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Evidence from initial public offerings

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Abstract

We analyse why the control of listed German and UK companies is so different. As shareholders in Germany are less protected and control is less expensive, German investors prefer controlling stakes. We also focus on economic factors such as profitability, risk and growth to predict the probability of occurrence of different states of control six years after the flotation.

Large UK companies become widely held whereas in large German firms new shareholders control significantly larger stakes. Wealth constraints become binding for UK shareholders whereas German shareholders can avoid this by using pyramids. We find substantial differences between a takeover by a concentrated shareholder and one by a widely-held company. For the UK, the probability of the former increases when the company is risky, small and poorly performing. Conversely, the latter is more likely when the target is large, fast growing and profitable. Poor performance and high risk require control and monitoring by a concentrated shareholder. Conversely, high growth and profitability attract widely-held companies. Founders are less inclined to dilute their stake to retain private benefits of control. When German firms are profitable and risky, control is likely to go to a concentrated shareholder, but growth and low profitability increase the probability of a control acquisition by a widely-held firm.

Keywords: Initial Public Offerings, Corporate Governance, Corporate Ownership and Control, Ownership Structures, Share Pyramids, Shareholder Minority Protection, Stock Exchange Regulation, Takeovers, Dual Class Shares.

JEL Classifications: G32, G35

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Why are the levels of control (so) different in German and UK Companies?

1. Introduction.

There is a well-documented – but so far largely unexplained – discrepancy in the levels of control concentration between listed Continental European and Anglo-American firms. For example, about 90% of companies listed on the London Stock Exchange do not have a major shareholder owning 25% or more of the voting rights, whereas 85% of the listed German companies have such a shareholder (Becht and Mayer, 2001; La Porta et al., 1999). Not only does the concentration of control differ between these countries, but so does the nature of ownership: Germany is characterised by inter-corporate equity relations and family control whereas institutional shareholders hold most of the voting rights in the UK. Also, German firms are on average more than 50 years old when they are floated whereas UK IPOs are only 12 years old. It comes as a surprise that such substantial differences are still observable, especially in the wake of high product-market competition and economic globalisation. This study intends to contribute to a better understanding of the reasons for the differences in control between Germany and the UK. To this aim, we analyse a unique database of recently floated German and UK firms, containing detailed data on the control structure for a period of up to six years after the IPO.

We argue that the relative cost of holding large control stakes differs across countries. In countries with a low protection of shareholder rights, shareholders can prevent a violation of their rights by building up controlling stakes and by taking advantage of a higher level of private benefits of control (Dyck and Zingales, 2001). A thorough investigation of minority shareholder protection regulation, control disclosure, multiple class shares, fiduciary duties and composition of the board of directors, ownership structure, voting rules and practice, the arm's length relation with large shareholders, and mandatory takeover thresholds reveals that

investors in the UK are substantially better protected than the ones in Germany and that the relative cost of control is lower in Germany. This result is in line with the findings of La Porta et al. (2000). We pursue our analysis of the impact of the legal and regulatory aspects on control by investigating the role of inheritance tax and listing requirements of the stock exchanges.

After examining the legal and regulatory differences that may explain differences in the level of control concentration, we analyse the corporate characteristics (such as profitability, size, risk, and growth), i.e. the economic determinants that may trigger changes in control. More specifically, we intend to predict whether or not the initial shareholders retain control, transfer control to a new widely-held shareholder or to a concentrated bidder or to a large number of new diffuse shareholders. We also analyse whether or not UK and German control changes are subject to different economic factors. We find substantial differences between takeovers by concentrated shareholders and those by widely-held companies. For the UK, the probability of a transfer of control to a concentrated shareholder increases when a company is risky, small and poorly performing. A UK firm is more likely to be taken over by a widely-held firm, if the target firm is large, fast growing and profitable. So, for the UK, poor performance and high risk necessitate a high level of control and tight monitoring by a concentrated shareholder. Conversely, high growth and profitability attract widely-held companies whose management may well be driven by an 'empire building' acquisition programme. We find that high growth also leads to more diffuse ownership in the UK. However, this is less likely when the founder family is still involved in the company. When German firms are profitable and risky, control is more likely to go to a concentrated shareholder, but growth and low profitability trigger a control acquisition by a widely-held firm. If the founder of a German firm is still a shareholder at the IPO and if there are non-voting shares outstanding, control is likely to remain with the initial shareholders. This is not

surprising as founding families often extract (non-pecuniary) private benefits of control and non-voting shares enable them to raise additional equity whilst maintaining control. Large UK companies evolve towards a more widely-held equity structure whereas in large German firms new shareholders control significantly larger voting stakes. The reason is that wealth constraints may become binding for UK shareholders whereas German shareholders can avoid this by using pyramidal ownership structures. These ensure control whilst allowing for a dispersion of cash flow rights. Age has the opposite impact on control concentration of German and UK firms: initial shareholders of older German firms tend to retain smaller voting stakes than those of relatively older UK firms.

The paper proceeds as follows. In section 2, we state some conjectures regarding the impact of the differences in inheritance tax, stock exchange regulation and legal rules on German and UK control levels. In addition, we analyse the potential impact of regulation on the relative costs of holding large voting stakes. In section 3, we formulate our propositions regarding the relation between specific corporate characteristics and the dynamics of control concentration in both countries. Section 4 describes our data sources and the methodology. In section 5, we present some stylised facts on control which provide further empirical justification for the research objective of this paper. The empirical results of the Tobit and multinomial logit models are presented in section 6. Section 7 concludes the paper.

2. Regulatory determinants of the level and evolution of control.

In this section, we compare the German and UK legal corporate governance rules, stock exchange regulations and inheritance taxes and formulate conjectures about the impact of these on the level of control concentration in both countries. We analyse whether differences in regulation and legislation can explain the stronger concentration of control in German companies compared to UK firms.

2.1 Stock exchange listing requirements and inheritance tax.

As reported in the introduction and detailed in section 5, there are striking discrepancies in control concentration between Germany and the UK. The differences in control may depend on the initial differences at the flotation and such differences may disappear over time. At the IPO, large shareholders of German firms own on average a supermajority (76% of the voting stock) versus 638% in the UK. This may be caused by differences in (i) listing requirements and (ii) inheritance taxes.

We expect that lower levels of control at the flotation are to be found in the country where the stock exchange imposes the highest minimal free float *(conjecture 1)*. Hence, as the level of control held by the initial shareholders in UK firms is significantly lower than that in German companies, we expect that the London Stock Exchange requires that a higher percentage of the equity is offered to the public. However, this is not the case: Goergen (1998) shows that in the 1980s and 1990s the admission requirements were very similar in terms of minimum size, minimum ownership dispersion and trading history. Consequently, the listing requirements cannot account for differences in initial control. This refutes conjecture 1.

High inheritance taxes may force owners to float a company to be able to afford the taxes (Hay and Morris, 1984). Thus, we expect that a lower degree of ownership retention will occur in the country with the higher tax and a higher average corporate age (*conjecture 2*). The higher initial control concentration in Germany could be partially explained by higher inheritance taxes in the UK and by a higher corporate age of UK firms. We find precisely the opposite: German firms at flotation are on average 50 years old compared to a mere 12 years for UK firms (see infra). Furthermore, during the 1980s and 1990s the levels of inheritance tax in Germany exceeded those in the UK (Goergen, 1998). This evidence fails to support conjecture 2.

2.2 Protection of shareholder rights.

When shareholder rights are not sufficiently protected or cannot be easily enforced in court, shareholders may increase their control to levels that make them no longer vulnerable to expropriation or to levels that ensure large private benefits of control. For example, a shareholder or coalition of shareholders who owns a (combined) stake of 20% and is afraid of minority shareholder expropriation by a majority shareholder has an interest to increase the stake to at least 25%. Such a minority stake enables to block changes to the statutes, including changes to the voting rights and their distribution. We expect a higher control concentration in Germany given the lower degree of shareholder rights. Consequently, if the initial shareholders decide to sell out, new large shareholders arise and the free float will remain low (*conjecture 3*). To make this case, we investigate legal origin, the threshold of compulsory tender offers, control disclosure, board representation, fiduciary duties of directors, complex shareholding structures, proxy voting, the arm's length clause between the major shareholder and the company, and the possibility to limit voting rights (see table 1). More precisely, we show that the value attached to partial control is expected to be higher in Germany than in the UK.

Legal origin.

La Porta et al. (1997, 1998, 2000) investigate the relation between legal origin (common law versus civil law), quality of investor protection and quality of law enforcement, on the one hand, and company characteristics (among them, control concentration), on the other hand, for 49 countries. The authors find that the average company in civil law countries (such as Germany) has concentrated control. In contrast, the common law system of the UK corresponds to – on average – widely-held firms. La Porta et al. (1998) also find a close correspondence between the legal origin and shareholder protection: the common law system

provides higher guarantees for shareholder rights and the enforceability of such rights is also better. Consequently, the findings of La Porta et al. (1998) provide empirical support for conjecture 3 which states that the lower degree of shareholder protection in Germany is related to a higher control concentration and to a lower occurrence of widely-held firms whereas a high quality of investor protection allows shareholders to hold smaller voting stakes in the UK.

Control induced tender offers.

The City Code on Takeovers and Mergers and the UK Company Law protect minority and dispersed shareholders by creating obstacles to building controlling stakes. When a stake of 30% or more has been acquired in a UK firm, a tender offer for all remaining shares is mandatory. Therefore, some shareholders limit their control stake to just below the 30% level (Goergen and Renneboog, 2001). In Germany, a similar takeover code was introduced only as recently as 1995 (just after our sample period which ends in 1994), but minority protection is still weaker. A mandatory tender offer only has to take place when a large shareholder obtains a 75% control stake (Boehmer, 1999). Furthermore, Wenger et al. (1996) show that in 60% of the offers to minority shareholders, the offer price is below the market value whereas in the UK the tender price has to be at least as high as the price at which the bidder acquired the shares over the previous twelve months. To conclude, shareholders in the UK without the intention to acquire a company may consider a 29.9% stake as an upper limit. German shareholders only face a 75% tender threshold but can make the tender offer unattractive by setting the offer price below the market value.

Board representation and directors' fiduciary duties.

Another incentive for shareholders to build up large blocks in German firms but not in UK ones is created by board representation and the definition of directors' fiduciary duties. On the one-tier UK board, about 60% of the directors are non-executives (Franks, Mayer and

Renneboog, 2001), most of which are independent from management and are not direct representatives of specific (major) shareholders. The need for independent directors was emphasised by the Code of Best Practice of the Cadbury Commission in 1992, which the London Stock Exchange endorses for all listed firms since 1993. In Germany, in contrast, the *Aufsichtsrat* (supervisory board of the two-tier board system) is not independent: it represents shareholders and employees and is dominated by large shareholders.[1] Baums (2000) compares the fiduciary duties (duty of care and loyalty) in German and UK corporate law and concludes that '*the range of fiduciary duties in the English law system seems wider and more developed than in its German counterpart'* (p.8). The relatively stronger independence of UK non-executive directors and their wider fiduciary duties enable shareholders to hold smaller stakes as their rights are better safe-guarded. This supports conjecture 3.

Relation with major shareholders: arm's length?

In the UK, minority protection is based on the "property rule" which prevents any transaction from proceeding without the consent of the minority owners (Goshen, 1998). In addition, the rules of the London Stock Exchange prohibit that controlling shareholders owning more than 50% of shares have too large an impact on the firm: '*a firm must be capable at all times of operating and making decisions independently of any controlling shareholder and all transactions and relationships in the future between the applicant and any controlling shareholder must be at arm's length and on a normal commercial basis'*.[2] A majority of the directors of the subsidiary must be independent from the parent firm and minority shareholders have the right to be consulted about, and approve, transactions with the parent firm (Franks, Mayer and Renneboog, 2001). Furthermore, a majority of the directors on the board of the subsidiary must be independent from the parent firm.[3] The effect of these rules is to increase the costs of holding equity stakes. They explain why almost all bids are made conditional on being accepted by 90% or more of the target's shareholders. The remainder can be purchased at the

original bid price using a squeeze-out rule under the 1948 Companies Act. German law also has an arm's length concept (par. 76, Stock Corporation Act): the management board of a subsidiary is not allowed to follow instructions or take measures which are not in the interest of the subsidiary and is not allowed to be compensated by the holding company. Still, it is doubtful how the relation between a company and its controlling shareholders can be at arm's length with a shareholder-dominated supervisory board. The efficiency of the arm's-length regulation in German firms is eroded by the fact that large shareholders nominate representatives to the supervisory boards. Such actions may ensure that large shareholders safeguard their private benefits of control. This is further support for conjecture 3.

Control through pyramids

The regulation discussed above encourages shareholders in Germany to hold a large control stake. To compensate for the cost of owning large equity stakes in terms of lost liquidity, an intricate web of multi-layered tiers of share holdings is often used by families or companies. The main reason for building such pyramids is control leverage.[4] As companies can issue up to 50% of the equity as non-voting shares, a mere 25% of the cash flow rights (50% of the voting rights) at every tier of share holdings is sufficient for a shareholder to retain control over a target company while the capital investment is minimised. In addition, a shareholder (e.g. a family) could also hide his identity prior to the introduction of the disclosure regulation.[5] While pyramids are not explicitly forbidden in UK corporate law, it is surprising that this control leverage technique is not used at all. The main reason is that ownership disclosure regulation in the UK does not only apply to individuals or companies but also to individuals and companies with voting agreements. Such voting agreements consist in obligations or restrictions between shareholders with respect to the use, retention or disposal of their stakes. A coalition of shareholders with a voting-agreement will be considered by the regulatory authorities as one single shareholder. This implies, for instance, that if the

combined direct and indirect shareholdings of a coalition amount to at least 3%, disclosure is compulsory.[6] Furthermore, a coalition controlling directly and indirectly 30% or more of the equity will be obliged to make a tender offer for all shares outstanding.[7] This section has shown that the costs of holding large share stakes are reduced by pyramids that allow the combination of strong control with limited investment.

Non-voting shares and voting caps

By issuing non-voting shares, initial owners can dilute their cash flow rights in the firm, without relinquishing control. Although non-voting shares are in principal admitted by the London Stock Exchange, issues of non-voting shares have been actively discouraged (Brennan and Franks, 1997). Goergen and Renneboog (2001) report that the few listed UK companies that had issued non-voting shares converted them into voting shares under the pressure of the London Stock Exchange and institutional investors during the early 1990s. Whereas German corporate law (*Aktiengesetz par. 139*) prohibits the issue of multiple voting rights, non-voting shares up to the amount of ordinary shares outstanding are explicitly allowed.[8] As such, the issue of non-voting shares increases the relative power of the initial shareholders and allows them to retain control with limited investment.[9]

The only regulatory element which discourages shareholders in Germany from holding large equity stakes is that voting limitations can be imposed by the by-laws. Usually, the voting power of a shareholder is limited to 5 or 10%.[10] Only recently have voting caps been prohibited in Germany (Act on Control and Transparency of Enterprises of 1998 (KonTraG)), but a grand-father clause applies for existing voting caps. Voting caps in listed UK companies are not allowed. Hence, the one-share-one-vote principle is better upheld in the UK than in Germany.

Proxy voting and voting practice

Another important element of the protection of shareholder rights is the voting procedure. In both the UK and Germany, a person or legal entity can represent a shareholder at the AGM. At first sight, there seems to be less need to resort to proxy voting in the UK because exercising one's voting rights seems substantially easier. However, the general voting practice requires that a shareholder of a UK firm or his representative is present at the general meeting in order to cast his votes. The UK voting practice is captured by this statement from the IPO prospectus of Compel plc: '*At a general meeting every member present in person shall, on a show of hands, have one vote and every member present in person or by proxy shall, on a poll, have one vote for every ordinary share of which he is the holder*.' On uncontroversial issues, voting takes place by a show of hands which entails that shareholder presence is required and all shareholders present in person have a vote regardless of their number of voting rights (see Stapledon, 1996; Goergen and Renneboog, 2001). However, every shareholder (*present*) can ask for a poll on any item of the agenda. Only then the number of voting rights owned by every shareholder matters and the proxy votes are counted. In spite of the fact that legal rules seem to facilitate voting in UK firms – there is not much of a difference between Germany and the UK in terms of the requirement that shareholders or a representative be present at the AGM.[11] Both Baums and Schmitz (2000) and Boehmer (1999) point out that the German proxy voting system comprises significant deficiencies. Banks can receive proxy votes from the shareholders who have deposited the shares in the bank (*Depotstimmrecht*) such that these control rights substantially outweigh the banks' own control rights. Typically, the amount of debt held by banks exceeds the amount of equity held in the firm by a factor greater than ten. Consequently, banks have little incentive to act on behalf of other shareholders. Finally, banks virtually always vote in favour of management proposals (Baums and Fraune, 1995) and seem to have little impact on corporate performance (Chirinko and Elston, 1996). In the UK, the management can solicit proxy votes in support of managerial plans (Stapledon, 1996). Thus, although the regulation on voting procedures seems

to plead more in favour of minority protection in the UK, the voting practice in Germany and the UK is not substantially different. This fails to support conjecture 3.[12]

To summarise, this section has discussed the many incentives for shareholders to hold relatively larger voting stakes in Germany than in the UK. First, we investigated whether the initial (and lasting) differences in equity concentration in German and UK IPOs can be explained by differences in stock exchange listing requirements and by inheritance tax law, which neither can. Second, the higher protection of shareholder rights in the UK makes holding blocks relatively more costly than in Germany. Third, owning large blocks in Germany is less costly than in the UK because (i) pyramids can be used in Germany, (ii) non-voting shares can be issued and (iii) supervisory board representatives can safeguard shareholders' private benefits of control. The only dissuasive factor against holding a high level of control in Germany is the possibility that voting rights are restricted in the corporate by-laws. Table 1 summarizes the results from this section.

[Insert table 1 about here]

3. Economic determinants of control concentration and evolution.

Whereas the previous section has shown that legal rules and stock exchange regulation provide incentives for stronger concentration of share ownership in Germany (compared to the UK), these rules do not explain how control evolves from the flotation onwards. Several years subsequent to the IPO, control concentration can result from a high retention rate by initial shareholders, from a transfer of a controlling block to a new shareholder or from a full takeover. In the case of a transfer of control, the (potential) agency costs are different when control is acquired by either a widely-held firm, or by a closely-held firm, a family or individual (as the ultimate shareholder). In the former case, management has a lot of discretion whereas, in the latter, large shareholders may influence corporate actions possibly

even at the expense of minority shareholders. This section develops the relation between corporate characteristics and control and formulates the expected differences between Germany and the UK. Specifically, these hypotheses will be tested on a sample of German and UK firms of which the level of and changes in control are collected for the six years after the flotation.

A first economic determinant of control concentration is firm size. Demsetz and Lehn (1985) argue that wealth limitations as well as portfolio diversification needs restrict the existence of substantial share stakes in large firms. Therefore, we expect that the larger the firm, the higher is the probability that wealth and diversification constraints of the initial shareholders become binding. Thus, the control retention by the initial shareholders will be lower in larger firms and these firms will evolve towards widely-held control and have fewer new large shareholders. Whereas the negative relation between ownership and size may be equally valid for the UK and Germany, the relation between control and size may differ. In the UK, share ownership is equivalent to control as a result of the one-share-one-vote principle. Conversely, this principle may be violated in German companies because non-voting shares are frequently issued (in 38% of our sample firms). This enables the initial shareholders to retain control more easily while the firm can at the same time attract additional capital without diluting the initial shareholders' control. In addition, pyramids (see above) also limit the direct investment needed to keep controlling stakes. Consequently, the negative relation between size and control is expected to be weaker in German than in UK firms (*proposition 1*).

We also expect that control retention by the initial shareholders decreases with rising corporate age. Over time, these initial shareholders (or their heirs) may face personal liquidity needs and hence decide to liquidate (part of) their stakes. As the average age of German firms at the flotation is substantially higher than the one of UK firms, we expect the control retention in UK firms to be higher than the one in German firms (*proposition 2*). In the cases

where control is reduced by the initial shareholders of German firms, we expect control stakes to be transferred and not dissipated, as blocks are valuable (Shleifer and Vishny, 1986). This implies that we expect to see a higher incidence of new large shareholders in German firms.

If the founder family is still involved in the firm (in terms of voting rights) at the flotation, the odds are higher that they will remain among the major shareholders in the subsequent years. Morck, Shleifer and Vishny (1988) argue that the founder of a firm may provide essential leadership skills, especially in younger firms, and should therefore retain control. Founder commitment at the time of the IPO is included in the model as a proxy for the private benefits (which may be non-pecuniary) that the founder extracts from controlling the firm (Johnson et al., 2000). Given that large shareholders are more likely to extract private benefits[13] in German firms, we expect higher control concentration in Germany *(proposition 3)*. Zingales (1995) and Mello and Parsons (1998) show that the optimal path of selling control to maximise the proceeds consists of two stages. First, the initial shareholders should take the firm public and sell some cash flow rights to a large number of investors in order to retain control.[14] Second, they should sell control to a new controlling shareholder at a premium. Morck, Strangeland and Yeung (2000) distinguish between large shareholder stakes resulting from entrepreneurial investment and those resulting from inherited wealth. The authors find that heir-controlled Canadian firms have lower levels of financial performance, labour-capital ratios and R&D. In contrast to entrepreneurial control, concentrated, inherited ownership impedes growth and shows signs of entrenchment and political rent-seeking.

Bolton and von Thadden (1998) model the evolution of control from its initial level towards its optimal level and find that high-risk firms will end up being widely-held. Their proposition has been supported by several empirical studies: e.g. a negative relationship between control and risk is found by Demsetz and Lehn (1985) for the US and Leech and Leahy (1991) for the

UK. Alternatively, high risk may trigger a control transfer to a shareholder with a stronger ability to monitor the firm. Therefore, we propose that the probability that the firm's original owners will reduce their control stake increases with risk and high risk triggers control transfers to large shareholders with strong monitoring skills (*proposition 4*). As German firms are older at the flotation (and have more stable and less risky cash flows than their UK counterparts) and as shareholders can control a German firm with a lower percentage of voting rights, proposition 4 is more likely to hold for UK firms.

Growth may also force changes in control: rapidly growing firms may have to resort to attracting more external equity than firms operating in mature industries. Thus, the stronger the growth, the higher is the probability that control by the initial shareholders is diluted and that either a new shareholder emerges (by a partial or full takeover) or that the firm becomes widely-held (Crespi, 1998) (*proposition 5*). We expect this relation to hold more strongly for UK than for German firms because, in the latter, pyramids enable shareholders to attract external capital while limiting control dilution.

In line with DeAngelo and DeAngelo (1985) for the US, voting shares in German IPOs are normally held by the initial owners, whereas non-voting shares are issued to the outsiders in the IPO (Goergen, 1999). Immediately after the IPO, the family shareholder owns on average 57% of the voting rights, but only 47% of total equity (voting plus non-voting shares). Hence, we expect that issuing non-voting shares at the IPO leads to higher control retention by initial shareholders and that control retention will be higher in Germany than in the UK (*proposition 6*). For those cases where control is transferred, we expect new shareholders to be able to acquire control more easily in Germany than in the UK. For instance, suppose that there are two firms with a different equity structure but which are otherwise identical: one firm has only voting shares outstanding while the other has issued 50% voting and 50% non-voting

shares. If the initial shareholders decide to sell a controlling stake, the new controlling shareholder will only need half of the capital to acquire control in the firm with the non-voting equity.[15]

Profitable firms generating sufficient cash flow allow the initial shareholders to retain control for a longer period than poorly performing firms (Dennis and Sarin, 1999). Poor performance may reflect not only weak management but also poor monitoring, which may activate the market for corporate control or persuade another shareholder with superior monitoring skills to acquire control (Franks, Mayer and Renneboog, 2001). Thus, we expect poor performance to trigger changes in control (*proposition 7*). Such changes in control are likely to occur differently in the UK than in Germany. In the former, the market for corporate control consists in full takeovers (Franks and Mayer, 1996), whereas in Germany it operates via partial takeovers or a transfer of a controlling stake to a new major shareholder (Jenkinson and Ljungqvist, 2001)

4. Data sources, description of variables and methodology.

4.1 Sample description and data sources.

Even though the German economy is about 1.8 times larger in terms of GDP than the UK economy, its capitalisation is substantially smaller as the number of quoted companies on the German exchanges is less than one third the number of listed firms on the London Stock Exchange (which is around 2,000 firms including the 550 financial institutions and investment funds). Similarly, the number of initial public offerings on the London Stock Exchange is much larger. In the UK, 764 firms went public during the period of 1981-88, of which 284 were floated on the Official Market and 480 on the Unlisted Securities Market (USM), i.e. the second-tier market. Over the same period, a total of only 96 German firms

went to the stock exchange, 51 of which were listed on the Official Market and 45 chose a listing on the Regulated Market (the second-tier market). This study concentrates on domestic IPOs listed on the official and secondary markets, as data for lower market tiers[16] are usually not available.

To ensure comparability across the German and UK IPOs, we only retain in this study those IPOs controlled by an individual or a group of persons, such as a family or unrelated associates. Hence, we do not include privatisations or equity carve-outs. Consequently, this study analyses more than 90% of all German IPOs with available data.[17]

The distribution of the population of 96 German and 764 UK IPOs across industries reveals significant differences.[18] Although the industry with the highest frequency of IPOs is the same for both countries (electricals, electronics and office equipment), there are proportionally more German IPOs in mature industries (such as mechanical engineering with 15.5% of the total number of IPOs and motor components with 5.2%). Conversely, there is a higher proportion of UK IPOs in cyclical service industries with 29% of the sample (service agencies with 9.0%, property with 6.0%, leisure with 5.7%, chain stores with 3.6% and construction with 4.9%). Within each industry, UK IPOs are also usually smaller than German IPOs.

Table 2 shows that there are also marked differences between the population of German and UK IPOs in terms of size, age, industry and risk. The German IPOs are twice as large as the UK IPOs with market capitalizations at the end of the first day of listing of £113 million and £56 million, respectively.[19] On average, the German IPOs were founded 51 years prior to the flotation whereas UK firms were set up only 14 years before the IPO. The age of the German and UK sample IPOs matched by size is similar to the population: German and UK firms are respectively 50 and 12 years old prior to the flotation. The Herfindahl index demonstrates that voting rights in the German firms at the IPO are more concentrated than in their UK

counterparts (the difference is significant at the 1% level; see panel B). German founder families own shares at the flotation in 92% of the firms, while this is the case in 85% of UK firms. The UK firms are riskier (at the 1% level of significance), measured by the standard deviation of their monthly share returns. German firms also have a higher cash flow both as a proportion of their book value of assets (CF1) and as a proportion of the sum of the market value of equity and the book value of debt (CF2).

[Insert table 2 about here]

Information on the identity of initial shareholders and on pre- and post-IPO holdings was obtained from the IPO prospectuses. Substantial share stakes were traced over the period after the IPO through the company reports as well as the London Stock Exchange Yearbooks for the UK and the *Saling Aktienführer* for Germany. Information on both the direct and the ultimate voting stakes was collected for the German firms. To identify the ultimate shareholder and his level of control, the ownership pyramids were reconstructed on a year-by-year basis. Higher tiers of ownership were traced for those large shareholders owning 25% or more of the voting rights for as long as the control chain in the ownership cascade was not interrupted. The ultimate level of control is reached when the ultimate shareholder is either an individual or a family, or is a widely-held company (i.e. a firm which does not have a shareholder owning at least 25% of its voting rights). Whereas ultimate control is only relevant for German companies, ownership in the UK is equivalent to control as multiple or non-voting shares are not used. Also, UK ownership structures are simple and pyramids are rare (Goergen and Renneboog, 2001).

Share prices were collected from the *Karlsruher Kapitalmarktdatenbank (KKMDB)* and the London Share Price Database (LSPD). IPO characteristics (age and industry) and the closing market capitalisation for the first day of listing were obtained from the Deutsche Börse AG

and the London Stock Exchange. Accounting information was collected from the IPO prospectuses, company reports, the Extel Financial Company Research and Global Vantage CD-ROMs for both countries, and from Datastream and the Extel Microfiches for the UK.

4.2 Methodology and model description.

The direct comparability of control in the two countries was enhanced by matching the German firms with UK IPOs by industry and size. This way we select twin companies whose control evolution we analyse while controlling for factors such as risk, profitability and growth. The size-matched sample consists of 54 German and UK firms whereas the industry-matched sample contains 58 IPOs from each country.[20] The average difference in size between a German IPO and its matched UK IPO is 2.7% with a median of 0.5% and a standard deviation of 4.7%. For seven German firms, a close match, defined as a match within a ±25% difference in size, could not be found, neither was it possible to find a UK industry match for three German IPOs. The two German samples have 52 firms in common.[21]

For the IPO samples, the following cross-sectional industry-fixed effects are estimated:

$$\begin{aligned}\%\,\text{Voting Control}_i = {} & \delta + \gamma_1 \textit{Country}_i + \gamma_2 \text{Size}_i + \gamma_3 \text{Founder}_i + \gamma_4 \text{Risk}_i + \gamma_5 \text{Growth}_i \\ & + \gamma_6 \text{Non - Voting}_i + \gamma_7 \text{Profit}_i + \gamma_8 \text{Age}_i + \gamma_9 \text{Country}_i \cdot \text{Size}_i \\ & + \gamma_{10} \text{Country}_i \cdot \text{Founder}_i + \gamma_{11} \text{Country}_i \cdot \text{Risk}_i + \gamma_{12} \text{Country}_i \cdot \text{Growth}_i \\ & + \gamma_{13} \text{Country}_i \cdot \text{Profit}_i + \gamma_{14} \text{Country}_i \cdot \text{Age}_i \\ & + \text{time dummies} + \text{industry dummies} + \varepsilon_i\end{aligned}$$

The % Voting Control stands for the percentages of voting rights held six years after the flotation by (i) the initial shareholders, (ii) the new large shareholders and (iii) small shareholders (the free float), respectively. As the dependent variable is censored (the variable

is zero in 33%, 27.4%, and 22.2% of the cases in the models with initial shareholders, new shareholder and the free float as dependent variables, respectively), we estimate Tobit models.

Firm size (Size) is the natural logarithm of the market capitalisation at the closing price on the first day of trading, converted into 1985 pounds sterling. Founder involvement is captured by the dummy variable Founder, which equals 1 if the founder or his heirs hold a control stake in the firm at the IPO and zero otherwise. The level of a firm's risk (Risk) is measured by the standard deviation of monthly stock returns over the five-year period after the flotation. The growth rate (Growth) is defined as the average annual growth rate of total assets over the first five years after the flotation. Non-voting shares (Non-Voting) is a dummy variable capturing the issue of non-voting shares at the time of going public (dummy equals 1). Twenty-three and 25 German firms issued non-voting shares in the size- and industry-matched samples, respectively. The profit rate (Profit) is defined as the annual cash flow divided by the book value of total assets with annual cash flow measured as the profit gross of depreciation, interest, taxes and changes in tax, pension and special provisions. Age measures the age of the firm in years at the time of the IPO.

As both German and UK IPOs are included in the model, a dummy variable Country is used, which equals 1 for a German company, and 0 otherwise. The coefficient on this dummy registers a possible difference in the intercept between German and UK IPOs. In order to determine whether there is a country-specific effect for each of the variables described above, interactive terms consisting of the product of each of the above variables with the Country dummy is included in the model. The interactive terms pick up the differential effect (i.e. the differential slope coefficient) for the German firms.

Table 1 in the appendix shows the Pearson correlation coefficients for the independent variables and the p-values for the coefficients. We find that (i) Risk is correlated with Age,

Profit, Non-voting and Country, and (ii) Age is related to Country, Growth and Non-Voting. These seven correlation coefficients are statistically significant but are not large in absolute terms. As these correlations may cause multicollinearity problems, we subtract from the variables Age and Risk the country averages of these variables. Table 1 in the appendix shows that the statistical significance of the correlations between the variables $Risk_{minuscountryavg}$ on the one side, and Age, Country and Non-Voting on the other has disappeared, as well as the one between $Age_{minuscountryavg}$ on one side and Country, Growth and Non-Voting on the other side. The high correlation between Non-voting and Country cannot be eliminated as non-voting shares are only issued by the German firms.

For the sake of robustness, we also use a set of alternative independent variables. Size is now measured by the book value of total assets at the end of the financial year covering the IPO date. Founder stands for founder involvement in the management of the firm: the dummy variable equals 1 if the founder or a member of the founder family is an executive director of the firm, and zero otherwise. Risk is the standard-deviation of the cash flows at the IPO and during the five years subsequent to the IPO. Non-voting is now a continuous variable measuring the proportion of non-voting shares in the firm's total equity immediately after the IPO. For Growth, the same definition is used as for the first set of independent variables. The profit rate (Profit) is now the cash flow over the sum of the market value of equity and the book value of debt.

As the dependent variables of the 3 Tobit models are interrelated, we also estimate multinomial logit models. Here, we distinguish between four states of control six years subsequent to the flotation: firm *i* is (i) controlled by the original owners (SC), (ii) widely-held (WH), (iii) taken over by a closely-held bidder (TC) or (iv) taken over by a widely-held bidder (TW). Six years after the flotation, two thirds of the German firms in the size-matched sample were still controlled by their initial owner. This proportion is three times higher than

for the UK sample. However, the number of (full and partial) takeovers is similar: 19 and 22 German and UK firms respectively. As in most UK and German firms, the initial shareholder retains majority control at the flotation, we use this state as the benchmark case in the multinomial logit regressions.[22] The specifications include a differential intercept and interactive slope coefficients, which pick up possible differential effects for the German IPOs. For the size- and industry-matched samples, the following cross-sectional multinomial model is estimated:

$U_{ij} = \beta' \mathbf{z}_{ij} + \varepsilon_{ij}$ and for j= 1, 2, …, J:

$$\Pr(Y = 0) = \frac{1}{1 + \sum_{k=1}^{J} e^{\beta_k' x_i}}$$

$$\Pr(Y = j) = \frac{e^{\beta_k' x_i}}{1 + \sum_{k=1}^{J} e^{\beta_k' x_k}}$$

More specifically, U_{ij} is the state of control j in company i.

$$\textit{State of control}_{ij} =$$

$$\alpha + \beta_1 \textit{Country}_i + \beta_2 \textit{Size}_i + \beta_3 \textit{Founder}_i + \beta_4 \textit{Risk}_i + \beta_5 \textit{Growth}_i + \beta_6 \textit{Non-Voting}_i + \beta_7 \textit{Profit}_i$$

$$+ \beta_8 \textit{Age}_i + \beta_9 \textit{Country}_i\textit{*Size}_i + \beta_{10} \textit{Country}_i\textit{*Founder}_i + \beta_{11} \textit{Country}_i\textit{*Risk}_i$$

$$+ \beta_{12} \textit{Country}_i\textit{*Growth}_i + \beta_{13} \textit{Country}_i\textit{*Profit}_i + \beta_{14} \textit{Country}_i\textit{* Age}_i + \textit{time dummies}$$

$$+ \textit{industry dummies} + \varepsilon_{ij}$$

5. Control evolution after the flotation: stylised facts.

5.1 Control evolution by the initial and new large shareholders.

The voting power held by three categories of owners (initial, new large, and new small shareholders) over the six-year period after the IPO is recorded in table 3 for the sample matched by size. Initial control is statistically different in the German and UK firms immediately after the IPO: the initial shareholders in German firms retain 76.4% versus only 62.8% in UK companies. Initial shareholder control is diluted much more rapidly in the UK than in Germany. The original shareholders of British IPOs lose majority control on average merely 2 years after the flotation whereas their German counterparts retain majority control up to five years. Although, the reduction in control is slower in German IPOs, as much as 35% of these voting rights change hands during the six-year period. The differences in initial shareholder concentration in German and UK IPOs are statistically significant at the 1% level for each of the 6 years following the flotation.

At the flotation of UK firms, most of the shares are purchased by small shareholders as the rationing schemes for share distribution in case of over-subscription often favour small shareholders for control reasons (Brennan and Franks, 1997). Consequently, the free float is significantly higher (at the 1% level of significance) in the UK firms (37.2%) than in the German ones (22.2%), but remains relatively stable in both countries over the six-year period after the IPO. Over this period, control is transferred from the initial shareholders to new large shareholders who on average control about 30% of the voting rights in both the German and UK samples, six years subsequent to the flotation.

[Insert table 3 about here]

5.2 Changes of control and control states.

Whereas table 3 shows how control evolves over time, table 4 reports the control state six years after the flotation. Panel A of table 4 shows that full takeovers are uncommon in Germany with only one case in our sample.[23] [24] In contrast, 35% of the UK companies were acquired in a full takeover within 6 years after the flotation. In Germany, control is less frequently transferred via a full takeover than via the sale of large voting blocks (which in fact constitutes a 'partial' takeover). Such partial takeovers are infrequent in the UK because of the legal requirement to make a tender offer for the entire equity of the firm as soon as an investor acquires 30% or more of a firm's equity.[25] Thus, if shareholders in a UK company do not want to end up with 100% control, they will deliberately remain below the 30% threshold (Goergen and Renneboog, 2001).

[Insert table 4 about here]

As a matter of fact, partial takeovers in Germany and full takeovers in the UK bring about similar results in terms of control change (Goergen, 1998). Panel A shows that, after amalgamating all control changes (both full and partial takeovers), the percentage (36% and 38%) is almost equal in German and UK IPOs. However, the distribution of control across the remaining German and UK firms is still substantially different, as 62% of the German firms remain in the hands of their initial owners compared to only 24% of the UK firms in the size-matched sample (and 35% in the industry-matched sample). Only one German company becomes widely held whereas 32% of UK firms are already widely-held six years after the IPO. The reason why we follow the control evolution for a six-year period subsequent to flotation can be found in panel B of table 4.[26] Control changes in UK IPOs take place 3-4 years after the flotation whereas in German IPOs they happen within a 4-6 year period.

Even though the percentage of German and UK firms with a control change (full and partial takeovers) may be roughly similar, the question whether the (ultimate) bidder is widely-held or is concentrated remains important. The potential agency problems in widely-held (and hence management-controlled) firms are different from those in closely-held firms (Shleifer and Vishny, 1997; Bratton and McCahery, 1995). For the former, the target firm will be monitored by the bidder's management which may have objectives in conflict with the maximisation of shareholder value. For the latter, it is the *ultimate* large shareholder who is expected to monitor the target. Thus, the objectives of the bidder may differ depending upon who controls the bidder ultimately. For example, the management of the bidder with dispersed ultimate control may be more interested in acquiring large, profitable, low-risk firms whereas the bidder with a strong shareholder may prefer a more risky, high-growth firm. Empirical evidence suggests that it is the ultimate shareholder at the top of the ownership pyramid who disciplines management rather than the shareholders at the first ownership tier (see Renneboog, 2000). Panel C of table 4 differentiates between takeovers by an ultimately dispersed or concentrated bidder. The bidder in 52% of the German partial takeover targets in the size-matched sample is ultimately closely-held. The remaining German companies are ultimately widely-held. Out of the 24 UK companies which are fully or partially taken over, 14 are taken over by a bidder with dispersed control.

Not only are there differences in the evolution of control between Germany and the UK, but there are also differences in terms of who owns the votes. Table 5 shows the identity of the major shareholder six years after the flotation for the size-matched sample. In German firms, families control two thirds of the voting rights and other companies (mainly foreign ones) control about one third. For UK firms, other firms (mainly domestic ones) and families control 35% and 28% of the voting rights, respectively.

[Insert table 5 about here]

6. Prediction of control in German and UK firms.

6.1 Determinants of the evolution of control

Table 6 investigates the determinants of the evolution of control six years after the flotation. We do not only analyse the dilution of stakes held by the initial shareholders, but also the evolution of the free float and the emergence of new large shareholders. All shareholdings which are directly or indirectly controlled by the same (ultimate) owner are aggregated. Large UK companies (measured by market capitalisation) tend to evolve towards a widely-held equity structure as wealth constraints put a limit to holding large blocks of equity (column 2). However, these wealth constraints do not seem to be binding for German firms as the market capitalisation does not influence control concentration (the parameter estimates of 0.162 and –0.189 largely cancel out). Larger UK firms also have fewer new large shareholders, but this is not the case for larger German firms in which new shareholders control significantly larger equity stakes. Thus, these findings support proposition 1, stating that there is a stronger negative relation between control and corporate size for UK firms.

[Insert table 6 about here]

To control for the fact that the average German firm is substantially older, we have subtracted the country average from Age. Table 6 shows that the initial shareholders of German firms with an above-average age tend to retain smaller voting stakes than those of relatively older UK firms. This supports proposition 2. The control relinquished by the initial shareholders in the relatively older German firms does not get dissipated but is taken over by new large shareholders (column 3).

Table 6 also investigates the influence of the founder family on control six years after the flotation. The table reports different results for UK and German IPOs. If the founder of a

German firm is still a shareholder at the IPO, control is likely to remain tight. Given that the initial shareholders retain large stakes, it is less likely for large new shareholders to acquire controlling stakes in German firms (column 3). In contrast, the presence of the founder family among the initial shareholders in the UK has little impact on the degree of control exerted by the initial and new shareholders, although the likelihood that the firm evolves towards widely-held ownership decreases. These findings support proposition 3.

Demsetz and Lehn (1985) found a negative relation between risk and ownership concentration for US firms. Our findings support this picture for UK firms: in companies with risk above the average 12.8%, the control held by new large shareholders is higher than in firms with below average risk. Moreover, the free float in risky UK firms is lower. High-risk German companies also require a strong new shareholder with potentially strong monitoring skills (column 3). Still, column 2 also shows that a high degree of risk also leads to a higher free float in German firms. Thus, control concentration is related more strongly to risk in the UK than in Germany and this partially supports proposition 4.

Although we do not find any impact of growth on the control of UK firms, strong growth in German firms leads to a reduction in the initial shareholders' control and control is transferred to new large shareholders. The findings support proposition 5 for the German firms, but not for the UK ones. None of the UK firms had issued non-voting shares versus 38% of the German firms. (Non-voting shares enable the initial shareholders to raise additional equity capital whilst maintaining control.) Table 6 confirms that the voting rights of the initial shareholders do not tend to be dissipated after the IPO when the company has outstanding non-voting shares (column 1). Hence, both a transfer of control to a new large shareholder and a dissipation of control are less likely (columns 2 and 3). This supports proposition 6. Proposition 7 states that when sufficient cash flows are generated, there is a

higher probability that the initial shareholder retains control. Unlike Heiss and Köke (2001), we do not find any such evidence in table 6 and reject proposition 7.[27]

To conclude: in fast growing, older German firms, the initial shareholders substantially reduce their controlling share stakes over the six years after the flotation provided they are not part of the founder family. In contrast, the initial shareholders of German firms tend to retain control in firms with non-voting shares. New shareholders acquire control in larger, older and strongly growing German firms in which the founder family is no longer involved and which have no non-voting equity. A higher free float tends to occur in high-risk German firms. In UK firms, we find a strong relation between control and size: the larger the firm, the lower is the control by the new shareholders and hence the larger is the free float. When the founder does not sell out at the flotation, the probability that control is dissipated is low. High risk seems to necessitate high control by the new large shareholders. [28]

6.2 Multinomial logit prediction the state of control.

Whereas in the previous section we investigated the determinants of the control levels of initial and new shareholders, we now estimate the likelihood that six years after the flotation the following four different states of control arise: initial shareholder control (SC), diffuse control (WH), takeover by a closely-held bidder (TC) or takeover by a widely-held bidder (TW). This analysis is performed for two reasons. First, it sheds some light on how control concentration comes about (via different types of takeover, or via control retention). Second, the Tobit models estimated in the previous section (table 6) assume that the dependent variables (control held by initial or new large shareholders or diffuse control) are independent which is not the case. Therefore, we estimate multinomial logits predicting the control state.[29] Table 7 confirms that there is a higher probability for large firms to end up with diffuse control (panel B). This supports proposition 1. In addition, large firms are more likely to be

taken over by a widely-held firm than by a concentrated bidder. This is expected for two reasons. First, a concentrated bidder (a family or individual) is more likely to be wealth constrained than a widely-held firm or may be less able to raise external funds to finance the control acquisition. Second, the reason for a takeover by a widely-held firm may be agency related: the management of a widely-held firm may be tempted to 'build an empire' when it is insufficiently monitored (Berkovitch and Narayanan, 1993; Goergen and Renneboog, 2002).

[Insert table 7 about there]

Age does not seem to matter for either country's control levels such that we have to reject proposition 2. If the founder or his heirs are involved in the firm at the IPO, the likelihood that they retain control over the six-year period subsequent to the IPO is large and hence the likelihood that the firm evolves towards diffuse control is significantly reduced. This supports proposition 3. The fact that founder involvement at the flotation does not influence the probability of being taken over provides some support for the predictions of the models by Zingales (1995) and Mello and Parsons (1998) and is also consistent with the empirical findings for the US (Chung and Pruitt 1996).

In companies with high risk, we expect the initial shareholders to reduce control in favour of new large stable shareholders with good monitoring abilities. Table 7 reveals that high risk significantly increases the probability of full and partial takeovers relative to the possibility that the firm remains controlled by the initial shareholders (panel A) and relative to the state of diffuse ownership (panel B). Panel C also reveals an interesting result: high risk increases the likelihood of a takeover by a concentrated bidder rather than by a widely-held firm. So, it seems that tight control with increased monitoring is the best solution to high risk. This contradicts proposition 4 and the predictions of Bolton and von Thadden's (1998) model.

While we hypothesized that proposition 4 would hold more strongly for the UK firms, we find no differences in the risk-control relation between the UK and Germany.

High growth could lead to control dilution resulting from the limited availability of internally generated funds and the implied need to attract external capital to finance investment opportunities.[30] Table 7 confirms proposition 5: both diffuse control and a takeover by a widely-held company are the more likely 'equilibrium' states 6 years after the flotation for growth companies. This proposition is expected to hold more strongly for the UK firms than for the German ones. Panel C of table 7 shows that this is the case: high growth triggers more partial takeovers but not necessarily by widely-held bidders. The reason is that pyramids enable shareholders to attract external capital whilst limiting control dilution.

For German firms, the consistently negative sign of the dummy variable Non-voting indicates that firms with non-voting shares are less likely to undergo a change in control. Still, in contrast to the results from table 6, the parameter coefficients are not statistically significant such that we fail to support proposition 6.

Table 7 supports proposition by Burkart, Gromb and Pannunzi (1997) that different states of the world require specific control structures (proposition 7). Some states of the world (such as the ones with a low profitability) require a large stable shareholder, while others cope well with dispersed control allowing for sufficient managerial discretion. We find that a low profit rate increases the probability of a UK firm being acquired by a closely-held bidder. Hence, it seems that incumbent shareholders sell out to a concentrated bidder, if the former are not able to provide sufficient monitoring to improve the firm's performance. Indeed, poor performance not only results from poor managerial performance, but also from a breakdown of corporate governance. These findings support proposition 7 for the UK. Conversely, the higher the profitability, the higher the odds that the firm is taken over by a widely-held bidder. The fact

that widely-held companies prefer profitable takeover targets can be explained in an agency-cost setting: managers of widely-held firms may find it easier to boost financial performance by taking over profitable firms rather than by improving the financial results of their current businesses.[31] Alternatively, widely-held bidders may not be able to provide the level of monitoring, which is required to turn around a badly performing target firm. For Germany, we find a much weaker relation between control states and profitability. First, as in the UK, poor performance entails a higher likelihood that control is transferred than diluted. Second, unlike our findings for the UK, strong performance leads to a higher occurrence of acquisitions by closely-held bidders than by widely-held bidders.

Finally, it should be noted that the dummy variable Country is not statistically significant. This strongly suggests that the country interaction terms are capturing all the economic determinants of the control states.

7. Conclusions

This paper analyses why the levels of control are so different in Germany and the UK. A first reason for shareholders to hold larger voting stakes in German firms is found in the differences in the regulatory and legal environment. A detailed analysis of the regulation of the German and UK stock exchanges, of the rules on minority shareholder protection, of informational transparency and of the takeover codes shows that there is lower shareholder protection in Germany. The voting practice at annual meetings, the composition of the board of directors and their fiduciary duties further reinforce this relative weakness of shareholder rights in Germany. As a consequence, control is more valuable to shareholders of German firms either to avoid expropriation of their investments or to take advantage of the higher levels of private benefits. Furthermore, holding large control stakes is less expensive in Germany relative to the UK because ownership pyramids, the possibility of issuing non-

voting stock and the possibility to nominate one's representatives to the board of directors ensure that control can be maintained with relatively low levels of cash flow rights.

Although the legal environment predicts stronger levels of control in Germany, it does not explain how the difference in control concentration comes about. Both UK and German firms are floated on the stock exchange with high levels of initial control, and this raises the question as to what triggers subsequent changes in control. To answer this question, we investigate the economic factors that determine control retention by large initial shareholders, dissipation of control among many small shareholders and control transfers whereby we make a distinction between widely-held and concentrated bidders. The paper uses a unique database of IPOs with data over the period 1981-1994. Industry and size effects are controlled for by creating size- and industry-matched samples of 'twin' German and UK firms whose evolution of control was followed over a 6-year period. We find that not only do the initial shareholders in the average German company own much larger stakes than their UK counterparts, but they also lose majority control only 6 years after the public offering. In contrast, initial owners in UK companies lose majority control already 2 years after going public.

We have found strong evidence that corporate characteristics lead to differences in control evolution across companies but also between the UK and Germany. The Tobit models that estimate the percentage of control held by the initial and new large shareholders and the size of the free float 6 years subsequent to the flotation, show that size is an important determinant of control concentration in the UK but not in Germany. Large UK companies evolve towards a more widely-held equity structure whereas in large German firms new shareholders hold significantly larger voting stakes. The reason is that wealth constraints become binding for UK shareholders whereas German ones can avoid this effect by leveraging control via pyramids. Age has an inverse impact on the control of German and UK firms: initial

shareholders of older German firms tend to retain smaller voting stakes than those of relatively older UK firms.

If the founder of a German firm is still a shareholder at the IPO and if there are non-voting shares outstanding, control is likely to remain tight in the hands of the initial shareholders. This is not surprising as founding families often extract (non-pecuniary) private benefits of control and non-voting shares enable them to raise additional equity capital whilst maintaining control. Whereas we do not find any impact of growth on the control concentration of UK firms, strong growth in German firms leads to the initial shareholders transferring control to new large shareholders. The impact of risk on control is stronger in the UK than in Germany. In UK companies with above-average risk, the degree of control held by new large shareholders is higher and the free float is lower.

The multinomial logit models, which predict the occurrence of different states of control (initial shareholders retain control, control is diluted, control is transferred to a concentrated shareholder or to a widely-held firm), show that specific corporate characteristics lead to different 'equilibrium' control states six years after the flotation. We find substantial differences between takeovers by a concentrated shareholder and takeovers by widely-held companies. For the UK, the probability of a transfer of control to a concentrated shareholder increases when a company is risky, small and poorly performing. A UK firm is more likely to be taken over by a widely-held firm, if it is large, fast growing and profitable. So, for the UK, poor performance and high risk necessitate a high level of control and tight monitoring by a concentrated shareholder. High growth and profitability attract widely-held companies whose management may follow an 'empire building' acquisition program. We found that high growth also leads to more diffuse control, which in turn is less likely when the founder family is still involved in the company. Founding families may be less inclined to dilute their stake in order to retain private benefits of control. When German firms are profitable and risky,

control is more likely to be acquired by a concentrated shareholder, but growth and low profitability increase the likelihood of being acquired by a widely-held firm.

[1] Full-parity determination for the shareholders and employees only exists in the steel and coal sector. In small companies with more than 500 but less than 2000 employees, one third of the supervisory board consists of labour representatives. In larger firms with more than 2000 employees, a system of quasi-parity co-determination exists as employee representatives make up half of the supervisory board but the chairman who is a shareholders representative has a casting vote in case of stale-mate.

[2] See sections 3.12 and 3.13 of Chapter 11 of the Listing Rules.

[3] See sections 11.4 and 11.5 of the Listing Rules.

[4] Correia da Silva, Goergen and Renneboog (2002) argue that the taxation of dividends in Germany does not provide an incentive to construct shareholding pyramids.

[5] In the UK, the Company Act requires the identity of shareholders purchasing share blocks in excess of 3% (5% prior to 1989) to be disclosed to the target company. Germany was the last European country to introduce such a disclosure regulation (for stakes of 5% or more): the European Transparency Directive (88/627/EEC) was only implemented in Germany in 1995 (the *Wertpapierhandelsgesetz*). Prior to 1995, there was only compulsory disclosure of control at the level of 25%. In the UK, shareholders owning 15% or more of the equity of a UK firm must make public their intentions with regard to launching a takeover. There is no such requirement in Germany. Becht and Boehmer (2001) argue that the efficiency of the 1995 disclosure regulation is very low as ultimate ownership cannot easily be inferred from published filings, there is no disclosure on who exercises proxy votes and accumulated votes held by business groups cannot easily be determined. They conclude: '*the low transparency of control is likely to increase the cost of capital to affected German corporations relative to their international competitors listed in markets that are more transparent.*

Full disclosure of control would likely reduce uncertainty with respect to expropriation and increase the value of affected firms.'

[6] Section 204 of the Companies Act 1985.

[7] See the City Code on 'concert parties'. It should be noted that this regulation does not apply for 'ad hoc' coalitions which are temporary and formed with one particular aim e.g. the removal of poorly performing management (Stapledon, 1996).

[8] Non-voting shares have dormant voting rights that are triggered by two consecutive omitted dividend payments (*Aktiengesetz par. 140*).

[9] It should be noted that in neither country the control stakes can be diluted by seasoned equity offerings. In the UK, seasoned new equity must be in the form of rights issues (Section 89(1) of the Companies Act 1985). These rights may only be waived if a supermajority (of at least 75%) votes to do so. Even where shareholders vote to drop their pre-emption rights, the discount of any new issue must not exceed 10% of the market price at the time of the issue's announcement (par. 4.26, Stock Exchange Rules, 1999). These rules ensure that the stakes of the initial shareholders cannot be diluted by the ones of new shareholders. They are reinforced by guidelines, issued by the National Association of Pension Funds and the Association of British Insurers, limiting companies to raise 5% of their share capital each year by any method apart from rights issues - and 7.5% in any rolling three-year period. German corporate law is similar: it requires seasoned equity issues expanding the equity by 10% or more to take place via rights issues.

[10] Voting caps in the by-laws do not apply to the proxies which banks have collected (Baums and Schmitz, 2000).

[11] The fact that bearer shares are common in German firms whereas nominal shares are used in the UK, does not lead to differences in voting procedure. In both countries, shares need to be registered if one wants to exert voting rights (Baums, 1997).

[12] Given the competition in a globalized economy, it is surprising that corporate governance regulation has not converged more. Bebchuk and Roe (1999) claim that the rigidity to changes in control concentration hinges to a large extent on the structures with which the economy started (structure-driven path dependence). The efficient choice of a corporate control structure is influenced by sunk

costs. Furthermore, there is an endowment effect as there are advantages to using the dominant form in the economy, which is the one which most players are familiar with. Internal rent-seeking by parties who participate in corporate control may also explain why such parties would attempt to impede change towards a more efficient control structure. For example, the management of widely-held companies may prefer to retain a diffuse control structure as this enables them to maintain their private benefits at the expense of shareholders. Likewise, Bebchuk (1998) argues that concentrated ownership – and hence uncontested corporate control – prevails in Continental Europe because the lax corporate-governance regulation allows large shareholders to reap substantial private benefits of control. Hence, as long as Continental European regulation does not change, control concentration will resist change (Bratton and McCahery, 1999).

[13] See the discussion on minority protection in section 2. Evidence of the extraction of private benefits of control by large shareholders in Germany is given by Franks and Mayer (2001), and by Dyck and Zingales (2001) in an international comparison.

[14] Brennan and Franks (1997) show that control retention is an important reason for underpricing: share-rationing schemes enable the original shareholders to disperse shares to atomistic subscribers.

[15] This argument assumes that the price of the voting shares in both companies are equal.

[16] During the period of the study, lower tier markets were the Unregulated Unofficial Market and the OTC for Germany and the Third Market and OTC for the UK.

[17] Control and ownership concentration of 61 of these 80 German firms could be traced reliably over time. For most of the other IPOs, the identity of the shareholders was available, but not the exact size of their holdings.

[18] The industry classification is based on the two-digit UK SE Groups, the industrial classification used by the London Stock Exchange to compile its quarterly lists of new issues. The groups are covered by the F.T. Actuaries Investment Index Classification with the amalgamation of certain related groups. For each German firm the industry description at the time of the IPO in the *Saling Aktienführer* were recorded. Subsequently, German firms were reclassified into the two-digit UK SE Groups. We have merged specific groups which only had a small number of IPOs: e.g. groups 27 (Misc. Mechanical Engineering) and 28 (Machine and Other Tools) were merged. Groups 19 (Electricals), 35

(Electronics) and 69 (Office Equipment) were also merged since groups 35 and 69 did not exist at the beginning of the 80s and computer and software manufacturers were first assigned to group 19, then to group 69 and only later to group 35.

[19] Market capitalisation is adjusted for UK inflation by the annual GDP deflator (base year 1985) of the IMF. Several German firms in our sample have dual class shares of which one class is not listed. The market capitalisation for these firms was computed by multiplying the total number of shares by the market price of the listed class of shares.

[20] It may be argued that a different type of matching based on firm age should also have been performed. However, a reasonable match (plus or minus two years of difference) could only be found for about 19 German firms. However, we control directly for age in the regressions. Similarly, we tried to match firms simultaneously by size and industry. However, again for more than three-quarters of the firms a satisfactory match within the 25% range could not be found.

[21] The German size-matched sample includes two companies which are not included in the industry-matched sample, because there were no UK IPOs in these specific industries during the period of study. The German industry-matched sample comprises six firms not included in the size-matched sample.

[22] As $\log \frac{P_{WH}}{P_{SC}} = -\log \frac{P_{SC}}{P_{WH}}$, we report results for:

(i) log (P_{WH}/P_{SC}), log (P_{TC}/P_{SC}), log (P_{TW}/P_{SC}), (ii) log (P_{TC}/P_{WH}), log (P_{TW}/P_{WH}) and (iii) log (P_{TW}/P_{TC}).

[23] Franks and Mayer (1998) report that hostile takeovers have been a rare phenomenon in Germany. Since WWII and prior to 2000, there have only been three attempts, two of which failed. Since then, there has been a fourth successful hostile takeover (the Mannesmann takeover by Vodaphone in 2000).

[24] Whereas panel A considers only direct holdings, panel C takes both direct and indirect holdings into account.

[25] The Takeover Panel may grant an exception to this rule, which makes a tender offer mandatory to a party which reaches the 30% threshold of equity (or voting rights), in the case where a shareholder takes a large stake in a financially distressed company.

[26] Expanding the analysed time period of six years subsequent to the IPO to 8 years, changes neither the data presented in table 3 nor the results of this paper.

[27] As a robustness check, similar Tobit regressions but with alternative independent variables (for the definition see section 4.2) were estimated. The country-dummy variables confirm that the share stakes of initial shareholders are higher in Germany whereas the percentage controlled by new large shareholders is higher in the UK (as a result of the more frequent occurrence of full takeovers). Firm size (book value of total assets) is positively related to the control held by small shareholders and by new large shareholders, which confirms the findings of this section. We find that, if the founder is on the management board (*Vorstand*) of a German firm, control by the initial shareholders is less likely to be reduced over the six years after the IPO. These initial shareholders retain a higher percentage of the voting rights than those in firms without founder involvement. As expected, a higher retention rate goes hand in hand with a reduced presence of new shareholders. Growth, in contrast, is strongly related to control concentration. High growth in total assets leads to a reduction in the stakes of the initial shareholders in the UK and even more so in Germany. Furthermore, a higher proportion of non-voting shares in Germany allows the initial shareholders to retain their control. In contrast to the findings presented in table 7, we find different results for our risk and profitability measures. We do not find a relation between the risk measured as the standard-deviation of cash flows over the 5-year period after the IPO and control. This may be due to the fact that our original risk measure (based on the volatility of stock returns) is the better one. Whereas the profitability measure (cash flow/book value of total assets) was not related to ownership concentration in table 7, the alternative profit rate (cash flow over market value of equity plus book value of debt) shows a statistically significant relation with control concentration. These results support the proposition by Burkart et al. (1997) that different states of the world require different control structures. In some states of the world (such as the one with low profitability), a major, stable shareholder is needed, while in other cases a dispersed share structure provides the necessary managerial discretion. High profitability in the UK ensures that the initial

shareholders retain control and consequently that the voting blocks held by new shareholders in the more profitable firms are smaller. For Germany, in contrast, we find the opposite result: initial shareholders seem to consider high profitability as an opportunity to transfer control stakes to new large shareholders. We conclude that the findings of table 7 discussed above are robust to alternative variable specifications.

[28] All the results in this section – apart from the conclusions concerning corporate growth – are also valid for the industry-matched sample. These results are not reported in the paper, but are available upon request. The only difference in results is that the Growth coefficient is not significantly different from 0 at the 10% level for the industry sample. This is probably due to the fact that firms matched by industry have more comparable growth rates than those matched by size.

[29] It should be noted that the state of control is based on ultimate control. The predictive power of these models with control based on direct shareholding was lower than the one based on direct and ultimate control. Statistical significance for the direct ownership models was always worse for the case of the size-matched sample, and worse or similar for the industry-matched sample.

[30] All results in this section – apart from the conclusions concerning corporate growth – are also valid for the industry-matched sample. These results are not reported in the paper, but are available upon request. The only difference in results is that the Growth coefficient is not significantly different from 0 at the 10% level for the industry sample. This is probably due to the fact that firms matched by industry have more comparable growth rates than those matched by size (see also Goergen 1999).

[31] This finding is confirmed by a study on hostile takeovers in the UK by Franks and Mayer (1996).

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Table 1: Comparison of regulatory issues.

	Germany	**UK**
Ownership disclosure - Minimum disclosure level - Minimum threshold of control to reveal strategic intent (takeover intentions)	 5% of voting rights (25% prior to 1995) None	 3% (5% prior to 1989) 15%
Dual class shares	Non-voting shares: common	No non-voting shares
Voting caps	Common at 5%-10%, but caps were abolished in 1998 with grand-father clause for existing voting caps in by-laws.	No
Control structure	Complex, multi-layered cascades of ownership levels.	Simple, one ownership tier
Takeover code - Minimum level of control for obligatory tender offer on all shares - Minimum price of tender	(since 1995) 75% Can be lower than market value	 30% Not lower than the highest share price during last 12 months
Using voting rights Casting votes Registration of votes	 Presence at AGM required in person or representative. Deposit of shares with notary, depository bank or company itself	 Allowed by mail, fax or internet. But, in practice, presence (in person or by representative) is required for show of hands. Proxy votes only matter in poll. Shares need to be registered
Degree of minority protection	Weak	Strong
Boards	Two-tier board with a large-shareholder dominated supervisory board	One-tier board with independent non-executive directors
Corporate aim of management	Pursuing stakeholder interest	Maximising shareholder value
Fiduciary duty of directors	Duty of care and duty of loyalty (Treuepflicht)	Wider and more developed than in Germany
New equity issues	Via rights	Via rights
Listing requirements	Similar to the UK	Similar to Germany
Inheritance tax	Higher than in the UK	Lower than in Germany

Table 2: Summary statistics of independent variables.

The table is based on a sample of German and UK IPOs matched by size (market capitalisation). The sample is unbalanced, i.e. if a firm leaves the listing before the sixth year after the flotation, then the shareholder for the last year of the listing is reported. The Z-test in panel B is a two-tailed test for the equality between two proportions following a binomial distribution. Age is the firms' age since creation. Size is in £ million and is the market capitalisation. Concentrated ownership is measured by a Herfindahl index of all pre-IPO stakes. Founder is a dummy variable set equal to 1 when the founder or his heirs still own a large equity stake in the firm at the flotation. Risk is the standard deviation of the monthly share price return over the five years following the IPO. CF1 is the annual cash flow defined as the published profit gross of depreciation, interest, taxes and changes in provisions divided by the sum of the book values of equity and debt. CF2 is annual cash flow divided by the market value of equity and the book value of debt. ***, **, * represent the level of statistical significance at, respectively, the 1%, 5% and 10% level. Source: IPO prospectuses, company reports, Datastream, Extel Financial and London Stock Exchange.

Panel A: Mean, median, proportion = 1, minimum, maximum and sample size

Germany

Variable	Age (years)	Size (£ m)	Herfindahl	Founder	Risk (%)	CF1 (%)	CF2 (%)
Mean	49.4	56.4	0.92	-	9.1	17.7	11.0
Median	48.0	28.4	1.00	-	9.0	17.1	11.3
Proportion =1	-	-	43	92.2	-	-	-
Min	0.0	5.3	0.22	-	4.8	-5.5	-6.2
Max	171.0	296.0	1.00	-	15.9	40.7	22.0
Sample size	55	55	53	51	54	48	48

UK

Variable	Age (years)	Size (£ m)	Herfindahl	Founder	Risk (%)	CF1 (%)	CF2 (%)
Mean	11.8	58.4	0.44	-	12.8	15.8	9.2
Median	6.0	28.2	0.39	-	13.1	14.8	9.6
Proportion =1	-	-	2.0	85.2	-	-	-
Min	0.0	5.3	0.03	-	4.8	-2.0	-4.0
Max	84.0	313.6	1.00	-	22.4	64.8	17.3
Sample size	55	55	50	54	54	46	43

Panel B: t-statistics for the difference in sample means

Age	Size	Herfindahl	Founder	Risk	CF1	CF2
6.826***	-0.147	9.826***	1.122	-5.797***	0.954	1.885*

Table 3: Proportion of voting rights held by initial shareholders, by new large shareholders and by small shareholder in recent German and UK IPOs.

The German IPOs are matched for size with the UK IPOs .If a company is taken over and delisted, it is classified as a case of 100% control by new shareholders as of the year of the takeover. If a company is taken private by its original shareholders, it will be recorded as a company owned 100% by its original shareholders. ***, **, * indicate that the average ownership stake in UK firms is statistically different from the stake in German firms at the respective 1%, 5% and 10% significance level of a t-test on the means. Sources: IPO prospectuses, Saling, company reports, Hoppenstedt, London Stock Exchange and Extel

	German sample				UK sample			
Time after IPO	**%Initial shareholders**	**% Free float**	**%New large shareholders**	**Sample Size**	**% Initial shareholders**	**% Free float**	**%New large shareholders**	**Sample Size**
Immediately	76.4	22.2	1.5	54	62.8***	37.2***	0.1*	54
1 year	73.7	24.0	2.4	54	51.4***	43.1***	5.5	54
2 years	69.6	25.0	5.4	54	47.3***	39.5**	13.3**	54
3 years	64.9	25.3	9.8	54	37.7***	36.0**	26.4***	52
4 years	59.4	25.0	15.5	54	33.6***	37.6**	28.8**	52
5 years	50.7	26.3	23.1	54	31.4***	36.5**	32.1	52
6 years	45.0	24.8	30.2	54	30.0***	40.8***	29.2	48

Table 4: State of control of IPOs six years after flotation.

For Panels A and B, the disclosed state, is the one six years after the IPO or the one of the last year of listing, if the firm was delisted before the sixth year after the flotation. A full takeover is a takeover of the entire voting rights of the firm, followed by the delisting of the firm. A partial takeover is a change of the major shareholder, the major shareholder being the largest shareholder holding at least 25% of the voting equity. A firm is widely-held, if no single shareholder owns more than 25% of the voting rights. A firm is still controlled by an initial shareholder, if the initial shareholder is the largest shareholder and holds more than 25% of the votes. In Panel C, a firm is classified as widely-held, if its ultimate largest shareholder is widely-held, i.e. is not controlled by a person or family holding more than 25% of the votes. A firm is classed as closely-held, if the ultimate largest shareholder, is a person or a family. Sources: McCarthy microfiches, Saling Aktienführer, Financial Times, company reports.

Panel A: Number of firms by state of control.

	Size sample		Industry sample	
	Germany	UK	Germany	UK
Full takeover	1	19	1	18
Partial takeover	18	5	20	4
Widely-held (<25%)	1	17	1	16
Still controlled by initial shareholders	34	13	36	20
Total	54	54	58	58

Panel B: Average number of years before reaching the new state of control.

	Size sample		Industry sample	
	Germany	UK	Germany	UK
Full takeover	6.0	3.7	6.0	3.5
Partial takeover	4.4	3.0	4.3	3.5
Widely-held (25% def.)	---	1.8	---	1.7

Panel C: Ultimate shareholder in targets of full and partial takeovers (size-matched sample).

	Targets full takeover		Targets Partial takeover		All full and partial takeovers	
	Germany	UK	Germany	UK	Germany	UK
Widely-held	1	14	8	-	9	14
Closely-held	-	5	10	5	10	9

Table 5: Voting rights in excess of 25%, 6 years after flotation

This table is based on a sample of German and UK IPOs matched by market capitalisation. The sample is unbalanced i.e. if a firm is delisted prior to its sixth year after going public, the largest shareholders in the last year prior to the delisting is reported.

	Germany	**UK**
A companies without a large shareholder	1.85%	33.33%
B companies with a large shareholder	98.15%	66.67%
1. Another domestic company	7.41%	29.63%
2. A foreign company	22.22%	5.56%
3. An insurance company	1.85%	0.00%
4. A trust/institutional investor	0.00%	3.70%
5. A family group	66.67%	27.78%
6. A bank	0.00%	0.00%
Total	100.00%	100.00%

Table 6: Determinants of the evolution of control concentration in recent German and UK IPOs (Tobit regressions).

This table shows the determinants of the concentration of ownership 6 years after flotation, for the size-matched sample of German and UK IPOs using Tobit regressions. The dependent variables Free float and New Shareholder are, respectively, the shares held by small shareholders and the proportion of shares held by new shareholders (large shareholders who did not hold shares prior to the IPO). A shareholder is defined as owning a shareholding of at least 25%. The dummy variable Country equals 1 for a German company and 0 otherwise. Size is the natural logarithm of the market capitalisation at the closing price on the first day of trading and converted into 1985 pounds sterling. Founder equals 1 if the founder or his heirs held an equity stake in the firm immediately prior to the IPO, and equals zero otherwise. Risk is measured by the standard deviation of monthly stock returns over a five-year period subsequent to the IPO. Growth is the average annual growth rate of total assets over the first five years after the flotation. Non-Voting is a dummy variable capturing the issue of non-voting shares at the time of going public (dummy equals 1). Profit is the annual cash flow standardised by book value of total assets. Age is the number of years since creation of the firm. From the variables age and risk, the average by country was subtracted in order to avoid multicollinearity. The p-values are shown between brackets. ***, **, * represent statistical significance at, respectively, the 1%, 5% and 10% level. Industry and time dummies are included. Std stands for standard deviation.

	1) Initial shareholders	(2) Free float	(3) New shareholder
	Parameter estimates	Parameter estimates	Parameter estimates
Constant	0.074 (0.839)	-0.058 (0.780)	1.016*** (0.006)
Country	0.230 (0.636)	0.837*** (0.004)	-0.887 (0.103)
Size	0.043 (0.542)	0.162*** (0.000)	-0.158** (0.024)
Size * Country	-0.111 (0.312)	-0.189*** (0.004)	0.240** (0.045)
$Age_{minuscountryavg}$	0.005 (0.175)	0.003 (0.125)	-0.007 (0.102)
$Age_{minuscountryavg}$ * Country	-0.008* (0.065)	-0.003 (0.180)	0.009** (0.045)
Founder	-0.189 (0.269)	-0.263*** (0.008)	0.279 (0.115)
Founder * Country	0.550* (0.055)	-0.230 (0.180)	-0.511* (0.098)
$Risk_{minuscountryavg}$	-1.281 (0.378)	-2.322*** (0.004)	2.387* (0.089)
$Risk_{minuscountryavg}$ * Country	3.334 (0.417)	10.950*** (0.000)	-6.752 (0.152)
Growth	-0.351 (0.112)	0.006 (0.958)	0.204 (0.315)
Growth * Country	-0.992** (0.048)	0.116 (0.696)	1.117** (0.042)
Non-voting	0.487*** (0.000)	-0.278*** (0.001)	-0.375** (0.013)
Profit rate	0.155 (0.820)	0.203 (0.574)	-0.618 (0.327)
Profit rate * Country	-0.258 (0.795)	0.426 (0.487)	0.504 (0.652)
Observations	84	84	84

Table 7: Prediction of state of control for German and UK IPOs (multinomial logit).

This table shows the probability of control for a size-matched sample of German and UK firms using a multinomial logit model with 4 possible states of control: SC captures whether control remains in the hands of the initial (pre-IPO) shareholders, WH captures whether the firm is widely-held (no shareholder owns a stake of more than 25%, TW captures whether the firm is taken over by a widely-held company, TC captures whether the firm is taken over by a concentrated shareholder. The dummy variable Country equals 1 for a German company and 0 otherwise. Size is the natural logarithm of the market capitalisation at the closing price on the first day of trading and converted into 1985 pounds sterling. Founder equals 1 if the founder or his heirs held an equity stake in the firm immediately prior to the IPO, and equals zero otherwise. Risk is measured by the standard deviation of monthly stock returns over a five-year period subsequent to the IPO. Growth is the average annual growth rate of total assets over the first five years after the flotation. Non-Voting is a dummy variable capturing the issue of non-voting shares at the time of going public (dummy equals 1). Profit is the annual cash flow standardised by book value of total assets. Age is the number of years since creation of the firm. From the variables age and risk, the average by country was subtracted in order to avoid multicollinearity. The p-values are between brackets. ***, **, * represent statistical significance at the 1%, 5% and 10% level, respectively. Industry and time dummies are included.

	Panel A			**Panel B**		**Panel C**
	Log (P_{WH}/P_{SC})	Log (P_{TC}/P_{SC})	Log (P_{TW}/P_{SC})	Log (P_{TC}/P_{WH})	Log (P_{TW}/P_{WH})	Log (P_{TW}/P_{TC})
Constant	2.126 (0.417)	-25.323 1.000)	-31.793 1.000)	-27.974 1.000)	-34.430 1.000)	-6.678 1.000)
Country	-34.405 1.000)	20.627 1.000)	30.522 1.000)	54.378 1.000)	64.399 1.000)	10.103 1.000)
Size	0.499 (0.328)	-1.753 (0.131)	0.314 (0.607)	-2.253* (0.062)	-0.185 (0.758)	2.067* (0.100)
Size * Country	0.014 1.000)	2.231 (0.221)	0.440 (0.672)	2.356 1.000)	0.565 1.000)	-1.791 (0.373)
$Age_{minuscountryavg}$	0.004 (0.879)	-0.052 (0.638)	-0.016 (0.577)	-0.056 (0.616)	-0.020 (0.464)	0.036 (0.746)
$Age_{minuscountryavg}$ * Country	0.017 1.000)	0.070 (0.539)	0.043 (0.196)	0.057 1.000)	0.030 1.000)	-0.028 (0.813)
Founder	-4.983** (0.036)	31.804 1.000)	26.097 1.000)	37.311 1.000)	31.730 1.000)	-5.498 1.000)
Founder * Country	1.883 1.000)	-35.509 1.000)	-27.047 1.000)	-38.187 1.000)	-29.851 1.000)	8.254 1.000)
$Risk_{minuscountryavg}$	-7.170 (0.658)	41.215* (0.059)	-1.068 (0.954)	48.385* (0.051)	6.102 (0.744)	-42.283* (0.100)
$Risk_{minuscountryavg}$ * Country	-11.056 1.000)	13.176 (0.833)	-60.541 (0.185)	20.285 1.000)	-53.431 1.000)	-73.717 (0.314)
Growth	5.031* (0.083)	0.919 (0.764)	7.671** (0.013)	-4.112 (0.190)	2.640 (0.215)	6.753** (0.039)
Growth * Country	0.222 1.000)	8.917 (0.169)	-7.080 (0.294)	9.945 1.000)	-6.051 1.000)	-15.996* (0.059)
Non-voting	-1.215 1.000)	-3.064 (0.230)	-1.546 (0.250)	-2.166 1.000)	-0.648 1.000)	1.518 (0.589)
Profit rate	9.040 (0.226)	-21.144* (0.096)	16.530* (0.053)	-30.184** (0.031)	-34.570 1.000)	37.674** (0.010)
Profit rate * Country	-0.110 1.000)	33.487** (0.041)	-25.544* (0.080)	35.207 1.000)	-23.823 1.000)	-59.030** (0.006)
Chi-squared (d.f., p-value)	111 (51, .000)			111 (51, .000)		111 (51, .000)
% of correct predictions	75.00			58.33		67.86
Observations	84			84		84

Appendix
Table 1: Pearson correlation coefficients of independent variables.

This table shows the Pearson correlation coefficients of the determinants of the concentration of ownership 6 years after flotation. The dummy variable Country equals 1 for a German company and 0 otherwise. Size is the natural logarithm of the market capitalisation at the closing price on the first day of trading and converted into 1985 pounds sterling. Founder equals 1 if the founder or his heirs held an equity stake in the firm immediately prior to the IPO, and equals zero otherwise. Risk is measured by the standard deviation of monthly stock returns over a five-year period subsequent to the IPO. Growth is the average annual growth rate of total assets over the first five years after the flotation. Non-Voting is a dummy variable capturing the issue of non-voting shares at the time of going public (dummy equals 1). Profit is the annual cash flow standardised by book value of total assets. Age is the number of years – at the IPO - since the creation of the company. $Risk_{minuscountryavg}$, $Growth_{minuscountryavg}$ and $Age_{minuscountryavg}$ are the respective risk, growth and age variables of which the country average is subtracted. Between brackets, the statistical significance is given.

	Country	**Size**	**Founder**	**Risk**	**Growth**	**Non-vot**	**Profit**	**Age**	**$Risk_{minuscountryavg}$**	**$Growth_{minuscountryavg}$**	**$Age_{minuscountryavg}$**
Country	1										
Size	0.026	1									
	(0.483)										
Founder	0.121	0.081	1								
	(0.133)	(0.139)									
Risk	-0.533	0.117	-0.016	1							
	(0.000)	(0.135)	(0.296)								
Growth	-0.154	-0.099	0.177	0.070	1						
	(0.080)	(0.286)	(0.053)	(0.244)							
Non-voting	0.541	0.152	0.094	-0.281	-0.009	1					
	(0.000)	(0.172)	(0.123))	(0.006)	(0.478)						
Profit	0.191	-0.069	0.099	-0.250	0.056	0.180	1				
	(0.291)	(0.367)	(0.277)	(0.008)	(0.154)	(0.194)					
Age	0.342	0.003	0.176	-0.015	0.035	0.000	0.098	1			
	(0.000)	(0.218)	(0.129)	(0.000)	(0.080)	(0.015)	(0.273)				
$Risk_{minuscountryavg}$	0.009	0.086	0.090	0.875	-0.043	-0.024	-0.380	-0.107	1		
	(0.461)	(0.189)	(0.183)	(0.000))	(0.337)	(0.403)	(0.000)	(0.136)			
$Growth_{minuscountryavg}$	0.000	-0.061	0.191	-0.005	0.989	0.081	0.124	-0.067	-0.051	1	
	(0.500)	(0.278)	(0.035)	(0.480)	(0.000)	(0.217)	(0.121)	(0.257)	(0.311)		
$Age_{minuscountryavg}$	0.000	0.094	0.062	-0.118	-0.079	-0.093	0.038	0.833	-0.134	-0.080	1
	(0.500)	(0.168)	(0.267)	(0.114)	(0.221)	(0.170)	(0.358)	(0.000)	(0.083)	(0.220)	

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