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A law and finance analysis of initial public offerings

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Abstract

Do families keep control of their firms because they, operating in an environment with weak protection of minority shareholders, fear being exploited by management after the IPO? Or is ownership concentration due to the value families attach to control? We find a positive relation between use of security designs that separate votes from capital and frequency of family-controlled firms in Sweden and other countries. It is not caused by differences in legal regimes or in minority protection. Since control blocks are *never* sold piecemeal to preserve control value, ownership remains highly concentrated. Family-controlled firms trade at a discount because of the misallocation of control rights to heirs who make inefficient decisions, not because of extraction of pecuniary benefits.

JEL classification: G32

Keywords: Law and finance; Initial public offerings; Security design; Dual-class shares; Family control; Seasoned equity offerings; Ownership dynamics

1. Introduction

This paper explores the intersection between the two literatures on Initial Public Offerings (IPOs) and on law and finance. The effects of legal institutions and rules are most pronounced at the IPO since they shape and affect not only the endogenous decision whether to go public but also the design of corporate charters and the initial ownership structure. The effects of laws on financial decisions are, however, not limited to the IPO since, by setting the stage, the initial conditions to a large extent also determine future de-

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velopments through path dependence. Analysis of the interaction between law and finance is thus particularly interesting at the IPO.

The literature on law and finance has, however, largely ignored the analysis of how legal rules affect IPOs, and concentrated on the relationship between legal regimes and ownership structures of large listed firms (La Porta et al., 1997, 1998, and 1999). And the IPO literature has overlooked the effect of laws and legal regimes. Most theories about the IPO process assume that owners in control use it as an exit option, the start of a process to quickly relinquish shares either piecemeal or as a whole in a block transfer or takeover.[1] Eventually, the firm's ownership structure is likely to be dominated by minority blockholders or become widely held and controlled by management. But these theories are unable to explain why public firms outside the Anglo-Saxon countries are frequently closely held, and often privately controlled for decades by the founding family (La Porta et al., 1999).

We address this question empirically by testing two theories about how legal rules and regimes make founders prefer a concentrated ownership structure at the IPO. The *weak minority protection theory* predicts a *negative* relation between the level of legal (formal) minority protection and frequency of family-controlled firms (ownership concentration) since families, operating in an environment of weak minority protection, fear being exploited by management when ownership becomes dispersed after the IPO (La Porta et al., 1999; Burkart et al., 2003). The relation should be particularly strong for civil-law countries since their legal protection of minority shareholders is generally weak, particularly if they are of French legal origin.

The *private-benefits-of-control theory* assumes that founders with preference for control design the corporate charter and security structure at the IPO in order to protect and maximize the value of their control rights (Grossman and Hart, 1988; Zingales, 1995; Bebchuk, 1999). This value stems from social prestige and status of running a listed firm, access to information that could be used in projects outside the firm, the power of making pivotal decisions about how to allocate financial and non-financial resources and people within the firm, and the opportunity to extract pecuniary benefits. Such rights are easier to protect, and thus, ceteris paribus, particularly valuable in legal systems where corporate and securities laws are designed to benefit control-oriented private owners. Corporate and securities laws may facilitate for founding families with limited wealth to keep control of the firm by allowing, even encouraging, the use of devices that separate votes from capital contribution like cross-shareholdings, dual-class shares and pyramids. The theory thus predicts the use of security designs that deviates from one share/one vote to be *positively* related to the frequency of family-controlled firms (ownership concentration).

Using international ownership data from La Porta et al. (1999), we first show that the different frequency of family-controlled firms around the world does not stem from differences in legal regimes or levels of minority protection per se. This is inconsistent with the weak-minority-protection theory but consistent with the private-benefits-of-control theory since different measures of family ownership concentration are related to actual uses of security designs that deviate from one share/one vote.

[1] See Black and Gilson (1998), Booth and Chua (1996), Gomes (2000), Maug (1997), Mello and Parsons (1998), and Zingales (1995).

Given the international results, the core of the paper empirically investigates the following three questions from the private-benefits-of-control theory. First, how are deviations from one share/one vote used in Swedish IPOs to protect the value of control rights? Second, how do deviations from one share/one vote and the formation of control blocks affect ownership dynamics after the IPO? And third, how does the existence of control blocks systematically affect investment, takeover, and financing behavior? The results provide an alternative interpretation of how law and finance interact, and identify a new trade-off that is especially relevant for policy makers in civil-law countries where security designs to separate votes and capital are more frequently used.

The Swedish setting is particularly interesting since separation of cash flow rights from voting rights is most prevalent (Agnblad et al., 2001; La Porta et al., 1999).[2] And the explicit intention of the corporate law, as stated in the lawmakers' preamble, is to facilitate creation of control blocks, e.g., by encouraging the use of dual-class shares. Well-defined private owners with significant, long-term interests are believed to internalize the costs from expropriation of minority shareholders and have stronger incentives to invest. These firms will, therefore, grow faster than if they had been controlled by management or by institutional owners. But dual class shares also cause a structural conflict between controlling owners and minority shareholders, and potentially give rise to agency costs since control is locked-in over time by the same owner family.

Despite relatively weak formal minority protection, the average size of private benefits as percentage of a firm's market capitalization is only 1% in Sweden, compared to an average of 4.5% for common-law countries (Nenova, 2003). Based on premiums in block transactions, Dyck and Zingales (2002) construct a gauge of private benefits of control. Besides measures of tax compliance and newspaper circulation, the only legal-origin dummy that significantly affects the value of control is the Scandinavian dummy that assigns a lower value of private benefits there. The Swedish case thus seems to represent an equilibrium with highly concentrated ownership where control benefits are primarily non-pecuniary.[3] This also seems to contradict the claim that strong, *formal* minority protection to limit extraction of private benefits is a necessary condition for development of financial markets since advanced markets developed in Sweden both before World War 1 and during the last 15 years (Rajan and Zingales, 2003).

We use a sample of 229 Swedish IPOs (no equity-carve-outs and spin-offs) from 1979 to mid 1997, and follow the firms from 3 years before the IPO to 5 years after.[4] Since

[2] In Sweden, it on average requires least capital (12.6%) to control 20% of the votes of a large listed firm. It ranks #2 after Belgium in frequency of pyramids, and #3 after Germany and Austria in frequency of cross-shareholdings; see La Porta et al. (1999).

[3] Nenova (2003) measures the value of private benefits as a function of the price difference between voting and non-(low-) voting shares. But La Porta et al. (1999) report that in 45% (60%) of large (medium) listed firms in Sweden a family owns a controlling block (> 20%). This is consistent with large non-pecuniary benefits of control, especially for families (Zingales, 1994).

[4] Rydqvist and Högholm (1995) analyze a smaller and older sample of Swedish IPOs, do not differentiate between private and institutionally controlled firms, and do not analyze ownership dynamics, takeover activity, and investment behavior after the IPO. Even if controlling owners do not sell any shares but their position is diluted because of stock financed acquisitions, they report this as liquidation and evidence of desire to relinquish control. We use a different approach and analyze a different set of issues.

control rights are not easily transferable between managers and shareholders, we postulate that they are more valuable to private managerial owners (founder (CEO), founder family, employees, or other individual in control) than for institutional owners (another public firm without a family or individual in ultimate control, a venture capital fund, an association or state or community in control). We distinguish between the two in order to test whether the assumed disparate private benefits of control result in different economic behavior.

Almost 90% of privately controlled IPO firms use dual-class shares and issue only low-voting B shares. Most often, the controlling owner keeps all high voting A shares, does not sell any of his shares at the IPO, and controls on average (median) 68.5% (77%) of the votes after the IPO. Institutionally controlled firms use the IPO as an exit option. But heavy entrenchment comes at a price since the market's future growth expectations of non-founder controlled private firms are significantly lower already at the IPO. The book-to-market ratio for such firms (founder family or other private person in control) is on average 0.5 but 0.25 for founder and institutionally controlled. Even if the founder/CEO is also entrenched, the market views his entrepreneurial knowledge as pivotal for the firm. Since possibilities to expropriate should be the same for founders and other private owners, and level of minority protection does not differ within the same legislation, the discount most likely captures *dynamic lock-in costs* reflecting misallocation of control rights to heirs that make inefficient decisions. The discount thus gauges agency costs and not the value of expropriation of minority shareholders due to weak minority protection.

Since the incorporated value of control rents is particularly valuable when dual-class shares are used, we find *no* single case where a control block is sold piecemeal but only as a whole in a block transfer or in a non-partial bid. Within five years 27% of the privately controlled firms have a new controlling owner. Control was either acquired in a non-partial takeover (19%) or in a negotiated block transfer (8%). This explains why the initial ownership structure remains very concentrated after the IPO even if control is transferred. Five years after the IPO, original private owners still control almost 2/3rd of the votes and 43% of the capital. This establishes a direct, dynamic link between IPOs and concentrated ownership of listed firms in countries that allow separation of voting and dividend rights, and have weak minority protection, and where families related to the founder often control large firms for decades (La Porta et al., 1999).[5]

Half of the privately controlled firms return for a Seasoned Equity Offer (SEO), either a rights issue or a directed issue of low voting B shares in a stock financed acquisition, and invest more after the IPO. Sixty percent of family controlled firms undertake such a stock financed-acquisition, a motive often stated in the prospectuses. A new and important result is that private owners in control of firms that later undertake SEOs retain a significantly higher proportion of votes. They seem to *rationally anticipate* dilution because of acquisitions financed by issuance of B shares, or because they may not fully participate in rights issues. The objective for private owners who value control but are financially constrained is thus to maintain control, and use the IPO to later raise the capital in SEOs. Our empirical

[5] Only within the last two or three decades, the ownership structures of listed firms in the UK have become more dispersed because of introduction of a 30% mandatory bid rule. Earlier the ownership concentration resembled Continental Europe's.

results are consistent with Bebchuk's (1999) rent-protection theory and Zingales (1995) but inconsistent with Gomes' (2000) reputation theory.

One general implication of this paper is that a major trade-off for legislators is how to balance promotion the founding family's original incentives against dynamic lock-in costs due to misallocation of control rights to entrenched heirs that make inefficient decisions. Particularly in countries where devices to separate votes from capital are frequently used, these agency costs are likely to be more economically important than costs associated with exploitation of weakly protected minority shareholders.

Another implication is that a pivotal question in the law and finance literature is if (and how) control blocks are formed at the IPO. The valuable control rights attached to an intact block will systematically affect the controlling owner's decisions, and thereby the firm's investment, takeover and financing behavior and ownership dynamics in equilibrium. The existence of control blocks may thus explain systematic differences in corporate behavior between countries. For example, for UK IPOs, Brennan and Franks (1997) show that a dispersed ownership structure normally emerges within a few years since the original owners sequentially relinquish their positions even though they exercise their right to control how shares were allocated initially. Unlike privately controlled firms in Sweden, they do not use dual-class shares to form control blocks that are kept intact after the IPO. Differences in ownership concentration, firm behavior and corporate governance may thus be determined by endogenously established differences in security design and initial ownership structure at the IPO that in turn reflect different legal and political cultures.

The next section outlines our hypotheses, tests their relevance using international data, and describes the Swedish IPO data. In Section 3 we analyze choice of security design and initial ownership structure. We then follow firms for five years after the IPO and present results in Section 4 about ownership dynamics, investment behavior, frequency of seasoned equity offerings, and takeover behavior. Section 5 discusses our results in relation to the existing literature, puts them in perspective, and concludes.

2. Hypotheses and data

We first outline our hypotheses and do some preliminary tests on an international data set. Sections 2.3 and 2.4 present the Swedish IPO data.

2.1. Hypotheses

Following Bebchuk (1999), Bebchuk et al. (2000), La Porta et al. (1998) and (1999), and Zingales (1995), we develop a control-oriented approach to IPOs based on the relative size of private benefits of control. If capital- or liquidity-constrained, the original owners face a trade-off when going public between exiting their position and relinquishing control, or maintaining control after the IPO and using access to the capital markets to finance investments. When the private value of control is high, owners are more likely to prefer maintained control of the publicly listed firm. Owners who derive substantial private benefits of control may thus exploit opportunities within the legal regime when designing the corporate charter and the initial ownership structure to maximize the value of their control

rights, and to ensure them continued control, e.g., by using designs that separate votes form capital.[6]

The legislator's decision to allow devices to separate votes from capital involves at least three major trade-offs.[7] The first is how to strike a balance between protection of the rights of controlling owners and of minority shareholders. This is the pivotal trade-off since a dual-class structure is the most efficient way for a single firm to *simultaneously* limit the power of minority shareholders and reinforce the value of control rights for the majority owner. Allocation of control rights in favor of the *controlling minority shareholder* (controls a majority of the votes with a minority contribution of the capital) is particularly valuable if it provides him/her with stronger incentives to invest more in firm specific managerial capital over a longer time horizon. This is particularly true when such investments are crucial for the success and the growth of the firm (Taylor and Whittred, 1998).[8]

By promoting owners who control a large majority of votes, a dual-class share system also makes them more entrenched. The second main trade-off is thus how to balance their level of entrenchment. Besides eliminating hostile takeovers before the entrepreneur has had time to fully develop the firm, controlling owners are more likely to resist value-improving takeovers if they are not sufficiently compensated for their control rights by a higher premium. Dual-class shares are the single most effective anti-takeover measure; firms with such systems do not use any other anti-takeover devices while firms using one share/one vote systems often use an arsenal of such measures (Field, 1999).

As a consequence of the previous trade-offs, the final one is how to strike a balance between stronger incentives to invest more, particularly over the long run, and not to provide biased investment incentives. With dual-class shares an entrepreneur being a controlling minority shareholder with limited wealth can keep control of the firm even after large external equity infusions (of low voting stock). However, he also has stronger incentives to invest and undertake acquisitions since he only contributes a minority fraction of the capital but exclusively enjoys the value of control rights of a successful investment as well as his fraction of the dividends (Bebchuk et al., 2000).

Swedish legislators have taken a firm stand on the three implicit trade-offs by systematically protecting and reinforcing the rights of controlling owners, and by strongly encouraging use of dual-class shares. The preamble to the new Swedish corporate law, where the legislator explicitly motivates his/her intention to encourage formation of con-

[6] Running a listed firm with good reputation and a family name legacy is very prestigious socially. And controlling owners may have it their way by, e.g., promoting relatives and offspring. Since power is about allocation of rights within the firm to exclude some persons and elevate others, its value can be substantial. Being the family in control of The New York Times is an example where the non-pecuniary value of control substantially surpasses the pecuniary value from extraction of private benefits.

[7] *Individual* firms may use dual-class shares but other means to separate votes from capital involve *multiple* firms where ownership is hierarchical like a pyramid or mutual cross ownership between several firms. Bebchuk et al. (2000) appropriately named them *Controlling Minority Structures*. Sweden allows all three; see La Porta et al. (1998).

[8] Venture capitalists (VCs) often design contracts that separate votes from capital to provide stronger incentives but without explicitly using dual-class shares (Kaplan and Strömberg, 2002). Elaborately specified control rights rest initially with the VC, and only if the project succeeds does the entrepreneur regain control, which is appropriate if the VC's knowledge is pivotal initially.

trol blocks using dual-class shares, does not mention any potential negative effects, e.g., on minority rights or any other costs (Proposition 1997/98: 99 p. 120— our translation):

> *The use of shares with different voting rights has a long tradition in Swedish law. Dual-class shares are very common among listed companies in Sweden. The dual-class share system has significant advantages. It makes it possible* (*facilitates*) *to have a strong and stable ownership function even in very large companies. Thereby creating the necessary conditions for an efficient management as well as for the long-term planning of the firm's activities. Shares with different voting rights also facilitate for growing companies to raise new capital without the original owners losing control. There is no evidence that the dual-class share system has caused any noticeable negative effects... Dual-class shares can significantly promote the efficiency and development of individual firms as well as of the business sector in general.*

The legislator strongly believes that it is in the interests of all shareholders that control rests with a well-defined, in particular private, controlling owner who has a large and long-term interest in the firm since he is expected to internalize some of the most important potential costs like extraction of large private benefits.[9] Three (descriptive) hypotheses, each linked to one of the previous trade-offs, summarize our predictions of the *equilibrium* behavior of owners who derive large private benefits of control, given that the legislator encourage separation of votes from capital.

H1 (Security design and choice of initial ownership structure). *To maximize the value of control rights, privately controlled firms are more likely to use dual-class shares and only issue low voting B shares.*

The initial ownership structure will be highly concentrated since the controlling-owner keeps all high-voting A shares, and does not sell any of his/her other shares.

H2 (Takeover frequency and ownership dynamics). *Since dual-class shares simultaneously provide an efficient anti-takeover measure and stronger incentives for stock financed acquisitions, privately controlled firms are less likely to be taken over but more likely to acquire other firms.*

[9] Basic principles of Swedish corporate law are profit maximization as the firm's objective; simple majority rule for decision making, except for changes of the charter that requires a 2/3 majority, both of votes and of number of shareholders present at the general meeting, and the principle of equal treatment. Minority protection is generally weak. Two general clauses (8 kap. 34§ and 9 kap. 37§) protect minority shareholders against formally correct decisions by the board (general meeting) that give or is intended to give some shareholders unwarranted economic benefits or advantages or is generally detrimental to firm value or the firm as such. In particular against directed issues and other SEOs that change the relation between different classes of shares or between shareholders. The clauses are explicitly subordinated to the profit maximization objective; unless minorities are at least 10%, they don't have right to influence the firm's majority decisions on, e.g., takeovers, dividends, extra audits, redemptions and liquidation.

Since the value of control rights is incorporated into the value of a controlling block, the owner never sells it piecemeal but only as one block to protect value of control rents in a block transfer or a takeover. Ownership after the IPO is thus likely to remain concentrated. These two hypotheses roughly correspond to the predictions of Zingales (1995) and Bebchuk (1999). The final one is an implication of the fact that dual-class shares provide stronger incentives to invest without diluting control.

H3 (Investment behavior). *Privately controlled firms are more likely to expand* (i) *by stock-financed acquisitions issuing only low-voting B shares, and finance investments by* (ii) *rights issues—no dilution.*

Would not the future costs associated with the conflict between the controlling owners and other shareholders in a firm with dual-class shares be rationally anticipated at the IPO and fully borne by the original owners as a discount in the offer price? Then there would be no net gain for control-oriented owners to go public. But this is not likely. If only B shares are issued, the discount only reflects how the existence of control rights affect the value of cash flow rights, not the value of extra voting rights imbedded in A shares; assuming that A and B shares have equal dividend rights but an A share carries more votes. The controlling owner maximizes the value of his exclusive control rights plus the value of his share of the cash flow rights. If the non-pecuniary private value of control is large, it surpasses the discount for agency costs in the value of his cash flow rights. Since he has the option to sell his entire position to a new controlling party at a premium, the current value of his voting rights increases. If the value of control rights is significant, it is likely to surpass the discount borne by him at the IPO.

2.2. International evidence

Because of the historical path dependency with heavy use of devices to separate votes from capital, a Swedish IPO firm's decision whether to use dual-class shares or not is structurally different from say a corresponding US firm where such shares by tradition are used very infrequently even after the NYSE lifted its ban on such shares. To once again allow dual-class shares in a particular historical, institutional equilibrium with very limited use of such shares outside the NYSE has a very different equilibrium impact than a decision to allow and encourage continued use in an institutional environment like Sweden with long-term heavy use of such shares. The use of dual-class shares is indeed very limited among US IPO firms (5%) and most prevalent in the media and entertainment industries where private benefits of control are assumed to be especially large (Field and Karpoff, 2002; Smart and Zutter, 2003). Hence, a dummy indicating that neither Sweden nor the US has a legal ban on dual-class shares does not explain the significant difference in *equilibrium* frequency in which they are used in the two countries.

Table 1, panel A, shows that there is no difference between civil and common-law countries in terms of bans on dual class shares (La Porta et al., 1999). But if we measure *actual* use of security designs that deviate from one share/one vote as La Porta et al. (average vote to capital ratio for the largest voteholder in the 20 largest firms in each country), they are much more frequently used in civil-law countries. Since dual-class shares are not banned

Table 1
Separation of ownership and control and ownership concentration

A. Differences between civil-law and common-law countries in bans on dual-class shares and in actual use of devices to separate votes from capital

	Civil-law countries, $N = 18$	Common-law countries, $N = 9$	Difference test
One share/one vote	$N = 3$	$N = 1$	
	Prop $= 0.17$	Prop $= 0.11$	Prop-test $= -0.38$
Vote/capital ratio	Mean $= 1.14$	Mean $= 1.01$	t-test $= 2.08$[b]
	Median $= 1.05$	Median $= 1.00$	Rank-sum test $= 1.80$[a]

B. Cross-country regressions with fraction of privately controlled firms among the 20 largest firms as dependent variable

	M1	M2	M3	M4	M5	M6
Civil law	0.049					−0.030
	(0.56)					(−0.30)
Antidirector rights		−0.081				0.064
		(−1.07)				(0.56)
Vote/capital ratio			0.491			0.653
			(2.78)[b]			(3.01)[c]
Pyramids				0.249		0.482
				(1.68)		(2.19)[b]
Cross-holdings					−0.093	−0.878
					(−0.18)	(−1.92)[a]
LGNP capita	−0.251	−0.247	−0.292	−0.244	−0.250	−0.281
	(−2.93)[c]	(−2.93)[c]	(−4.36)[c]	(−2.63)[b]	(−2.82)[c]	(−3.66)[c]
Adj R^2	0.283	0.305	0.384	0.342	0.272	0.431
Mean vif	1.00	1.00	1.08	1.00	1.03	1.62
N	27	27	27	27	27	27

C. Cross-country regressions with the fraction of market capitalization that is privately controlled as dependent variable

	M1	M2	M3	M4	M5	M6
Civil law	0.059					−0.010
	(0.75)					(−0.13)
Antidirector rights		−0.077				0.043
		(−1.13)				(0.48)
Vote/capital ratio			0.447			0.537
			(2.26)[b]			(2.35)[b]
Pyramids				0.160		0.344
				(1.09)		(1.69)
Cross-holdings					−0.164	−0.729
					(−0.37)	(−1.89)[a]
LGNP capita	−0.252	−0.249	−0.290	−0.248	−0.250	−0.277
	(−2.80)[c]	(−2.82)[c]	(−3.89)[c]	(−2.58)[b]	(−2.66)[b]	(−3.26)[c]

(*continued on next page*)

Table 1 (*continued*)

	M1	M2	M3	M4	M5	M6
Adj R^2 (%)	0.330	0.346	0.415	0.348	0.314	0.387
Mean vif	1.00	1.00	1.08	1.00	1.03	1.62
N	27	27	27	27	27	27

Notes. Using data for 27 countries from La Porta et al. (1998) and (1999), panel A tests if there are differences between civil-law and common-law countries in frequency of bans on dual-class shares and in actual use of devices to separate votes from capital. One share/one vote dummy is one if the country's corporate law or commercial code requires that ordinary shares carry one vote per share, and zero otherwise (La Porta et al., 1998). Vote/capital ratio is equal to the average vote to capital ratio for largest voteholder in the 20 largest firms in each country (La Porta et al., 1999). In panels B and C we regress (OLS) ownership concentration for 27 countries on legal regime, antidirector rights, actual deviations from one share/one vote, pyramid structures, cross-holdings, and the natural logarithm of GNP per capita. In panel B the dependent variable is the fraction of the 20 largest firms in a country that are controlled by an individual (called family in La Porta et al., 1999). In panel C, the dependent variable is the aggregate market value of common equity of firms controlled by individuals divided by the aggregate market value of common equity in a given country (% Mkr Fam in La Porta et al., 1999). The civil-law dummy is one if the country has a civil-law regime, and zero otherwise. The antidirector rights dummy equals one if the country has high antidirector rights (above the median), and zero otherwise. Pyramid is the fraction of the 20 largest firms that is controlled via a pyramid structure. Cross-holdings is equal to the fraction of the 20 largest firms that is controlled by means of cross-shareholdings. LGNP capita is the natural logarithm of GNP per capita in constant 1994 dollars (La Porta et al., 1998). Coefficients are reported with heteroscedasticity robust *t*-values in parenthesis (White, 1980).

[a] Significance at the 10% level.
[b] Significance at the 5% level.
[c] Significance at the 1% level.

but in effect not used in equilibrium in common-law countries, it shows that the link between legal rules and actual behavior in equilibrium is not as direct as sometimes argued.[10]

Table 1 also tests the relation between family ownership concentration and legal regime, antidirector rights, actual deviations from one share/one vote, pyramid structures, and cross holdings.[11] Panels B and C report cross-country regressions with fraction of privately (labeled family by La Porta et al., 1999) controlled firms and proportion of market capitalization that is privately controlled, respectively, as dependent variables. The 27 countries are the same as in La Porta et al. (1999). After controlling for GNP per capita (from La Porta et al., 1998), we find no relation between family ownership concentration measures and legal regime or antidirector rights per se; see also Roe (2002). But consistent with the private-benefits-of-control theory (Grossman and Hart, 1988; Bebchuk, 1999), actual deviations from one share/one vote are positively and significantly related to the ownership concentration measures.[12]

[10] Australian corporate law does not ban dual-class shares but relatively few firms use them. When Rupert Murdoch announced that one of his firms was going be listed on the ASE with dual-class shares, listing requirements were quickly changed to include a ban.

[11] Deviations from one share/one vote, pyramids and cross-holdings are the mechanisms to separate ownership and control discussed by La Porta et al. (1999).

[12] We have used an indicator variable for deviations from one share/one vote with similar results. Pyramid structures are also positively and significantly related to ownership concentration in model 6, panel B. Cross-

2.3. Data sources on Swedish IPOs

We test the three hypotheses on a sample of Swedish IPOs. Using the official records of the Stockholm Stock Exchange (SSE), we collected information about 233 initial public offerings (4 excluded due to incomplete information) and 119 equity carve-outs and spin-offs on the A (official), O (unofficial), and OTC lists from 1979 until mid 1997. Data on offer size and firm age before the IPO were collected from the prospectuses. Stated motives for going public, ownership type, and if the majority owner is the founder or related to the founder are also collected from the prospectuses.

All post-IPO price data are collected from the *Dextel Findata* TRUST database, and pre- and post-IPO accounting data come from the FINLIS database. We collected information about Seasoned Equity Offerings (SEOs) (date, size, and type of issue: private placement or rights issue) from TRUST and FINLIS. Ownership data before and when going public is collected from the prospectuses. Privately-held is classified as firms controlled by founder (CEO), founder's family, employees or other individuals. Fraction of primary and secondary shares, and type of shares distributed (A or B) are also obtained from the prospectuses. We collected ownership data of the initial owners at year 1 to 5 from Sundqvist (1985–1993) and from Sundin and Sundqvist (1994–2003), and for the time period before 1985 from annual reports.

Information about listing and delistings within five years comes from *Dagens Industri*. Actual delisting dates are collected from TRUST. Reason for delisting comes from *The Stockholm Stock Exchange Quarterly Report*, Sundqvist (1985–1993), Sundin and Sundqvist (1994–2003), and from *AffärsData*.

2.4. Descriptives

Panel A in Table 2 reports that 352 new firms were listed on the SSE from 1979 until mid-1997. The number of listed firms increased from 134 in 1979 to 245 in 1997, and more than half of the currently listed firms are introduced after 1979. The majority (233 or 66.2%) are pure IPOs, i.e., did not involve previously listed firms or firms earlier fully owned by another listed firm, while 119 (34.8%) are (primarily) equity carve-outs and spin-offs. 73% of the IPO firms were still listed after 5 years. Of the 233 IPOs, 50 (21%) were acquired (control block transaction) within 5 years after the IPO while only 1.7% went private again, and 3.4% filed for bankruptcy in the 5-year post-IPO period. For a sample of US IPOs, Field and Karpoff (2002) report that 16.5 % were acquired within five years of their IPO.

From now on we split the IPO sample into two groups depending on the identity of the controlling owner: *privately* and *institutionally controlled*. Panel B shows that most privately controlled firms went public during 1983 and 1984 when deregulation of the financial markets was initiated and the OTC market opened up. There was a backlog of private firms ready to go public when the stock market started to boom at an unprecedented rate. The institutionally controlled firms go public more often during the 90s, both

holdings, on the other hand, are negatively related to ownership concentration. The results are robust to market capitalization but since it is unclear whether market capitalization is exogenous this is unreported.

Table 2
IPOs on the Stockholm Stock Exchange between 1979 and 1997:6

A. Newly listed firms and delistings of IPO firms on the Stockholm Stock Exchange (SSE) (A-list, OTC, or unofficial list) between 1979 and mid-1997

	N	%
Newly listed firms 1979–1997:6	352	100
Clean initial public offerings (IPOs)	233	66.2
Equity carve-outs and spin-offs ("unclean" IPOs)	119	34.8
Remaining IPO firms 5 years after IPO	171	73.4
Delistings within five years after IPO	62	26.6
IPOs acquired within 5 years of IPO	50	21.5
IPOs which went back private within 5 years of IPO	4	1.7
IPOs which went bankrupt within 5 years of IPO	8	3.4

B. Frequency of IPOs on the SSE between 1979 and 1997:6 in our sample

Year	Privately controlled	Institutionally controlled	Total	Return AFGX (%)
1979	2	0	2	−0.5
1980	0	0	0	22.6
1981	1	0	1	56.9
1982	7	3	10	35.0
1983	28	5	33	65.8
1984	36	7	43	−11.1
1985	12	1	13	25.6
1986	9	1	10	51.0
1987	10	8	18	−7.8
1988	9	4	13	51.9
1989	8	2	10	24.5
1990	5	5	10	−31.1
1991	2	0	2	5.5
1992	2	0	2	−0.5
1993	2	3	5	53.7
1994	8	15	23	4.8
1995	5	6	11	18.0
1996	6	1	7	37.0
1997:6	6	10	16	24.9
Sum (%)	158 (69%)	71 (31%)	229	

Notes. In 1979 there were 134 firms listed on the SSE and in 1997 these were 245. In January 2003, 67 of the 233 IPOs between 1979–1997 were still listed on the Stockholm Stock Exchange. There were 168 new listings on the SSE between 1997:7 and 2002:12. In January 2003, 325 firms were listed on the SSE. Firms are defined as privately controlled if the largest shareholder is the founder/CEO, founder's family, entrepreneurs or employees. Firms controlled either by public corporations (without a family or individual in ultimate control), venture capitalists, associations, the state or a community are defined as being institutionally controlled. AFGX is Affärsvärldens General Index for the Stockholm Stock Exchange.

in absolute and in relative numbers. A more detailed analysis (unreported) shows that firms in industrial manufacturing, in commercial services (information technology, consulting), and in the real estate sector are most frequently going public, in particular if they are privately controlled.

Table 3
Ownership type and firm characteristics

A. Identity of largest (controlling) shareholder at IPO

	N	%
Privately controlled firms	158	69.0
Founder/CEO owns and manages the firm	51	22.3
Founder's family (without founder) owns and manages the firm	55	24.0
Founder's family no longer active in the firm (firm controlled by employees or an entrepreneur)	52	22.7
Institutionally controlled firms	71	31.0
Public corporation	44	19.4
Venture capital	12	5.3
State or community	9	4.0
Association	6	2.6

B. Firm characteristics at the IPO

	Total sample		Privately controlled		Institutionally controlled		Mean diff.	Median diff. Wilcoxon
	Mean	Median	Mean	Median	Mean	Median	*t*-test	rank-sum test
Firm age	31	18	33	23	27	11	1.26	2.18[b]
Sales	1097	139	171	64	2838	192	−2.26[b]	−2.30[b]
Book value of total assets	6728	163	369	140	21275	246	−6.59[c]	−3.84[c]
Debt ratio	0.71	0.74	0.72	0.73	0.68	0.73	3.14[c]	0.79
IPO offer size	294	33	36	11	307	48	−2.39[b]	−6.70[c]
Market value of equity day 1	869	175	329	128	2068	326	−7.96[c]	−4.78[c]
Return on assets (ROA)	0.09	0.09	0.10	0.10	0.08	0.07	0.19	1.70[a]
Investment/sales	0.53	0.07	0.36	0.06	1.00	0.07	−2.04[b]	0.47

Notes. The sample consists of 229 Swedish IPOs on the Stockholm Stock Exchange (A-list, OTC, or unofficial list) between 1979 and mid 1997. Only clean IPOs are included, i.e., equity carve outs and spin-offs are deleted. Firms are defined as privately controlled if the largest shareholder is the founder/CEO, founder family, entrepreneurs or employees. An individual or a group of individuals, which are not employees and do not have any family relation to the founder, is defined as an entrepreneur. Firms controlled either by public corporations (without a family or individual in ultimate control), venture capitalists, associations, the state or a community are defined as being institutionally controlled. A venture capital firm or a buy-out fund is defined as a venture capital majority owner. Non-profit organizations are defined as associations. If the majority owner is another corporation, it is defined as ownership by a public corporation. The firm characteristics in panel B are Sales (M SEK), book value of total assets (M SEK), debt ratios, IPO offer size (M SEK), return on assets, and investment/sales prior to going public. Market value of equity (M SEK) is estimated from the first day after going public. Data are primarily obtained from the prospectuses.

[a] Significance at the 10% level.
[b] Significance at the 5% level.
[c] Significance at the 1% level.

Panel A in Table 3 reports that the typical IPO firm is *privately* controlled (69%). Within the privately controlled group, the three subgroups of owners are of equal size: *founder* (founder is controlling owner and also CEO), *founder family* (founder no longer CEO but founder's family controls and manages) and *other private owner* (privately controlled but not by the founder or his family). The most common *institutional* owner is *another public firm* without a family or individual in ultimate control (19.4% of all IPOs) while only

5.3% have a *venture capital firm* as majority owner.[13] The typical IPO firm is a founder-controlled or founder-family-controlled firm. Compared to Field's (1999) sample of US IPOs, privately controlled firms dominate in our sample while firms backed by venture capitalists and buy-out funds (LBOs) that primarily use the IPO as an exit option are few. Motives for going public thus differ between the two samples.

Panel B shows the substantial variation in firm characteristics; averages are very different from medians. The median privately controlled firm is significantly older and smaller, both in terms of sales and market value of equity at the IPO, and its median offer size is only 23% of the median value for institutionally controlled firms. The average age is 33, which equals the average age reported for Italian IPOs by Pagano et al. (1998), but is lower than the average of 40 (38) years for European (Swedish) IPOs during the 1980s; see Rydqvist and Högholm (1995). But the median age is 18 years in our sample. More interestingly, the median age of the institutionally (privately) controlled firm is only 11 (23) years, which is closer to the median (average) age of US IPOs of 8 (18) years (Field and Karpoff, 2002).

3. Security design and choice of initial ownership structure

We follow the firms from 3 years before the IPO until the first day of trading but focus our reporting on how owners endogenously determine security design, initial ownership structure and how firms are valued in the offering price and at the first day of trading.[14]

3.1. Security design and initial ownership structure

Panel A in Table 4 reports that differences in security design, corporate charter and governance, and structure of the initial public offering between privately controlled and institutionally controlled firms are striking and highly significant. The extreme control-oriented nature of privately controlled firms is evident from the fact that 88.6% of them have dual-class shares while 47.9% of the institutionally controlled separate voting rights from dividend rights. Furthermore, 88% (43.7%) of the private (institutional) owners in control *only* issue B shares, and all privately controlled firms with dual-class shares

[13] Differences in venture capital backing do not explain (unreported) the disparity between privately controlled and institutionally controlled firms. The VC industry was relatively underdeveloped before 1997 when the Information Technology boom in Sweden started.

[14] Pre-IPO activity is high as 44% of the firms acquire another one, and 19.6% divest. 52.1% (37.3%) of institutionally (privately) controlled firms do private placements, and 18.3% (7%) a stock financed acquisition. Some private owners prefer to sell part of their block to an institutional owner (private placement) before rather than after with explicit promise to go public within a year. In a regression analysis (unreported), underpricing is significantly lower for such firms. Analysis of Spearman's rank coefficients identifies two sets of motives in the prospectuses. A primary around *access to capital markets* and *stock financed acquisitions for future growth* for privately controlled firms; 38.4% stated the latter. A second around *publicity*, *incentives* and *exit* for institutionally controlled. The most common is access to capital markets (85%), followed by publicity (58.3%). The ranking of motives in Sweden also differs; see Roell (1996), Pagano et al. (1996, 1998), and Subrahmanyam and Titman (1999).

Table 4
Security design, corporate charter, and initial ownership

A. Security design and corporate charter at IPO

	Total sample		Privately controlled		Institutionally controlled		Prop. diff.
	N	Prop.	*N*	Prop.	*N*	Prop.	test
Dual class shares	174	0.76	140	0.89	34	0.48	6.67[b]
Pre-emption clauses	42	0.18	33	0.21	9	0.13	1.48
Shareholder agreements	34	0.15	24	0.15	10	0.14	0.22
Opted out of voting restrictions	220	0.96	151	0.95	69	0.97	0.58
Only B shares sold at IPO	170	0.74	139	0.88	31	0.44	7.09[b]
Of dual class firms		*0.98*		*0.99*		*0.91*	*2.83*[b]
Owners keep all A shares	107	0.47	91	0.58	16	0.22	4.96[b]
Of dual class firms		*0.62*		*0.65*		*0.47*	*1.93*[a]

B. Choice of initial ownership structure

	Total sample		Privately controlled		Institutionally controlled		Mean diff.	Median diff. Wilcoxon
	Mean	Median	Mean	Median	Mean	Median	*t*-test	rank-sum test
Primary shares	21.5	20.0	21.7	20.0	21.1	20.0	0.21	0.67
Secondary shares	9.4	0	6.5	0	15.6	0	−3.14[b]	−2.95[b]
Fraction of firm offered	30.8	25.8	28.3	25.0	36.3	28.2	−2.81[b]	−2.60[b]
Vote retention	65.2	74.0	72.4	81.4	49.3	47.9	6.59[b]	6.36[b]
Capital retention	50.3	51.8	54.5	58.0	40.8	38.1	4.34[b]	4.20[b]
Vote/capital ratio	1.38	1.25	1.42	1.30	1.29	1.00	1.88[a]	4.50[b]

Notes. The sample consists of 229 Swedish IPOs on the Stockholm Stock Exchange (A-list, OTC, or unofficial list) between 1979 and mid 1997. Only clean IPOs are included, i.e., equity carve-outs and spin-offs are deleted. Firms controlled by the founder, families, entrepreneurs or employees are defined as being privately controlled ($N = 158$) and as institutionally controlled ($N = 71$) if the controlling owners are public corporations (without a family or individual in ultimate control), venture capitalists, associations, the state or a community. Privately controlled firms where the founder is CEO are defined as founder controlled ($N = 51$). Privately controlled firms where the founder's family is the majority owner but the founder is no longer CEO are defined as founder-family controlled ($N = 55$). If the founder or the founder's family are no longer active the firm is defined as other ($N = 52$). Pre-emption clauses state that shareholders should be able to redeem non-listed A shares if they have been passed on to a new shareholder. Shareholders can establish agreements between each other, which do not have to be public, e.g., rights of first refusal, which are not allowed in the company charter by the Swedish Corporate Law. The Companies Act states that no shareholder can represent more than on fifth of the shares at the general meeting. However, this rule can be opted out of (or made stronger) through the incorporation of a provision in the company charter. Of the 34 institutionally controlled firms with dual class shares, 3 were controlled by Venture Capitals (25% of Venture Capital controlled), 5 by Associations (71% of Association controlled), 4 by the State or a Community (44% of the State or Community controlled), and 22 by a Public Corporation (51% of the IPOs controlled by a public corporation). Vote and capital retention is by the largest private and institutional owner. Primary (secondary) shares are defined as the fraction of the firm after the IPO, which was distributed as new (old) shares at IPO. Data from corporate charters and prospectuses.

[a] Significance at the 10% level.
[b] Significance at the 1% level.

(99.3%) issue only B shares. 58% (22.5%) of the private (institutional) owners in control keep all the A shares. In 65% of privately controlled firms with dual-class shares, the pivotal owner controls all A shares. More than 90% of the founder-controlled or founder-family-controlled firms use dual-class shares.

The Swedish corporate law requires that A and B shares have the same dividend rights but a voting differential of utmost 10 to 1 for A shares over B shares. More interestingly, there is no limit on the fraction of A shares being issued but the focal point seems to be 20% of A shares. An investor owning all A shares contributes 20% of the capital but controls 71.4% (200/280) of the votes; the vote/capital ratio (V/C) is 3.57. Firms incorporated under a previous corporate law are allowed to use a voting differential of 1000/1. Ericsson is the only listed firm with such a voting leverage.[15]

To further enhance control, 20.9% (12.7%) of the private (institutional) owners in control have preemption clauses; if any of them sell A shares he/she must first offer them to the other members of the controlling group. This is most prevalent when the founder's family controls the firm. 15% of the IPO firms have owners that regulate their actions as a controlling coalition in secret shareholder agreements. Only 4% have adopted a non-mandatory rule in Swedish corporate law that says that no single owner can vote for more than 20% of the equity represented at the shareholder meeting.[16] The typical corporate charter for a privately controlled firm has clauses that allow for dual-class shares, does not ban preemption clauses and shareholder agreements, does not force such agreements to be made public and contains a paragraph that opts out of voting restrictions suggested by the corporate law. No firm imposed a mandatory bid rule.

This design is very typical for listed firms in Sweden. Reviewing all corporate charters for firms listed on the SSE and on the new exchange for small firms (SBI), Agnblad et al. (2001) reports that 63% have dual-class shares, 13% preemption clauses, 5% shareholder agreements, 4% voting restrictions and 1% have voluntarily imposed a mandatory bid rule.[17] No other anti-takeover devices were adopted. A dual-class share system seems to be the most efficient anti-takeover measure.

Does the firm issue new shares (primary offering) or do incumbent shareholders sell their own shares (secondary offering) at the IPO? How large is the offering? Panel B in Table 4 shows that the average IPO equals 36.3% (28.32%) of the outstanding shares after the IPO for the institutionally (privately) controlled firms.[18] Of the shares issued, institution-

[15] In Ericsson, the SHB (Svenska Handelsbanken) controls 42.8% of the votes but only 3.9% of capital, and the Wallenbergs own 38.8% of the votes but only 4.7% of capital; their V/C ratio is 9.48. Since March 10, 2000, share repurchases of at most 10% of the outstanding equity are allowed; previously only share redemptions were allowed. Since repurchases of both A and B shares are allowed, it can be used as an anti-takeover device.

[16] This rule in the old corporate law at first looks like minority protection. But it is not mandatory, and it is not 20% of votes but of dividend rights—one fifth of the shares represented at the general meeting (ABL 9 kap., 3§). It is now abolished in the new law.

[17] For firms listed on the SSE, 77% have dual-class shares, 14.6% preemption clauses, 10.7% shareholder agreements between the owners in control, and only 9.9% have imposed voting restrictions on the majority owners; 1.5% have a mandatory bid rule.

[18] 69% (52%) of privately (institutionally) controlled firms make a pure primary offering: only the firm issues new shares. 13.4% (23.9%) of privately (institutionally) controlled firms do a pure secondary offering: only the original owners supply shares.

ally (privately) controlled firms issue 21.1% (21.7%) of the shares (newly issued), while 15.6% (6.5%) are old shares supplied by original shareholders.[19] Institutionally controlled firms thus sell a larger fraction of the firm than privately controlled firms, and original institutional owners sell significantly more of their own shares than private owners.

Since private owners in control seldom sell any of their own shares, which is further evidence that they are very control-oriented, the initial ownership structure is very concentrated. Private owners in control cast on average (median) 72.4% (81.4%) of the votes, and control on average 54.5% of the capital after the IPO while the institutional owners on average (median) control 49.3% (47.9%) of the votes and on average only 40.8% of the capital. A more detailed analysis shows that the median founder (CEO) retains 83% of the votes and 60% of the capital. The median private owner in control seems overinvested in voting rights and, in particular, in dividend rights, since the fractions of both are significantly larger than needed for control. Field (1999) reports for US firms that all officers and directors jointly control on average 50% of the voting rights after the IPO, which is almost identical to the average for institutionally controlled firms but significantly less than the overall Swedish median of 74%.

The private owners' behavior is consistent with private benefits of control and our first control-oriented hypothesis. Private owners ascertain control using security design and choice of initial ownership structure. Privately controlled firms almost unanimously adopt dual-class shares systems, issue only low voting B shares in a primary offering, and the pivotal owner controls all high voting A shares.

3.2. Growth prospects

Since we observe systematic discrepancies in corporate charters, security design and in structure of initial offers between privately controlled and institutionally controlled firms that reflect how they endogenously have used provisions in the corporate law disparately, it is interesting to test if they have different growth prospects. We use book-to-market ratios as proxies for the market's future growth expectations of the firm. Panel A in Table 5 shows that there are no significant differences between privately controlled and institutionally controlled firms in the book-to-market ratio neither before (offer prices) nor after (first day closing price) the IPO. The median book-to-market before (after) the IPO is 0.503 (0.427). Endogenous differences in design of charters, securities and offers do not appear to affect valuation at this level of comparison.

However, since we find no corresponding discrepancies in design between firms with different types of private owners, we test if the market's future growth expectations at the IPO vary systematically with type of controlling private owner, i.e., interacting design with type of controlling owner. Splitting the privately controlled firms into our three subgroups (panel B), a founder-controlled firm has a significantly lower book-to-market ratio than other privately controlled firms. Family-controlled firms have a significantly higher average ratio than institutionally controlled (unreported). The median book-to-market for a

[19] Brennan and Franks (1997) report that UK firms offer new shares that on average corresponds to 52.3% of the pre-IPO share value while Field and Karpoff (2002) report that US firms on average offer 32.5% of all outstanding shares after the IPO.

founder-controlled firm before (after) the IPO is 0.390 (0.253), which is roughly half of the ratio for a median family controlled IPO firm.

To check if the market really has significantly higher future growth expectations of founder-controlled and institutionally controlled firms than of other privately controlled firms, we run regressions to control for industry composition, firm and IPO size, age, level of the Stockholm Stock Exchange, "hot" (1982, 1983, 1984) and "cold" (1990, 1991, 1992) market dummies, if the firm did a pre-IPO private placement, and a dummy (private non-founder) that equals one if the firm is privately controlled but not by the founder (CEO).[20] Using either the offer price or the first day closing price for all firms, panel C shows that the book-to-market is significantly higher for privately controlled firms where the founder is not CEO.[21] The regression coefficient of 0.15 for the owner type dummy indicates that most of the median difference (0.216) between founder- and family-controlled firms comes from higher valuation if the founder runs the firm.

The significantly lower growth expectations of private non-founder (family of other) controlled firms imply that there are higher agency costs associated with very entrenched private owners since they do not contribute pivotal managerial capital like a founder (CEO). Unlike a founder (CEO), family-controlled firms seem to prefer future growth by stock-financed acquisitions to organic growth—see the next section. The lower valuation reflects the additional risk of such a strategy. Even if the founder is also a very entrenched private owner, the market views him/her as pivotal for the success of a firm with high future

Table 5
Book-to-market ratios before and after IPO

A. Book-to-market ratios before and after going public

	Total sample		Privately controlled		Institutionally controlled		Mean diff.	Median diff. Wilcoxon
	Mean	Median	Mean	Median	Mean	Median	*t*-test	rank-sum test
Book-to-market pre-IPO	0.61	0.50	0.59	0.51	0.65	0.49	−0.60	0.33
Book-to-market post-IPO	0.49	0.43	0.47	0.42	0.56	0.45	−1.27	−0.39

B. Book-to-market ratios before and after going public for privately controlled firms sorted by whether founder owns and manages firm ($N = 51$), founder's family without founder owns and manages the firm ($N = 55$), or other private control group ($N = 52$)

	(1) Founder		(2) Founder's family		(3) Other control		Mean difference: *t*-test		
	Mean	Median	Mean	Median	Mean	Median	1–2	2–3	1–3
Book-to-market pre-IPO	0.45	0.39	0.74	0.61	0.66	0.54	−3.21[c]	0.68	−2.36[b]
Book-to-market post-IPO	0.36	0.25	0.60	0.51	0.51	0.43	−3.29[c]	1.06	−2.16[b]

(*continued on next page*)

[20] We also controlled for leverage in the regressions but found no significant effect.

[21] The higher valuation does not occur because of better market timing since the book-to-market regressions include the general level of the stock market as well as dummies for the only two years (1982 and 1990) when the frequency of IPOs for founder-controlled firms was significantly different.

Table 5 (*continued*)

C. Cross-sectional OLS regressions with book-to-market ratios as dependent variables

	Pre IPO book-to-market ratio	Post IPO book-to-market ratio
Intercept	0.631	0.437
	(1.31)	(1.19)
Private non-founder (dummy)	0.149	0.097
	(2.86)[c]	(2.23)[b]
Pre IPOPP (dummy)	−0.099	−0.065
	(−1.74)[a]	(−1.42)
L firm size	0.138	0.108
	(4.51)[c]	(4.42)[c]
LIPO size	−0.139	−0.106
	(−3.80)[c]	(−3.93)[c]
B-Shares (dummy)	−0.056	−0.057
	(−0.54)	(−0.89)
Lage	−0.045	−0.036
	(−2.06)[b]	(−2.07)[b]
State/Community (dummy)	0.703	0.424
	(1.55)	(1.72)[a]
Informational technology (dummy)	−0.214	−0.230
	(−4.54)[c]	(−5.91)[c]
LAFGX	−0.049	−0.016
	(−0.80)	(−0.33)
Hot issue year dummies	*Yes*	*Yes*
Cold issue year dummies	*Yes*	*Yes*
Adj R^2	0.29	0.34

Notes. The sample consists of 229 Swedish IPOs on the Stockholm Stock Exchange (A-list, OTC, or unofficial list) between 1979 and mid 1997. Only clean IPOs are included. Firms controlled by the founder, families, entrepreneurs or employees are defined as being privately controlled ($N = 158$) while as institutionally controlled ($N = 71$) if the controlling owners are public corporations (without a family or individual in ultimate control), venture capitalists, associations, the state or a community. Privately controlled firms where the founder is CEO are defined as founder controlled ($N = 51$). Privately controlled firms where the founder's family is the majority owner but the founder is no longer CEO are defined as founder family controlled ($N = 55$). If the founder or the founder's family are no longer active the firm is defined as other ($N = 52$). The market value pre IPO is calculated at the offer price. The book value pre IPO is the book value of old shares plus the offer price of the new shares. The post IPO market value is calculated at the closing price of the first day of trade. Book value is the same as for pre IPO. Pre IPO market value is calculated at the offer price and the pre IPO book value is book value of old shares plus offer price of new shares. Post IPO market value uses the closing price of first day of trade. The post book value is the same as for pre IPO. In panel B, the median difference tests based on Wilcoxon rank-sum test show qualitatively the same results as the *t*-test for mean differences. In panel C, private non-founder equals one if it is a privately controlled firm where founder is no longer active, and zero otherwise. Pre IPOPP equals one if the firm made a private placement before going public, and zero otherwise. LIPO size is the natural logarithm of the size of the issue in SEK. L firm size is the natural logarithm of the size of the firm's book value of total assets. B-Shares is a dummy that equals one if only B shares were distributed at the IPO, and zero otherwise. Lage is the natural logarithm of one plus the age of the firm in years. State/Community equals one if the controlling shareholder before going public is the state or a community, and zero otherwise. Informational Technology equals one if the firm is active in the informational technology industry, and zero otherwise. LAFGX is the natural logarithm of the level of the Stockholm Stock Exchange (the AFGX index) at the day of the IPO. The Hot Issue Year dummies are indicator variables for IPOs in 1982, 1983, and 1984 and the Cold Issue Year dummies are indicator variables for IPOs in 1990, 1991, and 1992. Sample consists of 215 firm observations. Coefficients are reported with *t*-statistics in parenthesis. Standard errors are adjusted for heteroskedasticity according to White (1980).

[a] Significance at the 10% level.
[b] Significance at the 5% level.
[c] Significance at the 1% level.

potential, and the value of the up-side potential of a founder-controlled firm surpasses the downside of agency costs.

Consistent with expectations, the results also show that firms in the IT sector and firms that did a pre-IPO private placement have a significantly higher growth prospects. Larger IPO firms tend to be in more mature industries with a significantly lower growth prospects. Older firms are considered less risky and therefore valued at a premium, ceteris paribus. The negative coefficient for offer size suggests that firms take advantage of a high market valuation and issue more shares. To sum up, firms in the high-tech industry have higher growth prospects, non-founder-controlled private firms have significantly lower growth prospects due to agency costs, and founder-controlled high tech firms are likely to use this window of opportunity to finance growth when going public and issue more shares.

Since we found no significant differences in the valuation of privately controlled and institutionally controlled IPO firms, but that family-controlled firms have a significantly lower valuation than other firms, we infer that the effect of legal rules on future growth prospects and valuation is not direct but *indirect*. First, there are no differences in the *formal* level of minority protection between firms within the same legislation. Second, since founders are just as entrenched, the possibility to expropriate minorities should be the same for founders and other private owners. However, because family control de facto presupposes that the founder has systematically used provisions in the corporate law to create a control block that incorporates the value of control rights, the lower valuation measures the expected cost of using a certain legal design to create heavily entrenched private owners. These dynamic *lock-in costs* thus gauge misallocation of control rights over time. We argue that they also measure the costs of intentionally providing too strong protection of majority owners' rights. This is the specific sense in which corporate law and finance interacts negatively in Sweden.

4. Investment behavior and ownership dynamics

We now analyze the behavior of the newly-listed firms over a five year period to find out how frequently they return to the market for new capital and how the ownership structure and control develops over time.

4.1. Seasoned equity offerings and investment behavior

Panel A in Table 6 reports frequency of seasoned equity offerings (rights issues, private placements or directed issues in a stock financed acquisition) for all IPO firms as well as for privately and institutionally controlled firms. More than half (52%) of privately controlled firms return to the capital market but only 25% of institutionally controlled firms; 63% of the firms that did a pre-IPO private placement returned for a seasoned equity offering. Directed issues to pay for an acquisition are most common. 33% (15%) of the privately (institutionally) controlled firms acquire another listed or non-listed firm and pay by issuing new stock. Almost all privately controlled firms with dual-class shares (94%) paid by issuing only low voting B shares. The appetite for growth by acquisition is even higher since 7 of 23 rights issues raised capital for cash-financed takeovers.

Table 6
Post-IPO investment strategies

A. Frequency of seasoned equity offers (SEOs) during the three years after going public

	Total sample		Privately controlled		Institutionally controlled		Prop. diff.
	SEOs	Firms prop.	SEOs	Firms prop.	SEOs	Firms prop.	test
Post-IPO SEO	161	100 (0.44)	137	82 (0.52)	24	18 (0.25)	3.81[c]
PP	40	31 (0.16)	33	25 (0.16)	7	6 (0.08)	1.53
DI	94	63 (0.28)	81[1]	52 (0.33)	13[2]	11 (0.15)	4.91[c]
RI[3]	27	24 (0.10)	23	21 (0.13)	4	3 (0.04)	2.10[b]

B. Logistic regressions to establish which factors determine if IPO firms conduct seasoned equity offers (SEOs) in the 3-year period after the IPO

	M1 $N = 205$	M2 $N = 205$	M3 $N = 185$
Private (dummy)	0.216	0.231	0.190
	(2.99)[c]	(2.83)[c]	(3.18)[c]
BHR	0.345		
	(3.40)[c]		
BHAR Market		0.349	
		(3.24)[c]	
BHAR Matched Firm			0.364
			(3.02)[c]
Lfirmsize	0.490	0.492	0.491
	(0.39)	(0.33)	(0.35)
Lage	−0.561	−0.555	−0.554
	(−2.07)[b]	(−1.89)[a]	(−1.80)[a]
Primary IPO (dummy)	−0.663	−0.671	−0.685
	(−1.50)	(−1.58)	(−1.64)
Pre-IPOPP (dummy)	0.355	0.349	0.373
	(1.67)[a]	(1.73)[a]	(1.36)
Year dummies	*Yes*	*Yes*	*Yes*
Log likelihood	−121.27	−121.98	−110.21
Correctly classified (%)	68.8	70.7	69.2

C. Frequency of post IPO seasoned equity offers (SEOs) for privately controlled firms during the first three post-IPO years

	1. Founder		2. Founder family		3. Other		Prop. diff. test		
	SEOs	Firms prop.	SEOs	Firms prop.	SEOs	Firms prop.	1–2	2–3	3–4
Post IPO SEO	54	31 (0.61)	51	35 (0.64)	32	16 (0.31)	−0.32	3.42[c]	3.06[c]
PP	17	13 (0.25)	7	7 (0.13)	9	5 (0.10)	1.58	0.49	2.00[b]
DI	23	16 (0.27)	38	25 (0.45)	20	11 (0.25)	−1.90[a]	2.18[b]	0.23
RI	14	13 (0.25)	6	5 (0.09)	3	3 (0.06)	2.19[b]	0.59	2.66[c]

D. Size (in SEK) of Rights Issues (RI), Private Placements (PP), Directed Issues (DI) relative to the market value of equity at the RI, PP, or DI, respectively

	1. RI ($N = 27$)	2. PP ($N = 39$)	3. DI ($N = 86$)	Test of mean and median differences		
				1–2	2–3	1–3
Mean	0.45	0.18	0.17	3.17[c]	0.63	4.41[c]
Median	0.32	0.06	0.07	4.06[c]	0.58	5.37[c]

(*continued on next page*)

Table 6 (*continued*)

E. Size of primary issue at IPO (prim. IPO) plus inflation adjusted size of subsequent seasoned equity offerings (SEOs) relative to the book value of total assets before going public (pre IPO BV)

	All SEO firms (prim. IPO + SEOs)/ Pre-IPO BV ($N = 100$)	1. At least one RI (prim. IPO + SEOs)/ Pre-IPO BV ($N = 24$)	2. No RI (prim. IPO + SEOs)/ Pre-IPO BV ($N = 76$)	Difference test 1–2
Mean	0.70	0.98	0.61	0.99
Median	0.29	0.61	0.23	3.31[c]

Notes. The sample consists of 229 Swedish IPOs on the Stockholm Stock Exchange (A-list, OTC, or unofficial list) between 1979 and mid 1997. Only clean IPOs are included, i.e. equity carve outs and spin-offs are deleted. 66 firms made one Seasoned Equity Offering (SEO), 20 firms did two, 8 firms undertook three, 2 firms did 4, 2 firms did 5, 1 firm did 6, and 1 firm did 7 SEOs during the three years after going public. The number of SEOs are therefore not equal to the number of firms which made SEOs. The median time between the IPO and the first subsequent Private Placement (PP), Directed Issue at acquisition (DI) and Rights Issue (RI) is 19 months, 16 months, and 17 months, respectively. Firms controlled by the founder, families, entrepreneurs or employees are defined as being privately controlled ($N = 158$) while as institutionally controlled ($N = 71$) if the controlling owners are public corporations, venture capitalists, associations, the state or a community. Privately controlled firms where the founder is CEO are defined as founder controlled ($N = 51$). Privately controlled firms where the founder's family is the majority owner but the founder is no longer CEO are defined as founder-family controlled ($N = 55$). If the founder or the founder's family are no longer active the firm is defined as other ($N = 52$). In panel A, we have identified the details in 42 of the 81 Directed Issues made by privately controlled firms. 35 of the firms had dual class shares and 33 out of these 35 (94%) made a pure B-share distribution at the Directed Issue. We have identified the details in 10 of the 13 Directed Issues made by institutionally controlled firms. 4 of the firms had dual class shares and 3 out of these 4 (75%) made a pure B-share distribution at the Directed Issue. In panel A, 7 of the 27 Rights Issues were motivated by cash financed acquisitions. In panel B, the dependent variable in the logistic regressions equals one if the firm made a SEO and zero otherwise. Private equals one if it is a privately controlled firm, and zero otherwise. BHR is the stock market performance from the IPO to the SEO, measured as the Buy and Hold Return. For firms not conducting a SEO it is the 18 months (mean time elapsed between IPO and SEO) BHR after the IPO. BHAR Market is the stock market performance from the IPO to the SEO, measured as the BHR for the IPO firm minus the BHR on the Market (AFGX). BHAR Matched Firm is the stock market performance from the IPO to the SEO, measured as the BHR for the IPO firm minus the BHR on a matched firm (matched on size and book-to-market ratio at the IPO). LFirmsize is the natural logarithm of the size of the firm's book value of total assets at the IPO. Lage is the natural logarithm of one plus the age of the firm in years at the IPO. Primary IPO equals one if primary shares were sold at the IPO, and zero otherwise. Pre-IPOPP equals one if the firm made a Private Placement before going public, and zero otherwise. Marginal effects are reported with z-statistics in parenthesis. In panel E statistics are reported for all firms which made a SEO during the three years after going public and sorted by whether at least one of the SEOs was a Rights Issues (RI) or not. Median differences tested by Wilcoxon rank-sum test.

[a] Significance at the 10% level.
[b] Significance at the 5% level.
[c] Significance at the 1% level.

To test if the higher frequency of SEOs among privately controlled firms is the result of better stock market performance, we run logistic regressions with an indicator (if the firm undertakes a SEO or not in the 3-year period after the IPO) as dependent variable. We use a dummy variable for private control and three alternative measures of stock market return as independent variables: (i) raw returns, (ii) market-adjusted returns, and (iii) returns adjusted for the performance of a comparable firm matched on size and book-to-market at the IPO. We control for firm size and age, if primary shares were sold at the IPO, and if the firm did private placements before the IPO and year dummies. Panel B shows that a pos-

itive stock market performance after the IPO significantly increases the probability of an SEO. The dummy for privately controlled firms is significant in all models since such firms more frequently make directed issues. After controlling for stock market performance, privately controlled firms do not make rights issues or private placements more frequently than institutionally controlled firms. Older firms are less likely to return for more capital while firms that did private placements before the IPO are more likely to return for an SEO.

Does our result that a higher stock market return increases the probability that a firm makes an SEO imply a real ability to time the market or is it just the result of a pseudo timing ability? The pseudo market timing hypothesis (Schultz, 2003) states that even if firms have no real ability ex ante to time the market, ex post they may seem to have been able to do so since offers cluster at market peaks. The clustering may thus explain why the median long-run stock market performance relative the market for IPO firms is negative.

Analyzing the long-run performance in event-time (unreported), we find underperformance relative the market index for the group of IPO firms that conducted SEOs but not for the group of firms that did not return to the market for more capital. Interestingly, the underperformance occurred because the subgroup of firms that dealt with *rights issues* had a pronounced long-run underperformance. We may however ask why the controlling owner should even try to time the market since a rights issue is directed to incumbent and not to new external shareholders. Since rights issues are much larger than the floatation at the IPO (see below), the firm's leverage as well as its investment behavior change significantly, which makes long-run performance studies precarious. In effect we compare two firms with different characteristics before and after the SEO. Not properly adjusting for large changes in leverage may thus explain the long-run underperformance for the subgroup of firms that did rights issues.[22]

Splitting the privately controlled firms into three subgroups in panel C, over 60% of founder- and family-controlled firms return for a SEO. Of the family-controlled firms, 45% return for a directed issue while half of the founder-controlled ones undertake a rights issue or a private placement.

How much do firms raise in seasoned equity offerings? Panel D shows that rights issues are significantly larger than other SEOs: more than 30% (median) of the market value of equity. Large differences between averages and medians for size of private placements and directed issues in relation to market value show that the importance of equity financing varies substantially. The option is very valuable for some firms with large investment programs. Panel E reports how much inflation adjusted capital is raised in total in the primary issue at the IPO and in rights issues and other SEOs, respectively, after the IPO in relation to the book value of all assets before going public. IPO firms undertaking SEOs on average (median) raise new capital that equals 70% (29%) of the book value of all assets before going public. Firms undertaking one or more rights issues raise more capital; on average equal to the pre-IPO book value of the assets. Access to new capital is thus particularly im-

[22] When maintained control is preferred, the founder has less incentive to try to time the market since a smaller fraction is floated at the IPO; on average 21% (primary offering) of the equity after the IPO in Sweden compared to 32% in US IPOs. Panel B in Table 2 shows that the correlation between annual return of the stock market index (AFGX) and number of IPOs in Sweden is weak. Pseudo market timing among Swedish IPO firms is thus most likely a less prevalent phenomenon than among US IPO firms.

portant for founder-controlled and family-controlled firms, which most frequently return for rights issues and directed issues, respectively.

We also find (unreported) that rate of investment, measured as median of the three years average investment-to-sales ratio before and after the IPO, respectively, increases for both groups of firms after the IPO but only significantly for privately controlled firms. Interestingly, the rate more than doubles for privately controlled firms undertaking post-IPO SEOs. Founder-controlled firms doing rights issues have the highest investment ratio. Firms not undertaking any SEO did not change their investment behavior.

The fact that 60% of the founder- and family-controlled firms return for seasoned equity offerings, in particular for directed issues, is consistent with our hypothesis that privately controlled firms, having formed control blocks at the IPO, will more frequently use the capital markets. Using access to financial markets to raise new capital to finance investments and acquisitions is thus a major reason for going public.

4.2. Ownership dynamics

How important is maintained control after the IPO? Panel A in Table 7 provides a first answer by reporting how average and median ownership share of votes and capital controlled by the original owners develop over the five years following the IPO. We observe the ownership fraction in January of each year after the IPO. Notice that original owners of *all* 229 firms are followed for five years. By including all firms our estimates of ownership concentration are very conservative, and averages and medians differ since retained fractions are zero for firms where the original owners have sold out. Medians are higher than averages for privately controlled firms since a minority of original owners sells all their shares while the reverse is true for institutionally controlled firms since most original owners relinquish their positions.

In January of the calendar year after going public, the median private owners in control retain 76% of the votes and 51% of the capital, while the original institutional owners only control about 43% of the votes and 39% of the capital. Compared to the initial ownership structure at the IPO, original owners of institutionally controlled firms start right after the IPO to relinquish shares and the process accelerates until the median original owner has sold all shares after 5 years. The ownership dynamics for the privately controlled firms is radically different. Looking at medians, the original private owners still control 50% of the votes and 23% of the capital after five years. Even if conservatively estimated, the original private owners retain very strong control of the median firm even after five years.

To better understand the ownership dynamics after the IPO, we first study in panel B the 54 privately controlled firms where the owners divest all their shares. By far the most common method to divest a controlling position for a private owner is in a non-partial takeover (55.6%) followed by a negotiated block trade (22.2%).[23] Typically, a takeover bid is a negotiated deal for transfer of the control block with the same conditions extended to all shareholders conditional on 90% accepting. Due to a compulsory acquisition rule,

[23] Owners who later sold their controlling block less frequently controlled all A shares, and relatively more often sold A shares at the IPO (unreported). If block owners do not control all A shares, a block transfer is the only way to get a premium on control rights.

Table 7
Ownership retention by original owners in control

A. Ownership retention by original owners for each of the first five post-IPO years

	Total sample		Privately controlled		Institutionally controlled		Mean diff.
	Mean	Median	Mean	Median	Mean	Median	test
Vote retention year 1	60.9	67.6	67.8	75.6	45.3	42.9	6.33[c]
Vote retention year 2	55.3	63.9	62.4	71.9	39.5	35.3	5.63[c]
Vote retention year 3	46.0	50.2	52.7	66.3	30.9	25.6	4.75[c]
Vote retention year 4	39.8	42.5	46.5	55.9	24.8	14.7	4.58[c]
Vote retention year 5	34.5	25.9	41.7	50.0	18.2	0.0	4.92[c]
Capital retention year 1	45.1	45.9	48.0	50.9	38.5	38.6	3.12[c]
Capital retention year 2	40.4	43.1	43.4	47.8	33.4	30.2	3.02[c]
Capital retention year 3	32.4	31.8	35.4	36.9	25.8	22.4	2.87[c]
Capital retention year 4	27.8	25.0	30.8	32.4	21.0	14.7	2.71[c]
Capital retention year 5	23.4	13.6	27.8	23.3	14.6	0.0	3.59[c]
Vote/capital ratio year 1	1.43	1.28	1.51	1.38	1.23	1.02	3.63[c]
Vote/capital ratio year 2	1.44	1.31	1.53	1.42	1.23	1.00	3.70[c]
Vote/capital ratio year 3	1.62	1.37	1.61	1.47	1.29	1.00	3.04[c]
Vote/capital ratio year 4	1.59	1.41	1.73	1.52	1.19	1.00	4.10[c]
Vote/capital ratio year 5	1.62	1.44	1.72	1.52	1.31	1.00	2.89[c]

B. Reasons for 100% divestment by private owners ($N = 54$)

	N	%
Acquired	30	55.5
Block trade	12	22.2
Bankruptcy	6	11.2
Buy-outs	4	7.4
Restructuring due to financial distress	2	3.7

C. Proportion of privately controlled firms where the original owner has not divested 100% and still is in control after 3 years and 5 years, respectively

	N	%
Three years after IPO, $N = 130$	121	93.1
Five years after IPO, $N = 104$	98	94.2

D. Ownership retention (votes, capital and vote/capital ratio) in privately controlled firms where control is not relinquished within three years, $N = 121$

	Total sample		Dilution through PP/DI $N = 48$		No dilution $N = 73$		Mean diff.
	Mean	Median	Mean	Median	Mean	Median	*t*-test
Vote retention at IPO	75.2	82.0	78.8	84.0	72.8	80.2	1.73[a]
Vote retention year 3	66.5	73.2	65.4	72.3	67.2	73.2	−0.45
Capital retention at IPO	57.2	60.0	59.9	60.0	55.5	58.5	1.27
Capital retention year 3	44.5	48.2	42.8	46.3	45.6	49.7	−0.77
Vote/capital ratio at IPO	1.39	1.30	1.39	1.30	1.40	1.30	−0.05
Vote/capital ratio year 3	1.60	1.47	1.63	1.51	1.58	1.44	0.14

(*continued on next page*)

Table 7 (*continued*)

E. Ownership retention (votes, capital and vote/capital ratio) in privately controlled firms where control is not relinquished within five years, $N = 98$

	Total sample		Dilution through PP/DI $N = 35$		No dilution $N = 63$		Mean diff.
	Mean	Median	Mean	Median	Mean	Median	*t*-test
Vote retention at IPO	76.2	83.0	81.1	85.0	72.9	82.0	2.18[b]
Vote retention year 5	65.3	73.2	65.2	67.2	65.4	73.5	0.04
Capital retention at IPO	57.9	60.0	60.4	60.0	56.3	59.7	1.08
Capital retention year 5	42.5	43.6	37.9	40.4	45.6	48.3	−1.99[b]
Vote/capital ratio at IPO	1.40	1.31	1.40	1.34	1.40	1.28	0.01
Vote/capital ratio year 5	1.74	1.54	1.98	1.71	1.58	1.40	2.68[c]

Notes. The sample consists of 229 Swedish IPOs on the Stockholm Stock Exchange (A-list, OTC, or unofficial list) between 1979 and mid 1997. Only clean IPOs are included, i.e., equity carve outs and spin-offs are deleted. Ownership retention is defined as the percentage of total votes and capital held by the original owners, i.e. majority owners at the IPO, in January one, two, three, four, and five years after going public, respectively. If the original owners have relinquished control and sold 100% of their ownership this is included as zero retention. Firms controlled by the founder, families, entrepreneurs or employees are defined as being privately controlled ($N = 158$) while as institutionally controlled ($N = 71$) if the controlling owners are public corporations (without a family or individual in ultimate control), venture capitalists, associations, the state or a community. In panel A, the different subsamples of the privately controlled group (Founder, Founder family, and Other) show no significant differences in vote and capital retention. In panel C, 9 original owners are no longer in control after three years even if they have not divested 100%. In 4 cases control was sold in a block transfer. In 2 cases control was shifted as a result of a Directed Issue and in 1 case control was shifted as a result of a restructuring (financial distress). In 2 cases control was sold already at the IPO. 6 original owners are no longer in control after five years even if they have not divested 100%. In 4 cases the control was sold in a block transfer. In 1 case the control was shifted as a result of a Private Placement and in 1 case control was shifted as a result of a Directed Issue. In panels D and E firms are split into one subgroup of IPO firms where ownership is diluted because the firms undertake a Directed Issue (DI) or Private Placement (PP), and one subgroup of firms that do to make such SEOs. In panels A, D and E, the median difference tests based on Wilcoxon rank-sum test show qualitatively the same results as the *t*-test for mean differences.

[a] Significance at the 10% level.
[b] Significance at the 5% level.
[c] Significance at the 1% level.

remaining shares can be compulsorily acquired at the price offered to shareholders who accepted the bid. In the other firms, the original owners sold or lost their whole control block in a buy-out, restructuring deal or in a bankruptcy proceeding. The most striking result is that we find *no* single instance where the original private owners relinquished their control position piecemeal.

We also analyzed if the new owners of the control block kept it intact or sold it. We found no case where the new owners split the block. Panel C reports that 93% (94%) of the original private owners in control, who did not divest 100% of their positions, are still in control after 3 (5) years. In the remaining cases, they sold control in a block deal but still retained a minority position, primarily consisting of B shares. The empirical evidence is highly consistent with the conjecture that controlling owners never sell a control block piecemeal in order to get compensation for the value of control rents attached to the block.

How large is the control premium? Since parties in block transfers do not have to make conditions public, we only look at takeovers that differentiate prices between A and

B shares.[24] Almost all acquired firms (unreported) had dual-class shares (28 of 30). The original owner controlled all A shares in 20 takeovers (67%) that were price differentiated, while in 7 out of 8 takeover bids that could be differentiated, but were not, the private owner did not control all A shares. Measured relative the market price of B shares at the takeover announcement day, the median bid premium for B shares is 15.6% and 40.3% for A shares. The extra 25% is one simple but cautious measure of the control premium.[25] When the original owners sold their controlling position, the median holding period *excess* return (control premium + value appreciation after IPO measured from offer price) over 24 months (median holding period) is 100%.

A more detailed look at ownership dynamics of privately controlled firms where the original owners are still in control after 3 and 5 years after the IPO is provided in panels D and E. We split the privately controlled firms into one group where the original ownership position is likely to be diluted because the firm raised capital in private placements or financed acquisitions by directing an issue to target shareholders, and a residual group where no dilution effect is present. Firms raising new capital in rights issues are included in the latter group since such issues do not necessarily dilute ownership. Since the results for the two time horizons are qualitatively similar, we focus on the longer period. Several results are striking. For the whole sample, the median fraction of votes controlled decreases from 82% to 73% after five years while the median fraction of capital decreases more from 60% to 44%.

Controlling owners in the dilution group retain a significantly higher fraction of votes initially, but after five years averages for votes retained converge while fraction of capital controlled is significantly smaller. The decline in fraction of votes controlled comes *exclusively* from more B shares being issued; the proportional decline in retained fraction of capital is larger than in votes, and no A shares in a controlling block were sold piecemeal. The same is true for the non-dilution group since controlling owners sell some of their B shares, but not high voting A shares, and they may not fully participate in rights issues. The dilution effect is also evident from the increasing votes to capital ratio for the controlling owner.

This could occur because controlling owners of firms that later dilute the incumbent shareholders' positions by issuing B shares *rationally anticipate* this by initially retaining a significantly larger share of the votes. Or causality could be reversed since control is so valuable that only private owners that control a very high fraction of the votes have the *actual* option to dilute. Dilution is most likely rationally anticipated since a significant fraction of firms that later dilute stated stock-financed acquisitions as a motive for going public already in the prospectuses. These firms also use dual-class shares more frequently, issue only B shares in a primary offering at the IPO, and the controlling owner more often keep all A shares. This is particularly true for family-controlled firms, which are also significantly lower valued at the IPO. The discount on firms that later dilute may gauge costs for a control-oriented private owner to later exercise his option to relatively cheaply

[24] All takeover bids are non-partial and conditional on 90% accepting due to the Compulsory Acquisition Limit.

[25] Since controlling block contains both A and B shares, our measure does not capture the value of control rights in A shares.

acquire another firm by paying with low-voting B shares; see Cronqvist et al. (2001).[26] Specifically, it may be a valuation of the risk that family-controlled firms make bad future stock-financed acquisitions since they are less likely to grow organically when the founder is no longer active.

Table 8
Outside block ownership in first and fifth post-IPO year

A. Ownership by outside blockholders in January of the first year after IPO

	Total sample $N = 208$		Privately controlled $N = 144$		Institutionally controlled $N = 64$		Mean diff. t-test	Median diff. Wilcoxon rank-sum test
	Mean	Median	Mean	Median	Mean	Median		
Largest outside block, vote	10.3	5.4	9.1	5.0	12.9	9.5	−2.03[b]	−3.13[c]
Largest outside block, capital	11.8	8.9	11.7	8.9	12.0	8.8	−0.19	0.01
2nd largest outside block, vote	3.9	2.3	3.2	1.9	5.4	3.6	−3.30[c]	−3.03[c]
2nd largest outside block, capital	5.0	3.7	5.1	3.6	4.7	3.8	0.51	−0.03
3rd largest outside block, vote	2.3	1.3	1.9	1.0	3.0	2.5	−3.19[c]	−3.64[c]
3rd largest outside block, capital	3.2	2.5	3.0	2.1	3.9	3.0	−1.92[a]	−1.76[a]
Herfindahl index, vote	0.48	0.50	0.55	0.60	0.32	0.24	6.35[c]	5.72[c]
Herfindahl index, capital	0.29	0.27	0.31	0.30	0.23	0.17	2.96[c]	3.36[c]

B: Ownership by outside blockholders in January of the fifth year after IPO

	Total sample $N = 156$		Privately controlled $N = 106$		Institutionally controlled $N = 50$		Mean diff. t-test	Median diff. Wilcoxon rank-sum test
	Mean	Median	Mean	Median	Mean	Median		
Largest outside block, vote	16.5	8.7	14.5	6.1	20.6	14.7	−1.82[a]	−3.60[c]
Largest outside block, capital	16.2	11.7	15.5	10.1	17.7	14.3	−0.89	−1.76[a]
2nd largest outside block, vote	5.0	3.4	3.7	2.9	7.5	5.8	−4.89[c]	−4.02[c]
2nd largest outside block, capital	7.1	5.4	6.7	5.5	8.0	5.3	−1.25	0.47
3rd largest outside block, vote	2.8	2.1	2.2	1.6	4.1	3.7	−4.68[c]	−4.16[c]
3rd largest outside block, capital	4.4	3.3	4.5	3.2	4.3	3.6	0.14	−0.88
Herfindahl index, vote	0.44	0.47	0.50	0.55	0.28	0.25	4.95[c]	4.66[c]
Herfindahl index, capital	0.25	0.23	0.27	0.25	0.19	0.16	2.71[c]	2.81[c]

Notes. The sample consists of 229 Swedish IPOs on the Stockholm Stock Exchange (A-list, OTC, or unofficial list) between 1979 and mid 1997. Only clean IPOs are included, i.e., equity carve outs and spin-offs are deleted. Firms controlled by the founder, families, entrepreneurs or employees are defined as being privately controlled ($N = 158$) while as institutionally controlled ($N = 71$) if the controlling owners are public corporations (without a family or individual in ultimate control), venture capitalists, associations, the state or a community. Ownership is measured in January of the first and fifth years after the IPO. The Herfindahl index is defined as the sum of the squared ownership fractions by the original owners and the three largest outside blockholders.

[a] Significance at the 10% level.
[b] Significance at the 5% level.
[c] Significance at the 1% level.

[26] Stock-financed acquisitions are much more common than cash financed. But median underpricing cost is 27.4% for firms that later do directed issues, and 13.2% for cash-paying firms, where original owners also more often sold part of their shares at the IPO.

Panel A in Table 8 shows that the largest outside block at the IPO averages 10% of the votes for the whole sample but its median size is only 5%. The outside blocks are very small in privately controlled firms but somewhat larger for institutionally controlled firms, in particular, the second and third largest blocks are very small. The significant differences in Herfindahl indices for votes and capital bring out how much more concentrated the ownership structure is for privately controlled firms. Panel B reports the ownership characteristics after five years. The major changes are that the size of the largest blockholder has almost doubled to around 20% of the votes for the institutionally controlled firms, and that the overall ownership concentration as measured by the Herfindahl indices has decreased only very marginally. The largest outside owner has a significant blocking position that is enough to veto takeovers.

Finally, we test the hypotheses that privately controlled firms are more (less) frequently the acquirer (acquired) than institutionally controlled firms, and that they primarily use stock-financed acquisitions. Comparing firm characteristics, panel A in Table 9 reports that it is significantly more likely that a privately controlled firm, in particular a founder-family controlled, acquires another firm in a directed issue. It is also more likely that another public firm controls the acquired firms. Panel B shows that firms doing stock-financed acquisitions are more control-oriented since original owners retain a larger fraction of votes at the IPO but also bear a significantly larger share of underpricing costs. The opportunity to acquire another firm in a directed issue does have a price; see Brennan and Franks (1997). This reinforces our causality interpretation that dilution is *rationally anticipated* both by controlling owners and by the market.

In general, the empirical results are consistent with the specific implications of the private-benefits-of-control theory, e.g., how the formation of valuable control blocks at the IPO determines the ownership dynamics. Original private owners remain in firm control also after five years. Control blocks are never sold piecemeal, only as a whole in block transactions or non-partial takeovers to protect control rents. Dilution of a controlling owner's position does not occur because he sells high voting A shares, but since privately controlled firms frequently issue low-voting B shares in private placements or in directed issues as payment for acquisitions.

5. Discussion and conclusions

The quest to maintain private benefits of control after the IPO, the cornerstone of our approach, has not been stressed enough in the theoretical literature that has almost exclusively focused on the exit option, and ignored the effect of legal rules on design of securities and of ownership structures.[27] The preference for control is so strong that without the legislator encouraging separation of cash flow rights from voting rights there would have been fewer IPOs in Sweden, at least by privately controlled firms.[28] Pagano et al. (1996) and (1998),

[27] The trade-off between benefits of control and cost of lower liquidity is relevant only if one share/one vote shares are allowed; see Bolton and von Thadden (1998). But dual class shares can separate control (high-voting A shares) and liquidity (low-voting B shares).

Table 9
Characteristics of acquired and acquiring IPO firms

A. Ownership identity and pre-IPO strategies: private placements (PP), rights issues (RI), and acquisitions

	Acquired $N = 50$		Stock financed acquirer $N = 47$		Prop. diff.
	N	Prop.	*N*	Prop.	test
Private owner	30	0.60	36	0.77	−1.75[a]
Founder family	12	0.24	25	0.53	2.96[c]
Institutional owner	20	0.40	11	0.23	1.75[a]
Public corporation	13	0.26	4	0.09	2.26[b]
Pre-IPO RI	1	0.02	3	0.06	−1.08
Pre-IPO PP	18	0.36	9	0.19	1.85[a]
Pre-IPO acquisitions	8	0.16	16	0.34	2.06[b]

B. Retention (votes and capital) by original owners, and level and allocation of underpricing costs

	Acquired $N = 49$		Stock financed acquirer $N = 47$		Mean diff.
	Mean	Median	Mean	Median	*t*-test
Vote retention at IPO	63.4	71.4	72.2	81.8	1.77[a]
Capital retention at IPO	47.6	46.0	54.4	57.0	1.49
Underpricing	23.6	14.6	43.2	21.7	2.57[b]
Costs borne by controlling shareholders as a % of pre-issue holdings	3.9	2.9	8.7	3.6	2.76[c]

Notes. The sample consists of 229 Swedish IPOs on the Stockholm Stock Exchange (A-list, OTC, or unofficial list) between 1979 and mid 1997. Only clean IPOs are included, i.e., equity carve outs and spin-offs are deleted. 48 firms were acquired within five year after going public while 56 made stock financed acquisitions (directed issue) at their first Seasoned Equity Offer (SEO) after going public. 10 firms made a stock financed acquisition before being acquired themselves. These firms are included in the acquired sample. The sample of IPOs making stock financed acquisitions, therefore, consists of 46 firms. Firms controlled by the founder, founder's family, entrepreneurs or employees are defined as being privately controlled ($N = 158$) while as institutionally controlled ($N = 71$) if the controlling owners are public corporations (without a family or individual in ultimate control), venture capitalists, associations, the state or a community. Privately controlled firms where the founder is CEO are defined as founder controlled ($N = 51$). Privately controlled firms where the founder's family is the majority owner but the founder is no longer CEO are defined as founder family controlled ($N = 55$). If the founder or the founder's family are no longer active the firm is defined as other ($N = 52$).

[a] Significance at the 10% level.
[b] Significance at the 5% level.
[c] Significance at the 1% level.

and Goergen (1995) show that private owners of Italian and German IPO firms go public with intention to maintain control; both are civil-law countries.[29] They divest a small fraction of their shares at the IPO, and maintain strong control afterwards.

[28] IKEA (Kamprad) and Tetra Laval (Rausing), the two most successful firms founded after WWII, both decided to remain private even if it took Tetra Laval 30 years to be profitable. Both founding families are among the wealthiest persons globally (Fortune).

[29] According to Jay Ritter, Brazilian IPO firms are also primarily privately controlled and extensively using dual-class shares.

Brennan and Franks (1997) and Field and Karpoff (2002) show that original owners in Anglo-Saxon countries are also motivated by control considerations when designing corporate charters and initial ownership. But as Mikkelson et al. (1997) reports for a sample of US IPO firms, ownership soon becomes dispersed. The median ownership stake of officers and directors decreases from 43.7% at the IPO to 28.6% after five years. But original private owners of Swedish IPO firms who have not sold their control blocks on average still control 2/3 of the votes after five years. Like US IPO firms, Swedish ones invest more afterwards. 60% of founder and founder family controlled firms return for a SEO, most often a directed issue of B shares to finance acquisitions and rights issues to raise capital for investments. Controlling owners maintain their original shares but their position gets diluted since the firm issues low voting B shares at the IPO, and in directed issues—not from selling of any A shares. This explains two puzzles.

First, it does not seem rational for owners with a large part of their wealth invested to hold more voting and cash flow rights than is actually needed; see Pagano et al. (1998). While questionable in the short run, it may be rational to "overinvest" anticipating future dilution of its original voting strength due to stock financed acquisitions and rights issues. The current "overinvestment" is the price that owners pay for maintained future control. Second, the high average level of underpricing in Europe compared to the US is biased. If a controlling owner does not sell any of his own shares at the IPO, his only underpricing costs stem from dilution due to the discount on newly-issued shares, a cost shared by all incumbent shareholders. His median underpricing costs as percentage of the value of his block is just 3.4% but the average overall underpricing in Sweden is 28.7% (Table 9). Relevant international comparisons of *actual* underpricing costs must thus adjust both for pre-IPO ownership structure and for dilution if only new shares are issued.[30]

This paper presents an alternative to the leading interpretation how law and finance interact that argues that the pivotal factor is how well legal rules protect minority rights. Good protection encourages both outsiders to invest and founding families to sell out a larger fraction in an IPO since formal rules limit extraction of pecuniary benefits by management when the firm becomes widely held; both factors stimulate development of advanced financial markets (Burkart et al., 2003). Lower protection thus causes founders to maintain a larger fraction of shares to avoid being exploited, which predicts a negative relation between formal minority protection on the one hand, and ownership concentration and size of (pecuniary) private benefits of controlling owners, respectively, on the other. We find no such relations in our cross-country analysis. Differences in formal minority protection and private benefits are too small to explain why ownership became dispersed in the Anglo-Saxon countries but not in Continental Europe (Roe, 2002).

Consistent with the private benefits of control theory we find that actual use across countries of security designs to separate votes from capital leads to more concentrated ownership. Our analysis of Swedish IPOs shows that original owners use dual-class shares to form control blocks at the IPO to secure and protect valuable private benefits of control that are not primarily due to value extraction; estimated (pecuniary) private benefits are

[30] The unadjusted underpricing costs will be upward biased in civil-law countries where firms are closely held and do not use secondary issues, but for reverse reasons downward biased in Anglo-Saxon countries; see Brennan and Franks (1997).

low (Nenova, 2003; Coffee, 2001; Dyck and Zingales, 2002). In fact, the prevalent use of dual-class shares among listed firms in Sweden started in the mid-60s when the largest firms needed more capital to finance international expansions and the capital-constrained owners wanted to maintain control; from 18% in 1950, 32% in 1968; 61% in 1981 to 87% in 1992 (Högfeldt, 2003). Concentrated ownership is thus not the response to weak minority protection per se.

Legislators regard the control blocks as crucial since the attached control rights provide the founding family with a significant long-term private interest in the firm. This allocation of rights may benefit other shareholders by stimulating investments and growth in value, particularly in a fledgling firm, since it solves their free-rider problem and generates strong private incentives also in the public firm. This mechanism also limits the family's incentives to myopically extract pecuniary benefits, particularly in a relation-based financial environment like Scandinavia where informal rules and social standing are important checks and balances. Informal protection based on economic incentives, extra-legal institutions and social norms are thus substitutes for weak legal minority protection.

The large discounts reflecting the market's lower growth expectations of heir controlled Swedish IPO firms, however, suggest that these gains are traded-off against *dynamic lock-in costs* (agency costs) since heavily-entrenched owners make inefficient economic decisions. Control rights may thus be misallocated over time when they are tied to a family fortune. Entrenched owners exhibit biased investment behavior since financing is limited to retained earnings and offerings that do not dilute control. Potentially-profitable growth options may not be exercised since they require outside financing and/or transfer of control. Such firms may also overinvest in prestigious projects with private rents; hang on to loss-making investments too long; resist value-increasing takeovers that dilute control, more often do diversifying investments by stock-financed acquisitions; and likely to react slowly to changes (Cronqvist et al., 2001). The negative effects translate into lower industry-adjusted financial performance, labor ratios and R&D spending than comparable firms, and thus into lower growth (Morck et al., 2000). Using international data from Morck et al. (2000), we also report (Table 10) a positive relation between deviations from one share/one vote and amount of inherited wealth. Since countries in which billionaire heirs' wealth is large relative to GDP grow more slowly, this highlights the real economic costs of separation of cash flow rights from voting rights (Morck et al., 2000).

This seems to confirm Mark Roe's (2002) view that corporate law distinguishes between extraction of pecuniary benefits (self-dealing) and agency costs (bad decision making) and handles them differently: *The first, self-dealing, corporate law seeks to control directly*; *the second, bad decisionmaking that damages shareholders, it does not. But managers can lose for shareholders as much as, or more than, they can steal from them*. Since legal protection against self-dealing seems roughly uniform across advanced countries, the focus of the law and finance literature should not exclusively be on the legal minority protection. In countries where devices to separate votes from capital are frequently used in equilibrium, agency costs are likely to be more economically important because control is locked in over time.

We have also shown that the interaction of law and finance is particularly important at the IPO since once control blocks are formed they systematically affect privately controlled firms' investment, takeover and financing behavior, and ownership dynamics in equilib-

Table 10
Deviations from one share/one vote and amount of inherited wealth

	[Cap = 20% V] = 20 $N = 12$	[Cap = 20% V] < 20 $N = 14$	Difference test
Mean inherited wealth/GDP	12.01	32.55	−1.61
Median inherited wealth/GDP	6.78	23.72	−1.85[a]

Notes. Using data from Morck et al. (2000) and La Porta et al. (1999) we test if the amount of inherited wealth within a country is related to the use of dual class shares. We use *t*-test (Wilcoxon rank-sum test) on mean (median) differences in inherited wealth between countries. Morck et al. (2000) collected inherited wealth from Fortune's list of the 1000 wealthiest individuals globally. It is gauged as wealth of billionaires (positively) known to be heirs as well as fortunes jointly controlled by a founder and his heirs (in the process of being transferred across generations) divided by GDP. This is roughly equivalent to our definition of founder family control. Cap = 20% V is the average capital (minimum percent of book value of common equity) required to control 20 percent of the votes in the 20 largest firms (La Porta et al., 1999). [Cap = 20% V] < 20 equals one if Cap = 20 V is less than 20, and zero otherwise; it measures actual deviation form one share/one vote.

[a] Significance at the 10% level.

rium. This generates a strong path dependency that results in a dynamic equilibrium with more concentrated private ownership. Whether control blocks are prevalently formed at the IPO using security designs that deviate from one share/one vote may thus explain systematic differences not only in ownership concentration between civil-law and common-law countries but also in how firms behave and how well developed equity markets are.

But concentrated corporate ownership in a country does not only rest on the corporate law and on the legal regime but ultimately on the political acceptance at large of entrenched private ownership. Standard political measures also strongly associate countries where ownership and control have not separated with more egalitarian politics and stronger protection of workers rights. In fact, political indicators and measures of openness seem to have as good and sometimes even better predictive power of ownership concentration than purely legal variables (Pagano and Volpin, 2001). Political factors thus have to be added to the analysis of how economic and institutional factors (legal rules and regimes) interactively determine behavior in equilibrium.

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