.90%	23.99%	2.30%	10.71%
Test of Exogeneity (Wu-Hausman; Wald)	0.18	0.04	1.16	0.07	0.04	0.00	1.16
Chow Test (F- respectively Chi-squared test)	10.37***	3.45***	4.76***	0.80	4.87***	6.28	15.56***
Chow Test (excluding small unlisted firms) (F- resp. Chi- squared test)	3.17**	1.43	2.94**	1.47	4.64***	4.22	19.72***
Comparison of Predicted Values (z- value)	−8.04***	−3.06***	−8.04***	2.13**	7.91***	7.13***	2.76**

*** Significant at the 0.01 level.

** Significant at the 0.05 level.

* Significant at the 0.10 level.

Table VIII. Listing Status and Anti-takeover Protection

This table compares the popularity of anti-takeover mechanisms in listed and unlisted firms. We examine the proportion of firms that limit the fraction of votes any individual shareholder can cast, staggered board provisions and dual class share structures. The test statistic in the third row is the z-value from a two sample test of proportions. The last three rows of the table report test statistics from multivariate probit regressions of the presence of anti-takeover mechanisms against determining factors. The independent variables are those from Table VI (LNSIZE, bFINANCIAL, bHITEC, AGE, bLISTED, and interaction terms). In the next to the last row, we report the chi-square values for a Wald test of exogeneity (as implemented in Stata 10) when instrumenting bLISTED with bFINANCIAL, bHI-TECH, AGE, and including LNSIZE as a control variable in the second stage regression. The last row reports the results of a median comparison test of the predicted anti-takeover mechanisms for listed firms (using the coefficients estimated for listed firms versus using the coefficients for unlisted firms). The data refer to Swiss firms in 2003.

	Voting Restrictions	Dual Class Structures	Staggered Boards
Listed Firms (N = 85)	0.2976	0.1190	0.2639
Unlisted Firms (N = 177)	0.0960	0.0508	0.1946
Comparison Test	4.14***	1.98**	1.17
Comparison of Predicted Values (z-value)	7.93***	4.33***	4.57***

*** Significant at the 0.01 level.

** Significant at the 0.05 level.

Table IX. Listing Status and Firm Performance

This table investigates whether listed firms perform better than unlisted ones. The analysis is conducted with OLS regressions with robust standard errors. Performance is measured alternatively as the average industry-adjusted rate of growth in sales from 2003-2005 (Regressions 1 and 2) and from 2004-2005 (Regressions 3 and 4). Rates of growth in sales are from Bureau van Dijk's Amadeus database. Numbers in parentheses are robust standard errors. Independent variable definitions are in Table II. The last row of the table reports Wu-Hausman F-test statistics for a test of exogeneity of listing status, which we compute following Wooldridge's (2002) procedure 18.1 to estimate the parameters of the regression equations. For that test, we instrument listing status with the industry dummies bFINANCIAL, bHI-TECH, and AGE. Firm size (LNSIZE) is the control variable in the second stage regression. The data refer to Swiss firms in 2003.

	Industry-Adjusted Sales Growth 2003-2005		Industry-Adjusted Sales Growth 2004-2005	
	(1)	(2)	(3)	(4)
LNSIZE	-0.009 (0.029)	-0.007 (0.028)	-0.002 (1.146)	0.001 (0.012)
LARGESTVOTE		0.411 (0.285)		0.106 (0.094)
bFINANCIAL	0.170 (0.212)	0.124 (0.237)	-2.605 (6.448)	-0.036 (0.071)
bHITEC	0.082 (0.171)	0.070 (0.163)	-4.923 (6.666)	-0.050 (0.066)
AGE	-0.000 (0.001)	-0.000 (0.001)	-0.053 (0.054)	-0.001 (0.001)
bLISTED	0.183* (0.111)	0.334* (0.200)	15.166*** (5.786)	0.192*** (0.074)
Constant	-0.019 (0.122)	-0.304 (0.186)	-7.285 (4.597)	-0.149 (0.091)
Number of Observations	86	86	100	100
F-Test	1.21	0.89	3.49***	2.56**
R ²	3.08%	6.62%	7.81%	9.04%
Wu-Hausman F-Test	0.12	0.09	0.83	0.84

*** Significant at the 0.01 level.

** Significant at the 0.05 level.

* Significant at the 0.10 level.

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