

Patterns of Corporate Ownership: Insights from a unique data set

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Using a data base which is exceptionally rich and accurate by international standards, this paper quantifies a wide range of ownership structure characteristics for all Oslo Stock Exchange firms in the period 1989–1997. Overall, we find that their ownership structures differ remarkably from those of other European firms. We speculate that a social-democratic rule and strong legal protection of stockholder rights may explain why the personal investment in Norwegian listed firms is so limited (low direct ownership), why the largest owner is so small (low concentration), and why the other major owners are so large (flat power structure). Our findings raise two questions about the viability of corporate governance systems in general. The first is whether delegated monitoring carried out by state bureaucrats and corporate managers is an effective disciplining mechanism. The second question is whether low ownership concentration produces strong managers and weak owners or whether the flat power structure facilitates joint monitoring by owners who are individually weak, but collectively strong. *JEL codes: G3, K22, L22.*

Does corporate governance matter? Judging from existing ownership structures and public policy in many countries, the answer is yes. For instance, national owners control the largest bank in every European country except in Belgium, and the current Norwegian government apparently thinks the state

should hold a blocking minority in the largest commercial bank. Until 1995, a regulation applying to all Norwegian firms ruled that international investors as a group could not hold more than one third of a firm's voting shares. Thus, it seems the owner's iden-

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tity is considered so important that the state uses both funds and legislation to exclude certain owner types from certain ownership positions.

Besides its identity, the size of an equity holding is also of concern for public policy. For instance, no investor can own more than 10% of a Norwegian bank or insurance firm, an investor controlling 40% of a listed firm's voting shares must give a tender offer to all remaining shareholders, and any shareholder controlling at least 90% can buy out the minority.

Public concern for the ownership structure of private firms may be rationally motivated by externalities. In contrast, private investors are concerned with corporate governance because it may influence the firm's economic performance. Corporate governance in general and ownership structure in particular is a factor of production, and the optimal ownership structure is the one which maximizes firm value. Although such a value-maximizing ownership structure is hard to specify in detail (see e.g. Hart (1995) and Shleifer and Vishny (1997)), a recent summary of the empirical research concludes that corporate governance does matter, as certain ownership structure characteristics vary systematically with firm performance (Gugler, 2001). These characteristics include owner identity (e.g. firm insiders vs. outsiders, or public vs. private investors), holding size (such as the voting power of the largest owner), and the relative size of different share classes (such as voting vs. non-voting equity).

Our paper focuses on ownership characteristics alone rather than the relationship between ownership and performance. We think there are two reasons why a descrip-

tive study of Norwegian ownership is interesting *per se*. First, our data set is remarkably comprehensive and accurate by international standards. For instance, ownership data available for the US, Japan, the UK, and continental Europe are based on large holdings only, as there are no legal requirements to report small stakes. Thus, all stakes below a minimum reporting threshold of 2–5% (depending on the country) cannot be observed. This typically implies that the owners of roughly one third to one half of outstanding equity are absent in available databases. Moreover, because a large holding is only registered when it passes certain discrete thresholds (like 10%, 20% and 50% of outstanding equity), all stakes in-between the thresholds are estimated with error. Also, except for the UK and the US, the available international evidence refers to just one or two years in the mid 1990s. In contrast, our data set, which includes every owner of every listed Norwegian firm over the period 1989–1997, offers a rather long time series which suffers neither from the large holdings bias nor the discrete thresholds problem. Apparently, no other country provides a similar opportunity to explore the anatomy of the full ownership structure of publicly listed corporations over an extended time period.

The second reason why ownership of Norwegian firms is worth considering is partly national, partly international. Beyond statistics on aggregate holdings by different investor types published by the Oslo Stock Exchange (OSE), no systematic study of ownership structure exists. Thus, although we know what fraction of Norwegian listed firms is owned by for instance all institutional investors as a group, we do not know whether the typical institutional holding is small or

large, whether such investors prefer voting to non-voting shares, or whether they concentrate their equity portfolio in certain firm types. An international rationale for analyzing Norwegian ownership structures is the current trend of comparing corporate governance systems across many countries (see e.g. La Porta et al., 1998 and Barca and Becht, 2001). This research suggests that a country's legal and regulatory regime influences its corporate governance system. For instance, it seems that the weaker the legal protection of ownership rights, the less developed the equity market, the more concentrated the ownership structure, and the lower the value creation (La Porta et al., 2000). Accordingly, insights into how the institutional environment influences corporate governance cannot be gained without a sufficiently comprehensive set of observations across different regulatory regimes. Adding new detailed insights on ownership structure in a different institutional environment may improve our general understanding of the macro-determinants of corporate governance. Such a new observation would be particularly useful if the country's ownership patterns are sufficiently different from what has been found elsewhere. Norway turns out to be such an atypical case.

The rest of the paper is organized as follows. The first section briefly describes the regulatory elements which may matter for ownership structure. The next presents key characteristics of the Norwegian stock market and our source of ownership structure data. We then classify investors into five basic types and document their aggregate holdings. We analyze the separate stake per investor in

the next section, focusing on the large owners. We then analyze how owners concentrate power by separating voting rights from cash flow rights. We finally relate our findings to the existing international evidence before summarizing and concluding the paper.¹

The institutional framework

According to La Porta et al. (1998), the value of ownership rights attached to corporate equity depends on the country's legal system and the quality of its law enforcement. The world's two major systems of commercial legislation are the common law (of English descent) and the civil law (of Roman origin). The civil law family consists of the French, German, and Scandinavian legal traditions. As Norway belongs to the latter, it is a civil law country. According to Zweigert and Kotz (1998), the Scandinavian law tradition is less closely related to Roman law than its French and German relatives.

The primary firm-external tools for regulating Norwegian corporate governance are the corporate law (*Aksjeloven*), the securities law (*Verdipapirhandelsloven*), and the listing requirements of the Oslo Stock Exchange (*Børsloven* and *Børsforskriften*). In the following, we outline and evaluate this judicial system in a corporate governance framework.

The fiduciary duty

No law or public regulation sets it as an explicit duty of the management and the board to maximize the value of equity holders' claim. On the other hand, there is no stated obligation to prioritize other stake-holders

¹The present paper draws heavily on our research report (Bøhren and Ødegaard, 2000), which contains a more comprehensive set of regulatory detail and descriptive statistics.

than owners (like creditors and employees) or to trade off potential conflicts of interest in certain ways. Thus, although stockholders cannot rely on the courts to enforce equity value maximization, it may be argued that the pressure on management towards equity value maximization has increased over the sample period. This is both due to a growing use of earnings-, stock-, and options-based incentive contracts and the trend in Norway and most other European countries to challenge the stakeholder idea by the more narrow stockholder approach to corporate governance.

The board structure

Norwegian listed firms have a two-tier board system. All firms with at least 200 employees must have a supervisory board (*bedriftsforsamling*), where 2/3 of the members are elected by the owners and one third by and among the employees. The supervisory board elects the board (*styre*), where two thirds of the seats are for the owners' candidates and one third is for employee candidates. Besides choosing the board, the supervisory board makes the final decision (based on cases passed down from the board) on large investments and on rationalizations which reduce the number of employees.

All votes in the board and the supervisory committee are by simple majority. Therefore, even though the two-tier system explicitly recognizes the employees as a legitimate stakeholder group with seats in both boards, the combined effect of election principles and voting rules still puts the ultimate power in the owners' hands.

The stockholder meeting

Any owner can put an item on the agenda for the ordinary stockholder meeting. Owners representing at least 10% (5% after 1995) of the cash flow rights can force an extraordinary stockholder meeting. Voting rules apply to owners who attend the stockholder meeting rather than to all owners. Thus, ownership without presence produces no power. Changes in the corporate charter (*vedtekter*) requires a super-majority of 2/3, whereas most other issues need a simple majority.

Mechanisms for separating cash flow rights from voting rights

Although one-share one-vote is the basic principle of the corporate law, it allows for two exceptions, provided they are explicitly stated in the corporate charter. First, the firm may issue up to 50% of its shares as non-voting. Second, firms may introduce voting caps and temporary restrictions on the right to vote.

Non-voting shares (B shares) are not always powerless relative to voting shares. When the corporate charter is up for revision, any amendment first requires a super-majority of 2/3 of the voting shares. Here, B shares are indeed powerless. However, there must also be a 2/3 super-majority among *all* shareholders (*selskapets kapital*). In this setting, non-voting shares have full power. Hence, even though owners of B shares cannot vote on matters requiring a simple majority, they enjoy full rights in one of the two voting rounds on matters which require a 2/3 super-majority. Examples are new stock issues, merger proposals, voting right restrictions, and modifications of the corporation's

objectives.

Non-voting shares served an additional function until year-end 1994. Until then, international investors could not own more than one third of the voting shares of a company. Under this regime, one way of attracting international owners without violating the ownership cap was by issuing non-voting B shares. However, this regulatory restriction was seldom binding. Among the 33 firms with dual-class shares in our sample period, only two had filled their quota of voting international investors (Ødegaard, 2000, table A.5). Hence, non-voting shares were apparently not issued to attract international investors who could not hold voting shares, but rather to give investors in general the choice between shares with full or limited ownership rights.

Although there is no general restriction on the use of *voting caps*, an industry-specific regulation states that no investor can own or vote for more than 10% of the share capital in a financial institution. As this rule is stated in terms of both cash flow rights and voting rights, the cap applies to voting shares, non-voting shares, and share-less proxy holders alike. By implicitly putting a ceiling on the maximum gap between the voting right and the cash flow right, this regulation limits the ability to separate these two components of the ownership right.

Stockholders may increase their power without buying more voting stock by establishing *voting pacts* with other stockholders. This separation mechanism is regulated to a limited extent. If a firm is aware of a voting pact between its shareholders, it must file the pact with the stock exchange. As the parties to the voting pact have no filing obligation, however, public information on voting

pacts as provided by the OSE is rather useless. In private communications with former and current OSE officials, we are told that voting pacts between stockholders of Norwegian listed firms is a rare phenomenon. Hence, this lack of data may not seriously limit our ability to capture a realistic picture on separation.

Stockholders may also transfer voting right to others by *proxy votes*. There are no restrictions on the use of proxy votes, but their existence can only be observed if they are actually used at the stockholder meeting.

Unlike countries like Italy, which has a cap on how much two firms can reciprocally own in each other, Norway has no general regulation on *intercorporate investments*. However, firms in the financial industry (insurance firms, mutual funds and banks) cannot freely hold other firms' shares. Insurance companies can hold up to 15% of the cash flow or voting rights of other firms, and mutual funds cannot own more than 10% and vote for no more than 5%. Banks have no direct restrictions in terms of a maximum percentage holding per firm. Instead, there is one cap on the total amount of equity investments across all firms and another cap on each separate investment (see Bøhren and Ødegaard (2000) for details).

In order to fully capture the effect of intercorporate investments on concentration and separation, all equity stakes in a firm must be traced through all layers of intermediate corporate share-holdings (like mutual funds or interlocking pyramids of listed and unlisted firms) back to the ultimate personal owner. The extent of separation can then be measured by the ratio of voting rights to cash flow rights held both directly and indirectly by the ultimate investor. A re-

cent paper on indirect share-holdings in Norway studies intercorporate investments between listed firms over the period 1980-1994 (Bøhren and Norli, 1997). The overall finding is that on average, listed firms hold 15% of the market value of listed firms' equity. Even though these aggregate intercorporate investments are large by international standards, the authors find that each individual holding is still small and short-lived. The mean fraction held is 2.8%, the median is 0.4%, and the mean and median holding period is respectively 1.7 and 1 year. After testing several predictions about potential determinants of intercorporate share-holdings, Bøhren and Norli (1997) conclude that most Norwegian listed firms do not make such investments primarily for strategic or control reasons, but rather as an integral part of their cash management system.

Minority protection

A wide set of regulations (partly corporate law, partly listing requirements) have been passed to prevent the unfair transfer of wealth from small to large stockholders. A flagging system informs small investors when ownership rights are transferred to the firm's large investors. Under the rules prevailing at the end of the sample period, an investor passing up or down through the thresholds of 10%, 20%, 33%, 50%, 67% and 90% of the outstanding cash flow or voting rights must notify both the firm and the OSE.

The basic regulatory tool for minority protection is the principle of equal proportional rights for every stockholder. The law states that no corporate charter can limit the owner's right to attend the stockholder meeting, be present by a proxy representative,

bring along an advisor, put any case on the agenda for voting, receive the same information as any other stockholder, or to bring decisions made at the stockholder meeting up for the courts. The law also specifies a preemptive right for every stockholder to participate in issues of new equity. This right can only be waived by a 2/3 majority vote.

As for the explicit protection of small stockholders relative to large, investors passing the 45% voting rights threshold (40% after 1 dec 1997) must give a tender offer to all remaining shareholders. An owner of at least 90% of the shares is obliged to buy the shares from any stockholder who wants to sell (this rule is symmetric, as the 90% majority owner has the right to buy the remaining shares from the minority). Moreover, the listing requirements ensure a minimum shareholder dispersion at the initial public offering (IPO). At least 25% of the shares must be owned by the general public, and at least 500 investors (50 investors for small firms) must own at least one round lot. Finally, the insider trading rules state that regardless of whether or not you are affiliated with the firm, it is illegal to trade in its shares based on firm-specific private information which is pricing relevant. Certain firm insiders are automatically barred from trading around certain corporate events, like the management team two months before the annual report is published. All such firm insiders must currently (after 1997) report their trades to the OSE no later than the morning after the trading day.

These stockholder protection rights are independent of the number of shares held or whether shares are voting or non-voting. Several additional ownership rights are granted to shareholders who represent a certain minimum of the share capital, again

independently of their voting status. Shareholders owning at least 10% of the outstanding share capital can force the appointment of an additional auditor, initiate an extraordinary stockholder meeting, prompt an investigation of management's actions or sue any member of the management team, the two boards, the auditor, and other stockholders in the firm.

Based on this rather wide set of corporate governance characteristics of the Norwegian regulatory regime, it is still not straightforward to make simple conclusions about overall system qualities. Such conclusions would require some external standard in terms of regimes which are either normatively attractive or at least observed elsewhere. Using a much smaller set of characteristics than ours which they consider particularly important for corporate governance, La Porta et al. (1998) recently classified the legal regimes of 49 countries according to their degree of investor protection. Their primary finding is that investor protection varies systematically across legal regimes. Investor protection inherent in the commercial law is on average strongest in common law countries (like Argentina, India, the UK, and the US) and weakest in civil law countries of the French type (like Belgium, France, Italy, and Mexico), with the German and Scandinavian civil law traditions in between.

Looking more closely at their ranking of both overall regimes and individual countries within a regime, several findings are relevant

to our case. Based on seven characteristics of shareholder rights, Norway gets the highest score in the Scandinavian family.² In fact, Norway's score equals the average score of the common-law countries, which top the ranking list. The Norwegian legal tradition also achieves the highest average score on the rule of law, including the maximum score on law enforcement. Finally, the Scandinavian regulatory regime gets the highest average rating on the informativeness of its financial accounting standards. This average rating equals Norway's score.

In this section on the institutional environment of Norwegian corporate governance, we have outlined the fiduciary duty of management, the power structure of the two-tiered board, the voting rules at the stockholder meeting, the mechanisms for separating cash flow rights from voting rights, and the protection of minority shareholders. Supplementing these characteristics with the international comparison of different legal regimes made by La Porta et al. (1998), we conclude that the Norwegian regulatory environment allows both stockholders as a group and small stockholders as a subgroup to exert their ownership rights in a rather effective way.

The market place and the source of ownership structure data

The Oslo Stock Exchange (OSE) is moderately sized by international standards. At

²The La Porta et al. (1998) criteria are: 1) whether the law explicitly forbids deviations from the one share-one vote principle, 2) whether the law allows voting by mail, 3) whether shares can be traded with their voting rights attached just before stockholder meetings, 4) whether owners can cast all their votes for one board candidate (cumulative voting) or elect board representatives according to their ownership stake (proportional representation), 5) whether oppressed minorities can easily strike back, 6) whether preemptive rights to new security issues exist, and 7) the percentage of outstanding shares required to call an extraordinary shareholder meeting.

year-end 1997, the 217 listed firms had an aggregate market capitalization equivalent of 67 billion USD, which ranks the OSE twelfth among the 21 European stock exchanges for which comparable data is available. Like most European stock markets, the OSE has developed rapidly in the nineties. During our sample period 1989–1997, the number of firms listed grew from 129 to 217, the market value of their equity increased by an annual average of 11.6% in real terms, and market liquidity as measured by annual turnover (transaction value/average market value) almost doubled from 0.52 in 1989 to 0.97 in 1997. By year-end 1997, the OSE market value was 43% of GDP, which is close to the European median of 49%. The average market value per firm was about one fifth the average NYSE firm and about twice the average NASDAQ firm.

High-quality, comprehensive data on corporate ownership is hard to find in any country. Typically, firms are only required to publicly disclose certain components of their ownership structure on certain occasions, like the holdings of the ten largest owners in the annual report or the fraction held by a large owner who passes through discrete thresholds triggering flagging or mandatory bids. However, according to a law issued in 1985 (*Lov om verdipapirsentral*), a Norwegian listed firm must report every transaction in its outstanding equity to the securities registry VPS (*Verdipapirsentralen*). The notification specifies the identity of the buyer and seller, the exact time of the transaction, the number of securities traded, and the price per security. Any change in the number of securities outstanding must be reported, such as stock

splits, issues of treasury stock, and the flotation of new equity.

In certain legal contingencies, the VPS must disclose their data to government agencies like the security exchange commission (*Kredittilsynet*) and the internal revenue service (*Skattedirektoratet*). Otherwise, data on an individual firm's ownership structure cannot be published without explicit permission from the firm. Thus, the VPS data is not public. However, because the VPS has the right to provide anonymous data for research purposes, we were given access to the full ownership structure of every Norwegian firm at year-end over the period 1989–1997.

Our VPS data differs in several fundamental ways from the data generated by the EU transparency directive.³ First, only the EU data are publicly available. Second, the VPS data is based on cash flow rights, whereas the EU directive relates to voting rights. This implies that beyond the impact of non-voting shares, the VPS data base provides no information on how voting rights may differ from cash flow rights due to mechanisms like corporate voting restrictions, voting pacts, voting by proxy, and indirect share-holdings. All this information must be supplied by the investors in the EU directive countries. However, as the EU directive does not mandate the disclosure of cash flow rights, the relationship between cash flow and voting rights cannot be fully analyzed from such data bases either.

Third, the EU directive dictates the publication of voting blocks, i.e., large holdings of voting rights. The lower notification limit is 5%, and further notice must be given when the investor passes up or down through the

³EU-directive 88/627/EEC, which is also called the large holdings directive.

thresholds of 10%, 20%, 1/3, 50%, and 2/3 of the voting rights. This means a considerable portion of the ownership structure is left out from the data base. For instance, the reporting thresholds of 5%, 10%, 25%, 50%, 75% and 90% only reveal two thirds of the full ownership structure of the average Austrian firm (Gugler et al., 1998, table 4). The Dutch thresholds of 5, 10, 25, 50 and 66 2/3% only pick up 48% of the holdings in a typical Dutch corporation (de Jong et al., 1998, table 1).

The EU system based on the reporting of large blocks at discrete counting intervals creates two potential data base problems. First, as investments below the lower reporting threshold are ignored, any measure of holdings per investor is imprecise and potentially biased. For instance, if personal investors are overrepresented below the lower reporting threshold, the observed fraction of a firm owned by personal investors (i.e., those above the lower threshold) underestimates the true fraction. Second, as one cannot observe the true size of large holdings in-between the reporting thresholds, ownership concentration based on the blocks is estimated with error, like the fraction held by the largest owner. Moreover, the estimate will also be biased unless the true ownership fractions happen to be

uniformly distributed between the reporting thresholds.

Because the VPS data contains the full ownership structure, it does not suffer from these two weaknesses. Moreover, the data base is fully computer readable and has been operative since 1989. It seems fair to conclude this section by stating that our data set provides a time series of comprehensive, high-quality ownership structure characteristics which is currently unavailable in other countries.

Characteristics of aggregate ownership

This section first assigns each owner of Oslo Stock Exchange (OSE) firms to one of five basic categories and reports their aggregate holdings. We subsequently split the basic investor types into finer subgroups by analyzing the aggregate stock ownership of the firms' insiders and of other listed corporations.

Owner types

Table 1 groups the owners of OSE firms into five types and reports the equally-weighted average number of investors per firm over the years.

Table 1. The average number of owners per firm.

Owner type	Year									All
	1989	1990	1991	1992	1993	1994	1995	1996	1997	
State	3	3	4	4	4	4	4	4	4	4
International	1914	1830	1536	1108	361	290	234	218	184	737
Individuals	3776	4425	5741	5687	4789	4082	3729	3698	3079	4175
Financials	27	30	29	28	37	45	50	59	59	43
Nonfinancials	177	211	224	212	189	180	177	182	189	191

For each firm we calculate the number of owners of each type. The figures are equally weighted averages across firms. Data from all firms listed on the Oslo Stock Exchange (OSE) over the period 1989–1997. Data source: Verdipapirsentralen (VPS).

A *state owner* represents either the central or the local government (*stat* or *kommune*), including their pension funds. According to table 1, this owner type holds on average four equity stakes per firm. Considering the total number of OSE firms, this means the government has about 350 equity investments in the beginning of our sample period and 800 towards the end.

An *international owner* is any organization not registered in Norway or a non-resident individual. This category contains both international investors who register at the VPS by name and international investors who own anonymously through a nominee account.⁴ These accounts are organized by large international investment banks. Each account as reported to the VPS contains only aggregate holdings of all investors who have registered their shares with the account manager. Because we cannot identify the underlying owners, each nominee account is counted as one international investor. The sharply declining time series in the second row of table 1 may therefore say little about the true number of international investors. The decline may simply reflect an increasing tendency for international investors to not register their shares openly, but rather through anonymous nominee accounts. We return to this point below.

Financial owners are private Norwegian banks, insurance firms, pension funds, and investment trusts (mutual funds). This category, which is often termed institutional investors, represents a small but growing num-

ber of stockholders. The average number of financial investors per firm more than doubles from 27 to 59 over the sample period, and the total number of equity positions held by financials more than quadruples over the nine years.

Nonfinancials are private domestic firms which are not classified as financial owners. The average number of equity stakes per firm held by this investor type stays close to 200 over the entire period.

Finally, *individuals* are non-corporate (personal) investors with Norwegian residency. Except for non-corporate members of the international investors category, individuals are the only investors in table 1 representing ultimate owners. The remaining ownership is indirect, as there is at least one layer of corporate equity holdings between the ultimate owner and the OSE firm. The individuals category contains by far the largest number of investors. There are close to four thousand personal investors per firm in the beginning of the sample period, increasing to almost six thousand in the early nineties and gradually declining to about three thousand investors per firm in 1997.

Firm types

We categorize the listed firms into four types. *IPO* (Initial Public Offering) firms are quoted on a separate list (*SMB listen*) and are subject to less strict listing requirements than the remaining OSE firms, which are on the main list (*Hovedlisten*).⁵ The IPO firms are nor-

⁴The identity of investors using nominee accounts is unknown to the public, but must be revealed to *Kredittilsynet* (the Norwegian equivalent of the SEC) on demand. The voting right of a nominee share cannot be exercised unless the owner's identity is reported to the firm and thus also to the VPS.

⁵To be quoted on the main (respectively IPO) list, the market value of equity must be at least 10 (8) mill. NOK, and at least 500 (50) non-insider investors must own at least one round lot. No firm younger than three years old

mally young and have recently been brought to the exchange (i.e. had their IPO). As we show in Bøhren and Ødegaard (2000), IPO firms are also much smaller than most others. Their mean market value over the sample period is 19% of the average OSE firm size. The number of IPO firms grows from 24 in 1989 to 76 in 1997.

Financials are commercial banks and insurance companies. These firms are more regulated than others, both in operations (e.g. through minimum capital coverage ratios) and governance (e.g. through caps on maximum holdings per owner). The commercial banks were hit hard by a banking crisis which started in the late eighties. The first insolvencies in Norwegian banks occurred in 1987. Four years later, the state took over the second and third largest commercial banks (respectively Kreditkassen and Fokus Bank). The state also acquired 50% of the largest commercial bank (DnB) and became its sole owner in 1992 (Kaen and Michalsen, 1997; Ongena et al., 2000). The state involvement was reduced towards the end of the sample period. As of 1997, the state holdings in the largest, second largest and third largest banks was respectively 52%, 51% and 0%.

Financials constitute the lowest number of firms in any year, their number decreases over time, and they have the largest mean firm size towards the end of the sample period. By 1997, the population of OSE financials contains 7 commercial banks and 1 insurance firm, down from respectively 12 and 2 in 1989.

The OSE is the world's largest stock exchange for *shipping* firms, which have his-

torically been dominated by family-owned businesses operating in international product and capital markets. Currently, about every fourth OSE firm is in shipping. The mean size of a shipping firm is close to the market-wide OSE average of 2.1 bill NOK.

We classify the remaining firms as *industrials*. This category is the most numerous, accounting for roughly half the OSE firms. Although financials are on average considerably larger than industrials towards the end of the sample period, the largest firms are found among the industrials. For instance, the largest industrial (Norsk Hydro) in 1997 is 3.7 times the size of the largest financial (DnB) as measured by equity value.

Across every year and firm type, the mean firm size is two to four times the median. This reflects the well-known international pattern that in the population of listed firms, a small number of them are much larger than the others. For instance, the largest Norwegian industrial in 1997 has a market value of NOK 82.4 bill, the mean firm size is 4.5 bill, the median is 1.5 bill, and the smallest industrial has a market value of 0.04 bill. The same story is told by the fact that whereas the equally-weighted mean market value is NOK 2.1 bill, the value-weighted mean is 19.3 bill.

Aggregate holdings by the five basic owner types

Table 2 shows the overall fraction of firm equity held by the various investor types. Since these aggregates are value-weighted, they also reflect the proportions owned of OSE market value.

can be on the main list, but there is no such requirement for the IPO list.

Table 2. The aggregate fraction of OSE market value held by the five basic owner types.

Owner type	Year									All
	1989	1990	1991	1992	1993	1994	1995	1996	1997	
State	13	15	17	22	21	22	20	18	14	18
International	30	29	28	29	28	30	32	33	32	31
Individuals	12	11	10	10	11	10	10	10	8	10
Financials	13	16	17	17	17	16	16	20	21	18
Nonfinancials	32	29	28	22	23	22	22	20	25	24

The fractions are value weighted averages across firms, using the market value of a firm's equity as weight. Data from all firms listed on the Oslo Stock Exchange (OSE) over the period 1989–1997. Data source: Verdipapirsentralen (VPS). Numbers in percent.

According to table 2, international investors as a group have held the largest equity portfolio at the OSE since 1992, owning 31% of market value on average. As we show in Bøhren and Ødegaard (2000), the decreasing number of openly registered OSE investments shown in table 1 is offset by a corresponding increase in the value held through nominee accounts. For instance, 15% of the value held by international investors in the first five years of the sample period are in nominee accounts. In the last four years, the ratio is almost four times higher (56%).

Nonfinancial domestic corporations own 24% of OSE equity, hold a disproportionately large part of shipping companies (40%), and have generally decreased their share over time. Financial owners, who hold 18% and are the third largest owner type, are quite different. They have no aggregate preference for particular firm types, and they increase their holdings from 13% in 1989 to 21% in 1997. However, there are large differences between sub-classes of firms within the financials category. Banks are generally insignificant owners, insurance firms keep an almost constant fraction of 11% throughout, and mutual funds acquire increasing portions of OSE market value. Starting from a 1% frac-

tion in 1989, mutual funds end up owning 8% of market value in 1997.

Although the fraction of market value owned by the state is practically identical to that of financial investors, the portfolio characteristics differ. First, the aggregate size of the state holdings is more unstable, going from 13% in 1989 up to 22% in 1994 and then down to 14% in 1997. Second, we show in Bøhren and Ødegaard (2000) that state holdings gravitate towards industrials and financials.

State ownership in financials (banks and insurance firms) is negligible during the first two years, starts growing in 1991 and reaches a maximum of 40% in banks and 12% in insurance two years later. After 1993, state ownership in banks stays high, and is 37% in the final sample year. A corresponding story is told by the maximum state ownership in any single bank, which is less than 1% in the two first years, increases to 20% in 1991, reaches 71% two years later, and stays above 50% thereafter. As described earlier, this ownership pattern reflects a deep crisis in the Norwegian banking industry and the government's intervention to keep the banks out of bankruptcy by temporarily taking over the

three largest banks.⁶

Individual investors, who hold more than 80% of all OSE equity positions, own on average just 10% of market value. There is a declining trend from 12% in 1989 to 8% nine years later, and it turns out that IPO firms are heavily overrepresented in the portfolio of individual investors. The fraction was merely 8% in 1989, reached 40% three years later, and stays around 25% thereafter. Personal investors as a group rebalanced their portfolio in the sample period by gradually increasing the stake in IPO firms at the expense of financials and shipping. The fractions held in financials and shipping in 1989 were 18% and 17%, respectively, declining to just 6% in 1997.

Summarizing, there are on the average 0.7 mill. separate equity positions at the OSE. Assigning these holdings to owner

types, we find that individual (personal) shareholders hold more than 80% of the positions, but just 10% of market value. International investors, who hold the largest aggregate fraction of market value, increasingly abstain from using their voting rights. Non-financial domestic firms own about one-fourth of market value, more in the beginning than in the end of the sample period. The third largest owner types are financials (institutional investors) and the state, who both hold about one fifth of market value. Among the financials, banks are quite insignificant owners, insurance firms are the largest, and mutual funds grow the most.

To explore these patterns more formally, while also allowing for potential multivariate patterns and relationships between firm size, firm type and aggregate holdings, we estimate the regression model specified in table 3.

Table 3. The estimated relationship between aggregate holdings per investor type, firm size, and firm type.

Owner type	β_0	β_1	β_2	β_3	β_4	R^2
State	-0,199 (0,02)	0,014 (0,00)	-0,004 (0,76)	-0,076 (0,00)	-0,046 (0,01)	0,09
International	-0,536 (0,00)	0,037 (0,00)	-0,045 (0,05)	0,011 (0,48)	0,034 (0,03)	0,07
Individual	0,832 (0,06)	-0,032 (0,00)	-0,031 (0,07)	-0,059 (0,00)	0,050 (0,01)	0,18
Financials	-0,141 (0,01)	0,016 (0,00)	0,073 (0,01)	-0,046 (0,01)	-0,018 (0,09)	0,08
Non-financials	1,050 (0,00)	-0,036 (0,00)	0,004 (0,87)	0,181 (0,00)	-0,025 (0,13)	0,15

The table shows the OLS coefficient estimates, the p-values (in parentheses) and the R^2 of the relationship: $AF_{ij} = \beta_0 + \beta_1 FSIZE_j + \beta_2 IFIN_j + \beta_3 ISHIP_j + \beta_4 IIP O_j + \epsilon_{ij}$.

The sample size is 1255, which includes all firms listed on the OSE over the period 1989–1997.

⁶Notice that listed banks which were fully taken over by the state were delisted until the state sold out parts of its equity. If these firms were included in the above figures, state holdings in banks would have been even higher.

AF_{ij} is the aggregate fraction held by investor type i in firm j , and F_{SIZE}_j is the natural log of the firm's equity value. The indicator variables $IFIN_j$, $ISHIP_j$, and $IIPO_j$ equal one if and only if firm j is a financial, shipping, and IPO firm, respectively. When all indicators are zero, firm j is an industrial.

A negative β_1 means the investor type's aggregate holding decreases with firm size. The more positive (negative) the sign of the firm type coefficient β_k , $k = 2, 3, 4$, the higher (lower) the aggregate fraction of investor type i in the firm type compared to its aggregate stake in industrials.

Table 3 supplements the pattern of aggregate ownership we just summarized. First, it reveals that the aggregate fraction in an OSE firm held by the state, by international investors, or by financial investors is higher the larger the firm. Conversely, individuals and non-financials own their largest aggregate stakes in smaller firms. Second, controlling for size, aggregate state holdings gravitate towards industrials and financials, where the involvement in financials is driven by the government's response to the banking crisis. International and individual owners both have relatively large aggregate stakes in IPOs, and non-financial investors are biased towards shipping firms.

Insiders and OSE-listed firms

A *corporate insider* is either an international owner, a national organization (firm or state agency) or a national individual investor.⁷ Thus, insiders as defined in section 1.5 is

a subset of the five basic investor types discussed so far. The second column of Table 4 shows the aggregate insider holdings by year.

The insiders of OSE firms own on average 7% of market value. As shown in Bøhren and Ødegaard (2000), the fraction is higher in shipping (10%) and smaller in financials (2%). The overall insider fraction stays rather constant over time, but decreases in shipping and IPOs. For instance, insiders held 14% of IPO firms' equity in 1989 and 6% nine years later.

The equally-weighted averages (not shown in the table) are roughly twice their value-weighted counterparts in every year, suggesting that the aggregate fraction of insider holdings is larger in smaller firms.⁸ If the number of insiders grows degressively with firm size, this finding is consistent with the effect of individual budget constraints and lost diversification benefits. These costs of a concentrated equity portfolio are higher for insiders in a large firm than for insiders with a corresponding equity fraction of a smaller firm.

From a corporate governance point of view, the important insiders are the board members and the management team, since these primary insiders control the corporate resources in the short run. As shown by columns 4 and 5, these insider sub-group of *primary insiders* own roughly two thirds of total insider stakes, and the board members hold three times more than the management team. Across firm types, we show in Bøhren and Ødegaard (2000) that except for financials (where stock ownership by primary insiders is miniscule), the holdings of primary

⁷As the insider/outsider status of investors is not reported to the VPS, our insider data are constructed from the files of insider trades reported to the OSE.

⁸Regressing (log) equity value on insider holdings yields a significantly negative relationship ($t = -4.2$).

insiders varies considerably less than total insider holdings. For instance, total insider stakes in industrials and shipping are on average 6% and 13%, respectively, whereas the primary insiders hold 5% and 6%.

We next consider the second subgroup of the five basic investor types, which is *corporate owners quoted on the OSE*. Although these owners may not be fundamentally different from non-listed corporations, we still single them out because they allow individuals (ultimate owners) to hold equity stakes in a firm through one or more layers of other firms. One potential effect of such an ownership pattern is that the ultimate owners, who sit behind the intermediate corporate layers, may lever up their control rights relative to their cash flow rights along the ownership chain. Thus, stockholders may build ownership pyramids by investing indirectly through a chain of other listed firms (Bianchi et al., 1998).

To understand how the ultimate owners of OSE firms exercise their ownership rights, we need to know the holdings of all intermediate links in the chain. As we only have access to the ownership structure of the OSE-listed firms which hold equity positions in other OSE firms, this subgroup of corporate owners is our tool for studying indirect ownership.

OSE-listed investors in OSE firms is a subset of the two basic owner types of financials and non-financials. Column 5 of table 4 shows the aggregate fraction of OSE equity held by these firms (the data were collected from the owning firms' annual reports). On average across firms and years, indirect ownership through OSE-listed vehicles represent 8% of OSE market value. Indirect holdings are relatively common in the early years and particularly widespread in IPOs (not shown), where 40% of the equity belonged to other OSE firms in 1989.

Table 4. Fraction of OSE market value held by corporate insiders and by other OSE-listed firms.

	Insiders			Intercorporate	<i>n</i>
	all	management	board	investors	
1989	7	3	1	14	119
1990	8	1	2	12	109
1991	11	2	3	11	103
1992	7	1	4	9	112
1993	6	1	4	11	123
1994	7	1	4	8	130
1995	7	2	3	6	146
1996	6	2	4	5	155
1997	5	1	3	4	200
Total	7	1	3	8	1197

The table shows the fraction of market value held by all corporate insiders (all), the management team (mgm), the board of directors (brd), and by other OSE-listed firms (Intercorp investors), and the number of observations (*n*). Data from all firms listed on the Oslo Stock Exchange (OSE) over the period 1989–1997. Data source: Oslo Stock Exchange (OSE). Numbers in percent.

The most striking feature is the decreasing time trend, which is particularly strong in the early nineties. Indirect ownership is reduced by roughly two thirds towards the end of the sample period, and the typical level in any firm type as of 1997 is 5%. This pattern of intercorporate investments and the finding by Bøhren and Norli (1997) that the typical intercorporate holding is small (median of 0.4%) collectively suggest that if we ignore indirect ownership and only consider direct holdings by non-listed owners, there is probably only a modest mis-estimation of key characteristics like ownership concentration or the separation between cash flow rights and voting rights. Also, since non-listed firms normally have a considerably more concentrated ownership structure than listed firms, there is limited potential for using minor investments in non-listed firms to lever up the voting power in listed firms. This suggests that ignoring holdings through non-listed firms may be rather inconsequential for separation. We return to these issues in later sections.

Voting and non-voting equity

As discussed in the section on the institutional framework, the ownership rights attached to *non-voting shares (B shares)* are identical to those of voting equity (A shares) except for voting power. We document in Bøhren and Ødegaard (2000) that 14% of the OSE firms have non-voting shares outstanding, that B shares are more common in the beginning of the sample period; that non-voting shares were never issued by financials, and that only 3% of the IPO firms have floated this security type. Thus, the non-voting stock phenomenon belongs in industrials and ship-

ping, where the security is issued by roughly every fifth firm, and more often by large firms than small.

Non-voting shares constitute on average 10% of OSE market value. Considering firms with dual-class shares, only (i.e., those issuing both voting and non-voting shares), 29% of their equity is non-voting and hence 71% voting. In the two firm types where non-voting shares are actively used, the prevalence of non-voting shares is relatively constant over time for industrials and both larger and increasing in shipping. There is a significantly positive relationship ($t=10.3$) between firm size and the fraction of the firm's equity which is non-voting.

The relative holdings of voting and non-voting shares differs widely across investor types. The state reveals a strong preference for stocks with voting rights (10% vs. 3%). This tendency also holds for individuals and non-financial domestic corporations, whereas financial investors hold roughly the same fraction of voting and non-voting shares in the aggregate.

International investors own 54% of non-voting equity on average, which is more than twice their fraction of voting equity. Its maximum level is 66% in 1994, gradually dropping off to 47% in the final sample year. However, very few firms were effectively restricted by the regulatory cap on international ownership, which was lifted in 1995. Thus, it seems that to international investors, voting shares in dual-class firms became more attractive after the cap was lifted, despite the fact that there was almost no restricted access to voting shares before the deregulation. One speculation is that the deregulation as such was considered a signal of a more positive attitude to international investors in general. If

so, it may have improved the expected payoff to international investors from holding voting shares and expending efforts on corporate governance activities.

To summarize, our reclassification of the five basic owner types in sections 3.4 and 3.5 shows that OSE insiders own on average 7% of their firms' equity, more in shipping and much less in financials. Intercorporate ownership among OSE firms, which on average accounts for 8% of market value, is rapidly getting less common. Non-voting shares are issued by 14% of the firms, never issued by financials and very seldom issued by IPO firms. These securities, which account for 10% of OSE market value and 29% of the equity in firms with dual-class shares, are primarily held by international investors (54%) and financials (24%).

Ownership concentration

The principal-agent paradigm predicts that if left unattended, non-owner managers will tend to divert parts of the firm's free cash flow to value-destroying projects. To prevent this, i.e., to ensure that value maximization does occur, certain disciplining mechanisms are required. Concentrated ownership (holdings of large equity stakes) is a key such mechanism (Jensen and Meckling, 1976). Unlike the firm's holders of small equity stakes, its large owners have both the in-

centive (high cash flow rights) and the power (high voting rights) to monitor the management team.⁹ Thus, not surprisingly, concentrated ownership is, along with insider holdings, the most frequently studied mechanism in the empirical research on the relationship between corporate governance and economic performance (Gugler, 2001).¹⁰ This section addresses ownership concentration by analyzing the anatomy of large equity stakes.

Unlike the previous section, which used value-weighted averages to capture the aggregate claim of an investor type, we now switch to equally-weighting. This is because the focus is not on the aggregates, but each separate owner's ability to influence an individual firm's actions. As the ownership fraction required to do so is probably independent of firm size and definitely non-transferable across firms, we assign equal weight to each ownership structure (company).

Large owners make up the extreme right tail of the distribution of equity stakes in a firm. To get a feeling for the *typical* OSE investor before we study the large ones, we should notice that the mean and median ownership stakes in our sample period are 0.15% and 0.008%, respectively. Thus, as half the stockholders on average own less than one 10 000th of the firm's equity, the typical OSE investor is all too small to have any independent significance for corporate governance. This is true across all years and

⁹This argument implicitly assumes that large stockholders own a high fraction of both cash flow rights and voting rights. If not, e.g. due to non-voting stock, indirect ownership through pyramids, or stockholder voting pacts, cash flow incentives and voting power may be unaligned. Moreover, because small stockholders free ride on the value enhancement caused by large owners' disciplining, monitoring may still be under-supplied unless large owners reap sufficient private benefits from their monitoring efforts (Grossman and Hart, 1980).

¹⁰The full set of corporate governance mechanisms includes the legal regime, the competition in the firm's product market, reputation in the managerial labour market, management incentive schemes (bonus, stock, and stock option systems), financing policies (debt financing, dividend payout, and equity issues), accounting and auditing systems, the corporate board, and the firm's ownership structure.

firm types. Although the typical investor in IPO firms tends to be two to three times larger than in other firm types, the stake is still miniscule. The only ways owners may supervise, correct and support the management team is either by the concerted action of a large number of typical (i.e., very small) owners, by individual actions of a single large owner, or by a coalition of a few relatively large owners.

The most common way of quantifying concentrated ownership is by the equity stake held by one or more of the large investors (blockholders). Table 5 reports the average stake of the largest, the second, third, fourth, fifth, tenth, and the twentieth largest owner. As we show in Bøhren and Ødegaard (2000) that the concentration of voting rights is almost identical to that of cash flow rights, we may interpret table 5 in terms of either one.

The two columns to the right show that the largest investor in an OSE firm holds 28% of the equity on average. This

investor owns 2.5 times more than the second largest (11%), and the difference between consecutive holdings decreases as we move down the ranking list. The cumulative holdings imply that on average, the two largest owners may collectively form a blocking super-minority (1/3), a coalition of the four largest owners creates a simple majority (1/2), and the ten largest may unite into a super-majority (2/3).¹¹

Except for financials, this concentration pattern prevails across firm types. Notice in particular that IPO firms do not differ from industrials, suggesting that the heavily concentrated pre-IPO owners sell out relatively soon after the IPO. However, because large stakes in financials are about ten percentage points lower than in other firms, it takes more large investors to create a majority or minority. For instance, while the ten largest owners in the average industrial constitute a super-majority, it takes twenty in financials.

Table 5. Equity fractions held by large owners.

Owner size rank	Firm type									
	Industrials		Financials		Shipping		IPOs		All	
	mean	cum	mean	cum	mean	cum	mean	cum	mean	cum
1	31	31	18	18	27	27	26	26	28	28
2	10	41	9	27	13	40	11	37	11	39
3	6	48	6	33	8	48	7	44	7	46
4	5	52	5	38	5	53	5	50	5	51
5	4	56	4	42	4	57	4	54	4	55
10	2	67	2	55	2	69	2	66	2	66
20	1	76	1	66	1	79	1	76	1	76

The table shows the average fraction held by the given rank (mean) and the total fraction held by the largest down to the given rank (cum). The means are equally weighted. Data from all firms listed on the Oslo Stock Exchange (OSE) over the period 1989–1997. Data sources: Oslo Børsinformasjon (OBI) and Verdipapirsentralen (VPS). Numbers in percent.

¹¹Because the corporate law applies to the voting rights present at the stockholder meeting, these minimum coalitions implicitly assume that all outstanding shares will attend. If instead just half of them are present, the largest average stake of 28% transforms into a voting power of 56%, producing a simple majority for the largest owner alone.

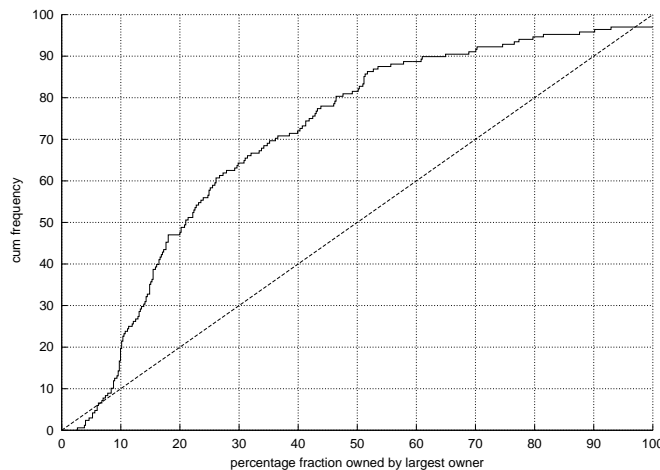
This low concentration in financials may suggest that the ownership cap is binding in the sense that we may have observed larger holdings without this regulation. In fact, Bergström and Rydqvist (1990a) find that after the ownership cap in Swedish banks was lifted in 1980, concentration gradually rose to a level which was insignificantly different from the average concentration in other firms.¹²

As discussed in the section on the institutional framework, the size of an ownership fraction has at least two sets of consequences which are both determined by the legal regime. First, the corporate law specifies how holding size transforms into voting power. Second, certain holding sizes trigger pre-defined events, like the obligation to flag or to bid for the remaining shares outstanding. This means certain thresholds may be particularly important to just pass (like a 1/3

super-minority), while others may be important to not pass (like a 90% mandatory bid threshold).

One way of spotting such patterns is by tabulating the cumulative frequency distribution of the largest ownership stake. As this may vary from year to year, and because the relevant regulations may change over time, we may lose important information by aggregating across years. Therefore, figure 1 shows a distribution of ownership structures based on one sample year, only. The figure uses data from 1995, when the flagging thresholds were 10, 25, 50 and 75%, and mandatory bids were triggered at 45% and 90%. To obtain power without being forced to flag or bid, we would expect investors to flock just below these thresholds. Conversely, we expect an over-representation just above the voting power limits of 1/3, 1/2 and 2/3.

Figure 1. The cumulative frequency distribution of the largest ownership stake in 1995.



Data from all firms listed on the Oslo Stock Exchange (OSE) over the period 1989–1997. Data source: Verdipapirsentralen (VPS).

¹²The 10% cap in financials is frequently broken, apparently because the regulator grants exceptions rather routinely.

Visual inspection of figure 1 suggests that at least three of these regulations show up in the ownership structure in the predicted manner. First, there is an over-representation of holdings below the lower flagging threshold of 10% (the cumulative distribution is very steep just to the left of 10% and flatter to the right). Second, large investors with holdings around the 45% mandatory bid limit choose to hold fractions just below the limit rather than above. Finally, the simple majority rule of 50% produces a tendency to hold fractions just above 50%. Thus, regulation matters for concentration.

Who are the large owners? Table 6 answers by documenting how often each investor type is the largest, second, third, fourth, and fifth largest owner. The table tells straightforward stories. Nonfinancial domestic corporations, which we know hold 24% of OSE market value, are heavily overrepresented among the large block-holders. This owner type has the highest stake in 52% of all cases, and is also more often than any other owner type the second, third, fourth and fifth largest.¹³ Moreover, the higher the rank of a large holding, the higher the probability that its owner

is a non-financial corporation. For instance, such firms own the second largest stake in 43% of the cases and the fifth largest in 30%.

The pattern is quite the opposite for international investors, who in the aggregate is the largest owner type (31% of market value). Regardless of size rank, such investors are less often a large owner than domestic nonfinancials. Moreover, while the latter prefer the largest stakes among the large, the international owners prefer the smaller.

Except for a lower propensity to hold the very largest stake, the financial corporations (who own 18% of market value) are very similar to international investors in their choice between large positions: The smaller the size of the large holding, the more often it belongs to a domestic financial corporation. However, notice that compared to their aggregate holdings of 18%, financials are considerably more often a large owner than international investors. Moreover, regulation may effectively force financials towards being no. 5 rather than no. 1. For instance, mutual funds cannot own more than 10% and vote for more than 5% in a firm.

Table 6. The propensity to hold large equity stakes.

Owner type	Owner size rank				
	1	2	3	4	5
State	9	7	5	4	4
International	19	21	23	25	26
Individuals	10	8	9	10	10
Financials	11	21	25	28	30
Nonfinancials	52	43	37	33	30

For each owner size rank we find the fraction of firms held by each of the five basic owner types. Each column reports the frequency distribution across owner types for the largest, second, third, fourth and fifth largest equity stake. Data from all firms listed on the Oslo Stock Exchange (OSE) over the period 1989–1997. Data source: Verdipapirsentralen (VPS). Numbers in percent.

¹³There is a tie with financials for the fifth largest owner.

Table 7. Ownership concentration, firm size, firm type, and the identity of the largest owner.

β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	R^2
0,336	-0,011	-0,058	-0,022	-0,032	0,126	0,063	-0,029	0,043	0,09
(0,00)	(0,04)	(0,00)	(0,04)	(0,00)	(0,00)	(0,05)	(0,08)	(0,00)	

Using the Herfindahl index as the measure of concentration for firm j (CON_j), the table shows the OLS coefficient estimates, the p -values (in parentheses) and the R^2 of the relationship: $CON_j = \beta_0 + \beta_1 FSIZE_j + \beta_2 IFIN_j + \beta_3 ISHIP_j + \beta_4 IIPO_j + \beta_5 IState_j + \beta_6 IInt_j + \beta_7 IFin_j + \beta_8 INonFin_j + \epsilon_j$.

The sample size is 1255, which includes all firms listed on the OSE over the period 1989–1997.

State owners, who hold the same aggregate OSE stake as financials, is the least significant investor type in terms of large stakes. Even compared to individual owners, whose aggregate portfolio value is just about half, the state is less frequently a large owner in all rank categories. This consistent underrepresentation suggests that compared to the total commitment of funds, state owners play an anonymous role in corporate governance.

Finally, individuals, who hold the highest number of equity positions and the smallest fraction of market value, are quite different from other types. The probability that a big investor is an individual is roughly 10% regardless of size rank. This corresponds to the aggregate fraction held of market value.

Table 6 tells us that the overwhelming majority of large owners are either corporations or the state. This means the management teams of OSE firms are not monitored by their ultimate owners (i.e. those eventually receiving the firms' cash flow), but by the agents of ultimate owners (i.e. other management teams or civil servants). Unlike a

simple principal-agent relationship, this is a multiple-agent setting with delegated monitoring. The success of this indirect ownership system may critically depend on whether these agents have sufficient equity stakes in their firm to provide the required incentives and whether they are monitored by ultimate owners who are willing and able to exert sufficient disciplining pressure. This setting illustrates that, in addition to holding size *per se*, the identity of the holder (here: direct vs. indirect owner) may matter for corporate governance as well.

So far, we have explored the characteristics of concentration by simply comparing mean concentration levels across firm types, investor types, and years. To analyze ownership patterns more rigorously while also allowing for dependencies between these characteristics and for the effect of firm size on concentration, we estimate the relationship specified in table 7. In this model, CON_j is the Herfindahl concentration index for firm j .¹⁴ $FSIZE_j$ is the natural log of the firm's equity value. $IFIN_j$, $ISHIP_j$, and $IIPO_j$

¹⁴Because there is no theoretically superior definition of concentrated ownership, we analyze in Bøhren and Ødegaard (2000) whether other proxies pick up similar underlying ownership characteristics as those based on large stakes only. One finding is that the Herfindahl index, which reflects the full ownership structure of the firm, performs very well in this respect. This index, which is the sum of the squared ownership fractions across all shareholders, has a maximum of unity (a single investor owns every share) and approaches a minimum of zero as the ownership structure gets increasingly diffuse.

are indicators which are unity if and only if firm j is a financial, shipping, and IPO firm, respectively. As the indicator variable is zero otherwise, firm j is an industrial when all three indicators are zero. To explore whether the identity of the largest owner matters for overall concentration, we set the indicators $IState_j$, $IInt_j$, $IFin_j$, and $INonFin_j$ to unity if and only if the largest owner of cash flow rights in firm j is the state, an international investor, a financial firm, and a non-financial firm, respectively. The largest owner is an individual when all indicators are zero.

The estimates suggest that at a 5% level of significance, concentration decreases significantly with firm size,¹⁵ and concentration increases significantly as we move from financials (lowest concentration) through IPOs to shipping to industrials (highest). The ownership concentration is lowest when the largest stake belongs to either an individual, an international investor or a financial (no significant differences). The highest concentration tends to occur in firms where the state holds the largest stake.¹⁶

Let us summarize this section on concentrated ownership. We have found that the typical investor neither has the incentives nor the power to be of independent importance in corporate governance. The largest investor, who is very often the state or a corporation rather than a personal (ultimate) owner, holds on average 28% of the OSE equity. This investor holds less in large firms than small firms, considerably less in financials than in other industries, and owns a particularly large

stake if the investor is the state. A coalition of the four largest owners creates a majority, and it takes the ten largest to establish the 2/3 super-majority required for charter amendments. In financials, the number of large investors needed to reach these power thresholds must be doubled. Non-financial domestic corporations are strongly overrepresented among large owners, while international investors and the state are considerably underrepresented. Unlike non-financials and the state, who are more often found at the top of the largest-five list than at the bottom, international investors and financials are at the bottom.

We may speculate why some of these patterns are observed. First, the negative association between firm size and concentration is consistent with the notion that concentrated ownership is costly in terms of reduced diversification benefits. That is, the higher the value of the firm, the more of the owner's wealth must be used to buy a given percentage of the firm's equity, and the higher the unsystematic risk of the owner's portfolio. Second, the high aggregate state holding and the low overall concentration in financials is probably driven by a concern for negative externalities of troubled banks and by the legal cap on a single stake, respectively. Third, the fact that international investors are underrepresented as large owners in general and as the largest owner in particular suggest that these investors primarily hold equity in Norwegian firms to diversify their portfolio rather than to improve corporate governance.

¹⁵Due to the state involvement in the largest banks which originated in the crisis years, there is a significantly positive relationship between firm size and concentration in banks.

¹⁶The year by year estimates are less clear cut. The negative relationship between concentration and size only occurs in three of the nine years, there is hardly any significant relationship between concentration and firm type, and the only association between owner type and concentration is when the largest owner is the state.

The disinterest in governance is also consistent with our finding discussed earlier that international investors are heavily overrepresented among owners of non-voting shares, and that they increasingly hold their shares through anonymous nominee accounts.

Separation

As discussed in the section on the institutional framework, the relevant mechanisms for separating cash flow rights from voting rights include regulatory caps, voting pacts, proxy votes, the corporate charter, intercorporate share-holdings, and dual-class shares. The 10% regulatory ceiling on ownership in financials is irrelevant for separation, as no financial has issued dual-class shares. The cap on international holdings, which barred foreigners as a group from holding less than 1/3 of a firm's equity until 1995, was very seldom binding. Moreover, we miss data on voting pacts, proxy votes, voting restrictions in corporate charters, and ultimate owners of intercorporate shares. Consequently, our vehicle for exploring separation is the relationship between direct holdings of voting and non-voting equity. Since we measure voting rights by the direct ownership of voting stock, separation is only relevant in firms with dual-class shares. We already know from earlier discussion that these firms constitute 14% of all OSE firms, that dual-class shares are never used by financials and very seldom in IPO firms, and that such securities are more often issued by large firms than by small. Non-voting shares constitute 29% of outstanding equity in dual-class firms, and international owners are heavily overrepresented.

To quantify separation, we identify the large owner based on the fraction of voting

rights held. For this owner, we next find his fraction of cash flow rights in the firm, which is the sum of his voting and non-voting shares divided by all shares outstanding. Our separation measure s_i for investor i is the ratio of these two fractions, i.e., the fraction of voting rights (voting equity) to the fraction of cash flow rights (all equity) :

$$s_i = \frac{\frac{v_i}{v}}{\frac{n_i+v_i}{n+v}} = \frac{\frac{v_i}{n_i+v_i}}{\frac{v}{n+v}} \quad (1)$$

where v and n is respectively the number of voting and non-voting shares issued, and v_i and n_i is respectively the number of voting and non-voting shares held by investor i .

Non-separation corresponds to $s_i = 1$, and separation is stronger the more s_i deviates from unity. There is separation (i.e, bias) towards cash flow rights when $s_i < 1$, since the investor holds a larger percentage of non-voting than voting shares. The minimum s_i is zero, which occurs if i owns non-voting equity only. Conversely, there is separation towards voting rights if $s_i > 1$, when the ratio of non-voting to voting shares held by i is less than the relative fraction of the two share types outstanding. The maximum s_i is $1 + \frac{n}{v}$, which occurs when i holds voting shares only. Thus, the more non-voting stock issued relative to voting, the larger the maximum separation.

Table 8 summarizes key statistics on separation for large owners of voting shares in dual-class firms. The table shows the equally weighted average (mean), the standard deviation (std), and the number of observations (n) of the separation ratio in equation (1). Since the ratio stays between 1.1 and 1.3 across owner size ranks, large owners tend to concentrate voting rights, as they may vote for 10–30% more than their cash flow rights

would suggest. There is a tendency that the larger the owner, the stronger the separation. For instance, our separation measure is 1.3 for the largest owner and 1.1 for the fifth largest. Still, large owners do not normally maximize separation by holding voting shares only. This can be inferred from the fact that because non-voting shares constitute 38% of all shares in dual-class firms, the average separation ratio would have been $1 + \frac{n}{v} = 1.6$ if large owners held voting shares only.

By regressing the separation ratio on firm and investor characteristics, we get several additional insights (see Bøhren and Ødegaard (2000) for details). First, the investor's separation behavior is independent of firm type and investor type. Second, only the largest owner separates more the larger the firm and the larger his equity stake. This suggests the largest owner uses separation more actively when voting power is potentially more valuable (large firm) and when his ability to exercise the power is high (large stake). Third, whereas the other owners separate less the higher the fraction of voting shares outstanding, the largest owner is insensitive to this fraction. A possible explanation is that the 2/3 majority rule for charter amendments

applies to both voting rights and cash flow rights alike. It is easily shown that if the investor wants to control both voting rounds, the separation ratio should in fact be independent of the fraction of voting shares outstanding. Jointly, these findings suggest that large investors' concern for power and the voting rules for charter amendments may jointly explain why the separation ratio exceeds unity, why it is less than the maximum, and why it is independent of the fraction of voting shares outstanding.

Besides the concern for the cash flow-based voting rule, there may be a second reason why large owners abstain from maximum separation. According to Jensen and Meckling (1976), large owners may use their power to divert the firm's resources to obtain private benefits, such as granting themselves excessive compensation for directorships or making the firm trade at unfair prices with outside parties which are under the large owners' control. If minority investors rationally expect this moral hazard problem, large owners must carry the expected expropriation cost in terms of a reduced share price. Therefore, large owners have an incentive to convince the market that expropriation will not occur.

Table 8. The ratio of voting rights to cash flow rights for the five largest owners in firms with dual-class shares.

Owner size			
rank	mean	std	<i>n</i>
1	1.3	0.4	166
2	1.2	0.4	157
3	1.2	0.4	157
4	1.2	0.4	155
5	1.1	0.4	155

The table lists the separation ratio s_i defined in equation (1). The estimates only uses data for firms with dual-class shares. Data from all firms listed on the Oslo Stock Exchange (OSE) over the period 1989–1997. Data sources: Oslo Børsinformasjon (OBI) and Verdipapirsentralen (VPS).

One way of signalling this to the market is by not maximizing the ratio of voting rights to cash flow rights, but by holding a sufficient number of non-voting shares to convince the market that any misuse of voting rights to obtain private benefits is indirectly paid for through a reduced cash flow from the owner's stocks. The larger the fraction of cash flow rights held by the large investor (i.e. the smaller the separation ratio), the more credible the signal (Bergström and Rydqvist, 1990b). In a study of the separation behavior by the largest voting owners in Swedish firms with dual-class shares, Bergström and Rydqvist (1990b) find that just like in our case, the largest owner does not go for maximum separation. On average, the largest owner of voting rights was found to hold 15% more equity than he would have held if he cared for the voting right alone.

Summarizing this section, we have found that in firms with dual-class shares, large owners of voting stock concentrate voting rights relative to cash flow rights, typically voting for 20% more than their cash flow rights would suggest. Still, large voting owners often hold non-voting equity as well, possibly because charter amendments require a two thirds majority from both cash flow and voting rights or because they try to reduce moral hazard risks faced by small stockholders. The largest owner's separation between voting rights and cash flow rights seems consistent with this view.

The international evidence: The Norwegian outlier

We have so far described the ownership structure of Norwegian firms along several dimensions, such as its institutional environment, the aggregate holdings per owner type, the concentration of ownership, and the separation between cash flow rights and voting rights. In order to judge whether these characteristics are appropriate mechanisms for corporate governance or at least whether the characteristics are typical or unique, we need an external standard of comparison. One such yardstick is ownership structure characteristics in other countries.

Comparable international evidence is limited both by the short history of corporate governance research and by the lack of reliable data bases. Still, certain key ownership patterns may now be compared across a reasonably large number of European countries. This section relates the evidence published by the Federation of Stock Exchanges in Europe (1998) and by Barca and Becht (2001) to our findings on aggregate holdings and concentrated voting rights.¹⁷

The aggregate holdings of cash flow rights by the five basic owner types in twelve European countries and the US is presented in table 9. The table also shows the equally weighted average (mean) holdings across nine European countries excluding Norway and the UK, and the corresponding average where the UK is included. We report two averages because the UK differs markedly from

¹⁷Our comparison may suffer from the potential biases and inaccuracies in the estimates reported by Barca and Becht (2001) as discussed in our discussion of the market place. The findings by the Federation of Stock Exchanges in Europe (1998) have similar weaknesses, as they are mostly based on the large blocks only rather than the entire population or large, random samples. Moreover, our Norwegian data does not reflect the potential effects of indirect ownership, voting by proxy, voting pacts, and voting restrictions in the corporate charter.

the other European countries.

Table 9. The aggregate holding by the five basic owner types in eleven European countries and the US.

Country	No. of firms	Year	Owner size rank			Relative owner size		
			1	2	3	1/2	1/3	2/3
Austria	50	1996	54	8	3	6.8	18.0	2.7
Belgium	135	1995	56	7	5	8.0	11.2	1.4
France	674	1996	52	10	4	5.2	13.0	2.5
Germany	372	1996	50	3	1	16.7	50.0	3.0
Italy	214	1996	48	10	4	4.8	12.0	2.5
Netherlands	137	1996	43					
Spain	193	1995	40	11	6	3.6	6.7	1.8
Sweden	304	1998	38	11	6	3.5	6.3	1.8
Mean Europe (excl Norway and UK)			48	9	4	5.6	11.5	2.1
UK	250	1992	14	7	6	2.0	2.3	1.2
Mean Europe (excl Norway)			44	8	4	5.2	10.0	1.9
US	2831	1997	3	1	1	3.0	3.0	1.0
Mean western world (excl Norway)			40	8	4	5.3	10.0	1.9
Norway	130	1997	29	11	7	2.6	4.1	1.6

The table shows the estimated fraction of market value held. Data sources are Barca and Becht (2001) for Austria and the Federation of Stock Exchanges in Europe (1998) for the remaining countries except Norway. Numbers in percent.

The table reveals that compared to the other European nations in the sample, the 16% state holding in Norwegian listed firms is high. It is almost twice the European average, and only two other countries (Finland and Italy) have higher state ownership. Second, international owners have a larger aggregate stake than the typical European case (31% vs. 21%), but Norway is not exceptional. For instance, international investors hold the largest fraction of market value in four other European countries as well (Belgium, Finland, Spain, and Sweden).

Moving on to individual (personal) investors, Norway is quite extreme. In no other European country do individual investors own a smaller fraction of market value. The 8% stake is less than one third the European average and only about half the next-to-smallest fraction. Comparing the two extreme cases at either end, the principals (the ultimate owners) directly own more than half the market value in Austria. In contrast, the ownership rights of Norwegian principals are exercised by their intermediate agents (corporations and the state) in firms representing

¹⁸This argument implicitly assumes that all international investors are non-individuals, which is obviously wrong. Since we do not know the identity of international investors who hold their stakes through anonymous nominee

more than 90% of market value.¹⁸

Finally, ownership by national corporations (financials and non-financials in the two rightmost columns) account for 45% of market value in Norway. This a typical European level except in Germany and the UK, where both the overall national ownership by corporations and the fraction held by national financials is considerably higher.

Table 10 compares concentration levels internationally by showing the equally weighted average fraction held by the largest, second largest, and the third largest owner of voting equity across ten European countries and the US. The right section of the

table shows the pairwise ratios between the largest stakes. The means in the left column are equally weighted across countries.

The first remarkable pattern in table 10 is that the largest average fraction of voting equity held in a Norwegian listed firm is considerably smaller than anywhere else in Europe except in the UK. Disregarding Norway and the UK, the average largest stake in a European listed firm is 48%, which means the largest owner alone is very close to having majority control. In contrast, the largest owner in an OSE firm holds just 29%, which does not even produce a blocking minority against charter amendments.

Table 10. The concentration of voting rights in Europe and the US.

Country	No. of firms	Year	Owner size rank			Relative owner size		
			1	2	3	1/2	1/3	2/3
Austria	50	1996	54	8	3	6.8	18.0	2.7
Belgium	135	1995	56	7	5	8.0	11.2	1.4
France	674	1996	52	10	4	5.2	13.0	2.5
Germany	372	1996	50	3	1	16.7	50.0	3.0
Italy	214	1996	48	10	4	4.8	12.0	2.5
Netherlands	137	1996	43					
Spain	193	1995	40	11	6	3.6	6.7	1.8
Sweden	304	1998	38	11	6	3.5	6.3	1.8
Mean Europe (excl Norway and UK)			48	9	4	5.6	11.5	2.1
UK	250	1992	14	7	6	2.0	2.3	1.2
Mean Europe (excl Norway)			44	8	4	5.2	10.0	1.9
US	2831	1997	3	1	1	3.0	3.0	1.0
Mean western world (excl Norway)			40	8	4	5.3	10.0	1.9
Norway	130	1997	29	11	7	2.6	4.1	1.6

The table shows the average fraction of the firm's outstanding voting equity which is held by the largest, second largest, and third largest owner. For each owner size rank, the fractions are equally weighted across firms, and the international averages are equally weighted across countries. Relative owner size is the ratio between the corresponding ownership fractions. The data source is Barca and Becht (2001) for all countries except Norway. Holdings are in percent.

accounts, we cannot determine what fraction of the aggregate international holding is made up of individuals.

The second characteristic is that although the largest Norwegian equity stake is small, the other large stakes are substantial. For instance, in no other country is the second or third largest stake higher. This pattern is also apparent in the ratios at the right of the table. For instance, while the largest Norwegian holding is four times the third largest, it is ten times higher in the rest of Europe excluding the UK.

Overall, tables 9 and 10 suggest that Norway is an outlier by European standards. State holdings are unusually large, individual ownership is exceptionally low, the largest equity stake is remarkably small, and the power structure of ownership is very flat. These observations raise at least two questions. First, why is this rather peculiar ownership pattern observed? Second, what is the effect on corporate governance?

As to the first question, the purpose of this paper is primarily to describe ownership patterns rather than testing theories of why they are observed. Still, we may at least speculate on potential explanations. The list of possible determinants include the general political environment, the regulatory regime of the equity market, and investor wealth constraints. We briefly discuss these factors one by one.

Norway has had a social-democratic government for almost 50 out of the 65 last years. As significant public involvement in industry is still a vital component of this political ideology, our finding of a comparatively high state ownership in listed firms is not surprising. Having said that, it should also be noted that large state holdings are not always caused by a state policy to own or control. For instance, the state ownership in commercial banks, which skyrocketed in the early nineties, was driven by a motivation

to prevent the negative externalities of a collapsing banking system rather than a desire to transfer bank ownership from private to public hands. Moreover, owning a relatively high aggregate fraction of market value does not necessarily reflect power at the individual firm level. Our discussion of ownership concentration documented that compared to the aggregate size of state holdings on the OSE, the state is underrepresented among the large owners.

The small size of the largest stake and the flat power structure may both be partially driven by regulation. Section 4 concluded that the Norwegian legal regime provides high protection of shareholder rights. According to La Porta et al. (1998), such a regulatory framework reduces the cost of being a small shareholder. Hence, it may be argued that because the Norwegian regulatory regime is similar to the UK system in a stockholder protection sense, the low concentration and the flat power structure in both countries is consistent with the idea that the legal framework influences both the level and the distribution of large ownership stakes.

The low ownership by individual investors may be caused by wealth constraints and the consequent high cost of concentrated holdings for such investors. Because of its social-democratic political tradition, Norway has a more even distribution of income than most other countries (OECD, 1998). Although we have found no relevant international data, we suspect the same holds for the distribution of wealth. If this is correct, even the richest individuals in Norway have relatively low wealth by European standards. This may imply that in order for wealthy individuals to be large owners of an OSE firm, they have to put a very high fraction of their

wealth into one single firm. Consequently, the cost of concentrated ownership in terms of lost diversification benefits may be particularly high for individual investors in Norway.

The second fundamental question raised by our findings is the potential impact of ownership structure on corporate governance. That is, what is the effect on the relationship between principals and agents in a regime with absent individual (personal) owners, a relatively small largest owner and a flat power structure among the large owners. And, in particular, is the resulting monitoring different from what we find in the classic European setting of significant personal ownership, a majority owner, and a peaked power structure?

The small stake of the largest Norwegian owner means he has insufficient power to discipline management through the stockholder meeting. This monitoring problem is independent of whether voting rights are exercised by intermediate agents or by the ultimate principal. If large stockholders act independently, they may produce a system characterized by strong managers and weak owners, which is the current UK system according to Goergen and Renneboog (1998). However, as the *group* of large owners in Norwegian firms hold a rather large aggregate stake, the key to effective monitoring is cooperation. To illustrate, even though the largest owner of OSE firms on average owns just 29% of the votes, the three largest as a group are close to having a majority (47%). Thus, while the owners in the typical European listed firm may free-ride on the corporate governance efforts of the largest owner, the ownership structure of most Norwegian firms requires joint efforts by a team of several large owners who are individually weak, but collectively

strong. A key question for monitoring quality is therefore to what extent this pooling of voting power actually occurs. The critical issue here is whether the owner type (individual vs. non-individual) and the power structure (flat vs. peaked) matters for the relationship between corporate governance and economic performance.

In this section, we have found that the ownership structure of Norwegian listed firms is internationally rather atypical. Individual ownership is very low (8% vs. a European mean of 28%), the largest stake is remarkably small (29% vs. 44%), and the power structure of ownership is unusually flat. We argue that this Norwegian outlier case may partly be due to a long period of social-democratic rule (high state holdings, low individual stakes, and low concentration) and strong legal protection of stockholders (low concentration and flat power structure). We also note that this ownership pattern generates a system where the monitoring of listed firms is delegated from the ultimate owners to state bureaucrats and corporate managers, who have high voting rights, but negligible cash flow rights. Moreover, whereas the low ownership concentration produces a governance system of strong managers and weak owners, it may also be the case that the flat power structure facilitates joint monitoring by owners who are individually weak, but collectively strong.

Summary and conclusions

The objective of this paper is to describe basic ownership characteristics of Norwegian listed firms, compare them with existing international evidence, and to suggest rather than test possible reasons why these empirical reg-

ularities are observed and what they may imply for corporate governance. This section summarizes and highlights some major findings.

Norway is similar to most European countries in the sense that listed firms play a modest but increasingly important role in the national economy. The regulatory regime is somewhat special in the sense that even though the country belongs to the civil law tradition, which is generally considered less investor-protective than common law jurisdictions, Norway's regulatory environment still seems to provide better protection of shareholder rights than what is the case in many common law countries. Moreover, the access to high-quality ownership data over several years is rather exceptional, enabling us to map out the full ownership structure of every firm listed on the Oslo Stock Exchange (OSE) in the period 1989–1997. These data tell us that although individual (personal) investors is by far the most numerous group, their aggregate holding of OSE market value is small and decreasing. Financial investors in general and mutual funds in particular increase their share every year, while international investors hold the largest fraction of market value. Aggregate state ownership varies considerably over time, mainly due to the rescue of firms considered too important to fail rather than a result of a deliberate ownership policy. Indirect ownership through other OSE firms is rapidly declining, OSE insiders are comparable to individual investors in terms of aggregate holdings, and board members hold roughly half the insider stakes.

Only investors with large equity stakes have both the incentive and the power to influence corporate governance. We find that national non-financial corporations are

much more often among the large owners than their aggregate holding would suggest, and that the opposite is true for international investors and the state. On average, the largest owner is too small to act even as a blocking minority, it takes the four largest to establish a simple majority, and the ten largest to amend the corporate charter. Except in financials, where the ownership is restricted by regulation and the large stakes are considerably smaller than in others firms, concentration decreases with increasing firm size.

Voting equity in dual-class firms can be used to separate voting rights from cash flow rights. We find that non-voting shares are never issued by financials, very seldom by the young and small IPO firms, and that non-voting equity is roughly one third of total equity in industrial and shipping firms with dual-class shares. International investors strongly prefer non-voting stock, both before and after the regulatory restriction on their right to hold voting equity was lifted. Regardless of owner type, the large owners hold more voting rights than cash flow rights. However, they still own non-voting shares, possibly because the required 2/3 majority for charter amendments applies to voting rights and cash flow rights alike. It may also reflect a signal to small shareholders that by holding a relatively high fraction of cash flow rights, the large owners will lose if their power is used to divert the firm's resources to their private domain.

Our findings suggest that regulation matters for ownership structure. Both the low concentration and the absence of dual-class shares in financials are probably driven by the regulatory maximum on holding size per owner. The law also influences the size distribution of large stakes around certain criti-

cal levels, like the over-representation of large holdings just below flagging thresholds and mandatory bid thresholds, and also the over-representation just above key voting thresholds. Moreover, financial owners may be underrepresented among the large owners not because they are disinterested in corporate governance, but because regulatory caps restrict them from holding large stakes. Finally, the fact that the largest owners of voting shares in dual-class firms hold non-voting shares as well may be partly due to the voting rules for charter amendments specified by the corporate law.

On the other hand, certain regulations considered important in the public debate seem not to matter, probably because the owner has other objectives than those implicitly assumed by the regulator. International investors as a group seem to regard equity stakes in OSE firms as a vehicle for international diversification rather than for power exertion and corporate governance. In such a perspective, it is not surprising that the cap on aggregate holdings of voting shares by international investors was very seldom binding, and that the subsequent lifting of the cap had no fundamental effect on their relative demand for voting vs non-voting shares. This passive diversification view is supported by our finding that international owners of voting shares often refrain from using their voting right by holding voting shares anonymously, that they are heavily overrepresented in non-voting stock, and that they are underrepresented among the large owners of voting stock.

Compared to other European countries, corporate ownership in Norway is odd. Corporations and bureaucrats control more voting power in listed firms than anywhere else

in Europe, the aggregate state holding is large, the largest owner is unusually small, and the stakes of the other large owners are remarkably big. We speculate that these ownership patterns may be driven by a long period of social-democratic rule and a strong legal protection of shareholder rights. Our findings raise two basic questions about the functioning of corporate governance mechanisms. First, what happens to monitoring quality when the vast majority of managers are monitored by other managers and civil servants rather than by the ultimate owners? Second, even if this problem were small because intermediate agents behaved like ultimate owners, what corporate governance system is produced by this peculiar power structure? In particular, will the moderate size of the largest stake create a system of strong managers and weak owners, or will the flat power structure generate united owners who are separately weak, but collectively strong? The answers to these two questions are crucial for understanding the relationship between corporate governance and economic performance.

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