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GOOD INSTITUTIONS SUBSTITUTES?  
THE CASE OF NON-TRADED EQUITY**

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## **ABSTRACT**

### **Are Foreign Ownership and Good Institutions Substitutes? The Case of Non-Traded Equity**

High domestic shareholder concentration for publicly-traded firms is a common mechanism to mitigate minority shareholder expropriation in environments of poor investor protection. This offers an explanation of the home bias in share portfolios. An alternative mechanism, common in the case of non-traded firms, is to have a controlling foreign shareholder that may be subject to high international standards of investor protection. This Paper presents a model explaining a high foreign ownership share of non-traded equity in countries with poor investor protection. Empirical evidence supports the hypothesis that foreign ownership of non-traded equity is higher in countries with poor investor protection.

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## **Are Foreign Ownership and Good Institutions Substitutes? The Case of Non-Traded Equity**

High shareholding concentrations are common in countries with weak investor protection as a means to restrain the expropriation of minority shareholders by controlling shareholders (see La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)). In the case of exchange-listed firms, controlling shareholders are mostly domestic, as shown by Dahlquist, Pinkowitz, Stulz and Williamson (2003) for the case of Sweden. Poor investor protection thus offers an explanation for the persistent home bias in share portfolios.<sup>1</sup> To examine this, Dahlquist et al. (2003) construct a world float portfolio of exchange-listed shares available for portfolio investment - excluding controlling shareholdings-, and show that the float portfolio is a key determinant of the actual international portfolio weights of U.S. investors. Interestingly, indices of shareholder rights, judicial efficiency and corruption do not appear to affect actual portfolio weights beyond any impact on the float portfolio. Aggarwal, Klapper and Wyszocki (2003) provide more direct evidence that poor investor protection can in part explain the home bias, as they find that U.S. funds investing in emerging markets overweight markets characterized by strong shareholder rights, strong legal frameworks and good accounting standards.

While foreign controlling shareholdings are relatively uncommon in the case of exchange-listed firms, this is not the case with non-traded firms. Majority foreign ownership – rather than concentrated domestic ownership – appears to be a relatively common mechanism to mitigate the threat of shareholder expropriation in the case of non-traded firms. The evidence of this paper in fact suggests that foreign ownership of non-traded firms is *higher* in countries with relatively poor investor protection. Why would foreign investors have a predilection to own non-traded firms in countries with poor investor protection? First, foreign controlling investors in non-traded firms tend to be multinational firms that are subject to a range of home-country investor protection standards that apply to their worldwide operations. Thus multinational firms may have a comparative advantage in controlling firms in countries with poor investor protection. Second, multinational may prefer to invest in non-traded equities (by setting up greenfield investments or by negotiating joint ventures with relatively few domestic partners), as this allows multinationals to appropriate a substantial part, if not all, of the benefits from foreign control.<sup>2</sup>

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<sup>1</sup> See Lewis (1995) and (1999) for literature surveys on the home bias.

<sup>2</sup> Control by a foreign multinational could equally be beneficial for an exchange-traded firm, but it may be relatively expensive for a multinational firm to obtain control of such a firm. A selling controlling domestic

This paper has two purposes. This paper first presents a model of the financing and ownership of firms in a country with poor investor protection. A firm can remain in domestic hands, in which case domestic controlling shareholders need to raise capital from domestic minority shareholders to finance investment. Following LLSV (2002), domestic controlling shareholders can in part expropriate their minority shareholders at some cost, with the incentive to do this negatively related to the size of the controlling share block. To mitigate distortions created by expropriation efforts, controlling domestic shareholders economize on the capital they raise from minority shareholders. This reduces firm value for those firms under domestic control. Alternatively, a firm can transfer into foreign hands, which obviates the threat of minority shareholder expropriation and any underinvestment of capital. In the model, weak domestic investor protection can explain a relatively high equilibrium foreign ownership share.

The paper secondly presents empirical evidence on the relationship between foreign ownership and indices of investor protection and the rule of law for the case of non-traded equities. Our sample includes firm-level data for 20 European countries during the 1996-2000 period. Analogous to the home bias literature, we specifically examine how the share of foreign ownership of non-traded equities is related to indices of investor protection and the rule of law and a range of firm-level and macroeconomic determinants. This paper thus extends the earlier work by Kang and Stulz (1997) and Dahlquist and Robertsson (2001) on the foreign ownership of Japanese and Swedish traded equities, respectively, to non-traded equity and to an international setting.

Our main finding is that the foreign ownership share of non-traded equity is higher in countries with weak shareholder protection and rule of law. For the case of non-traded equity, foreign ownership thus appears to be able to substitute for good local investor protection. To check why foreign ownership is more prevalent in environments of poor investor protection, we investigate whether foreign ownership allows firms to maintain a relatively high capital/labor ratio (as measured by the ratio of assets to employment) in such environments. Such a relationship is to be expected – conform our model – if foreign owned firms effectively face a lower cost of capital given that they are able to refrain from materially expropriating their minority shareholders. In line with the model, we indeed find that foreign

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shareholder would need to be compensated for forgoing the option of expropriating minority shareholders, while selling portfolio investors know that by holding out they can also benefit from a change from domestic to foreign control.

owned firms reduce their capital/labor ratio less than domestic firms when operating in countries with weak investor protection.

While non-traded firms may need foreign ownership and control to be able to ‘import’ good investor protection from abroad, traded firms may be able to do so by choosing a listing at a foreign stock exchange. If so, a foreign listing should increase corporate valuations. Indeed, Doidge, Karolyi and Stulz (2001) find that foreign companies listed in the U.S. have a Tobin’s  $q$  that exceeds by 16.5 percent the  $q$  ratio of firms from the same country not listed in the U.S.. Controlling shareholders, however, may not benefit from a listing in, say, the U.S., if this reduces the effectiveness with which they can expropriate minority shareholders. Hence, exchanges with stringent disclosure and corporate governance standards may not actually be more attractive to prospective foreign listing firms after minority shares have already been issued, as the gains of a foreign listing would primarily accrue to existing minority shareholders. Perhaps this explains that Pagano, Randl, Roëll and Zechner (2001) find that firms are more likely to cross-list in countries with better investor protection and more efficient courts and bureaucracy, while conversely Saudaragan and Biddle (1992) find that stringent disclosure requirements deter the listing of foreign firms.

Section I presents the model of the impact of investor protection on the financing and ownership of firms. Section II describes our data. Section III presents the empirical results on the determinants of foreign ownership of non-traded equity, and it also provides evidence on the relationship between the capital/labor ratio and foreign ownership across different institutional environments. Section IV concludes.

## **I. The Model**

Several theoretical studies have modeled the expropriation of minority shareholders by controlling shareholders (see, e.g., Grossman and Hart (1988), Harris and Raviv (1988) and Burkart et al. 1997). Poor investor protection may lead to a high concentration of control (see, for instance, Zingales (1995) and LLSV (1999), and Bennedsen and Wolfenzon (2000)). Similarly, LLSV (2002) argue that a high concentration of cash-flow rights may be a means to reduce the threat of the expropriation of minority shareholders. To illustrate this, LLSV (2002) present a simple model of an entrepreneur that at a cost can partly expropriate minority shareholders. Expropriation is less severe, if the entrepreneur has retained a larger share of the cash-flow rights. In this section, we extend the model of LLSV (2002) in two ways. First, we endogenize the minority ownership share as determined by the entrepreneur’s need to raise investment capital. Second, the entrepreneur is provided with an opportunity to sell his entire

firm to a foreign investor that we take to be a multinational firm. The multinational has no opportunity to expropriate any minority shareholders as it is subject to its stringent, home-country standards of investor protection. Specifically, a multinational's home-country accounting standards, exchange listing requirements and some aspects of its law (e.g., anti-corruption provisions) may force the multinational to apply high investor protection standards worldwide.

Let there be a fixed range of domestic firms, indexed by  $\omega$ , originally owned by domestic entrepreneurs. Reflecting international differences in technology and business practices,  $\omega$  is the relative productivity of a firm when operated by a multinational firm rather than a domestic entrepreneur. The index  $\omega$  is taken to be distributed on the interval  $[\underline{\omega}, \bar{\omega}]$  with  $\underline{\omega} < 1 < \bar{\omega}$  and with distribution  $H(\omega)$  where  $H(\bar{\omega}) = 1$ . To be precise, an entrepreneur can operate a firm himself to produce output  $f(K, L)$  with inputs  $K$  of capital and  $L$  of labor. Alternatively, the entrepreneur can sell the firm to a multinational firm that then can produce output  $\omega f(K, L)$  with inputs of  $K$  and  $L$ . The production function  $f$  displays decreasing marginal returns with  $f_k > 0, f_l > 0, f_{kk} < 0, f_{ll} < 0, f_{kl} \geq 0$  and  $f_{kk}f_{ll} - (f_{kl})^2 > 0$ . In addition, we take the production function  $f$  to be homogeneous of a degree less than one (so that output rises less than proportionately with the two inputs).

The relative value of the firm than can be achieved under domestic and foreign ownership depends, first, on the technology index,  $\omega$ , and, second, on the different investor protection constraining domestic and foreign controlling shareholders, as examined below. A competitive international take-over market ensures that a domestic entrepreneur, if interested in selling his firm, can obtain a takeover price equal to the value of the firm in foreign hands. In equilibrium, foreign investors own those firms for which they can obtain a higher firm value or surplus than domestic entrepreneurs. Before examining the equilibrium range of foreign ownership, we consider the values of the firm that can be achieved by foreign and domestic (majority) ownership and control in turn.

A multinational that owns a domestic firm, say as a subsidiary, can raise capital by issuing shares - or through external or internal borrowing, for that matter - without any threat of subsequent investor expropriation. Let  $r$  be the gross rate of return demanded by outside shareholders and let  $w$  the wage. The multinational issues shares with a value  $K^*$  and hires labor  $L^*$  to maximize firm value  $V^*(\omega) = \omega f(K^*, L^*) - rK^* - wL^*$  where stars denote

multinational-firm variables. In standard fashion, capital and labor inputs are determined by the optimality conditions  $\omega f_k(K^*, L^*) = r$  and  $\omega f_l(K^*, L^*) = w$ .

Active domestic entrepreneurs need to turn to the local capital market to finance their capital inputs given that they are wealth-constrained. Without loss of generality, we assume that a domestic entrepreneur has to raise his entire capital input  $K$  from minority shareholders. Domestic firms are not assumed to be exchange-traded, although later we discuss the scenario where some domestic equities are traded. After accessing the capital market, the entrepreneur retains a share  $a$  of the cash-flow rights as well as full control. Following LLSV (2002), maintaining control enables the entrepreneur to siphon off a share  $s$  of the firm's ex post profits, given by  $f(K, L) - wL$ , at the expense of minority shareholders. Such expropriation entails a cost  $c(q, s)$  - expressed as a proportion of profits - where  $q$  is an index of shareholder protection. The cost function  $c(q, s)$  obeys  $c_s > 0$ ,  $c_q > 0$ ,  $c_{ss} > 0$ ,  $c_{qs} > 0$ , which means that the absolute expropriation cost share as well as marginal expropriation costs increase in the expropriation rate  $s$  and the degree of investor protection  $q$ . As in LLSV (2002), the entrepreneur obtains an effective share  $a(1 - s) + s - c(q, s)$  of profits, after incurring the expropriation cost  $c$  and paying off minority shareholders. The entrepreneur chooses the expropriation rate  $s$  to maximize  $a(1 - s) + s - c(q, s)$ , which yields the optimality condition  $c_s(q, s) = 1 - a$ . From this, we can derive that the optimal expropriation function  $s(q, a)$  is

characterized by  $\frac{ds}{dq} = -\frac{c_{qs}}{c_{ss}} < 0$  and  $\frac{ds}{da} = -\frac{1}{c_{ss}} < 0$  (see also LLSV (2002)).

The sum paid by minority shareholders to the entrepreneur to obtain a minority ownership share fully reflects any subsequent partial expropriation by the entrepreneur. In fact, the threat of expropriation generally requires the entrepreneur to tender additional shares to raise a certain capital  $K$ . This is reflected in the financing constraint given by  $(1 - a)(1 - s)[f(K, L) - wL] - rK \geq 0$  which requires that profits actually paid out as dividends to minority shareholders are sufficient to guarantee these shareholders a gross rate of return  $r$  on their initial investment  $K$ . A domestic entrepreneur jointly chooses the physical inputs  $K$  and  $L$  and his retention ownership share  $a$  to maximize firm value  $V$  subject to the financing constraint as follows

$$V = [a(1 - s) + s - c][f(K, L) - wL] + \lambda[(1 - a)(1 - s)[f(K, L) - wL] - rK] \quad (1)$$



where  $\lambda$  is a Lagrange multiplier. In the remainder, we focus on the case where expropriation costs are low enough for some expropriation to actually take place. The entrepreneur's optimality conditions with respect to  $K$ ,  $L$ , and  $a$  are then given by

$$[a(1-s) + s - c]f_k + \lambda[(1-a)(1-s)f_k - r] = 0 \quad (2)$$

$$f_l - w = 0 \quad (3)$$

$$1 - s - \lambda[1 - s + (1-a)\frac{ds}{da}] = 0 \quad (4)$$

In (4), the expropriation rate  $s$  is seen to be affected by the share  $a$  of cash-flow rights retained by the entrepreneur. To interpret (2), we can rewrite it as follows

$$\left[1 - c - \left[1 - \frac{1}{\lambda}\right][a(1-s) + s - c]\right]f_k - r = 0 \quad (2')$$

where  $\lambda = \frac{1-s}{1-s+(1-a)\frac{ds}{da}} > 0$  from (4).

Eq. (2') shows that poor domestic investor protection causes the marginal product of capital  $f_k$  to exceed the gross interest rate  $r$  for two reasons. First, a higher capital investment,  $K$ , engenders higher expropriation costs, given that these expropriation costs are a proportion  $c$  of ex post profits. Second, additional investment requires the entrepreneur to issue more shares, which pushes up the expropriation rate  $s$  as well as the associated cost share  $c$  (this is reflected by the fact that  $\lambda > 1$  in (2')).

To complete the description of the model, we consider the domestic entrepreneur's choice between operating a firm himself and selling it to a multinational firm.

Straightforwardly, a firm is sold to a multinational firm, if a foreign investor can achieve a larger firm value than the entrepreneur himself, i.e. if  $V(\omega) > V$ . Thus, foreign ownership

results if  $\omega > \hat{\omega}$  where  $V(\hat{\omega}) = V$ . The equilibrium foreign ownership share is then given by  $\sigma(\hat{\omega}) = 1 - H(\hat{\omega})$ .

The relatively poor domestic investor protection has implications for investment,  $K$ , of a domestically controlled firm and for the capital/labor ratio,  $K/L$ , of such a firm. At the same time, it affects the ownership of the productive sector as summarized by the entrepreneur's

retained ownership share,  $a$ , for firms that remain under domestic control, and the foreign ownership share,  $\sigma$ , of firms under foreign control. These implications are summarized as follows

*Proposition 1:* Compared to the case of perfect domestic investor protection, poor domestic investor protection results in

1. a lower investment,  $K$ , by domestic firms,
2. a lower or higher entrepreneur's retained ownership share  $a$ ,
3. a higher foreign ownership share  $\hat{\sigma}(\omega)$ ,
4. a lower capital/ labor ratio of domestic firms  $\frac{K}{L}$ .

For a proof, see Appendix I. Part 1 of the proposition indicates that poor investor protection reduces the issue value of minority shareholdings,  $K$ , as domestic firms economize on their capital investment. These lower issuing proceeds, as indicated by Part 2, result from selling more or fewer shares to minority shareholders. The entrepreneur specifically may actually need to issue more shares to raise less capital, as minority shareholders are cognizant of any subsequent expropriation by the entrepreneur. Part 3 further indicates that poor investor protection increases the foreign ownership share of the domestic productive sector. In the interpretation of the model where all firms are non-traded, poor investor protection more precisely increases the proportion of non-traded firms with sufficient foreign ownership to imply foreign control. Note that such foreign control may not require 100 percent foreign ownership at the firm level. Part 4, finally, indicates that the input choice of domestically owned firms is distorted towards a lower capital/labor ratio.

Part 3 of the proposition is about the foreign ownership share of non-traded equity if we take all firms to be non-traded. Alternatively, the model can straightforwardly be changed to allow for the co-existence of traded and non-traded equities by assuming that there are some domestically controlled firms with and without an exchange listing for any value of the index  $\omega$ . In this scenario, the overall share of foreign-owned firms could be determined in the same way as before. In particular, multinational firms are assumed to own and operate all firms (in the form of non-traded equity) where foreign ownership yields a higher value than domestic ownership (regardless of whether domestic ownership goes with a domestic exchange listing or not). For a domestically controlled and traded firm, the variable  $K$  in this instance is the value of the firm's float portfolio available for domestic and foreign portfolio

investments. Actual foreign portfolio investment in domestically controlled traded firms can then be taken to be a proportion of this float portfolio. In this interpretation, foreign portfolio and FDI can easily be seen to be substitutes. This is because the relatively poor domestic investor protection gives rise to larger FDI and a smaller domestic float portfolio (on account of both the lower float  $K$  per exchange-traded firm and the lower number of exchange-traded firms).<sup>3</sup>

In the empirical work to follow, we examine the predictions of the model that poor investor protection increases the foreign ownership of non-traded firms and leads to a lower capital intensity in the production of domestically owned firms (see Parts 3 and 4 of Proposition 1).<sup>4</sup> To conclude this section, we examine the implications of a change in the level of investor protection,  $q$ , on the variables of main interest, i.e. the foreign ownership share,  $\hat{\sigma}(\omega)$ , and the capital labor ratio of domestically owned firms,  $K/L$ . To start with foreign ownership, improved investor protection has two distinct and opposite effects on the value of firms as operated by domestic entrepreneurs. First, better investor protection reduces domestic firm value directly, as better investor protection increases the expropriation cost share  $c$ . Secondly, better investor protection increases domestic firm value indirectly, as it induces the domestic entrepreneur to reduce the expropriation rate  $s$  for a given retained ownership share  $a$ . Using (1), we see that the net impact of a change in investor protection on domestic firm value can be represented as

$$\frac{dV}{dq} = -[c_q + \lambda(1-a)\frac{ds}{dq}][f(K, L) - wL] \quad (5)$$

which can be seen to imply

*Proposition 2:* For  $c_{qs} / c_q > c_{ss} / (1-a) - 1 / (1-s)$ , better investor protection reduces the foreign ownership share,  $\sigma$ , and vice versa.

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<sup>3</sup> In relative terms, the model can equally explain that poor investment protection gives rise to a higher proportion of non-traded firms that is foreign owned, and a lower proportion of foreign ownership of traded shares. For this to occur, the entrepreneur's retained ownership share  $a$  needs to be higher on account of the poor investor protection.

<sup>4</sup> The optimal capital intensity that would be attained by domestically owned firms under perfect investor protection is in fact achieved by foreign owned firms.

For a proof, see Appendix I. A higher value of  $c_q$  by itself works towards making domestic ownership less desirable following better investor protection as already evident from (5), as this means a greater dependence of the expropriation cost share  $c$  on  $q$ . A higher value of  $c_{qs}$  and a lower value of  $c_{ss}$  by themselves instead imply that domestic ownership remains relatively attractive, as this means that the sensitivity of the expropriation rate  $s$  to a change in shareholder protection,  $q$ , is greater.

Along similar lines, better investor protection can be shown to have a generally ambiguous impact on the  $K/L$  ratio of domestic firms. To see whether a domestic firm wishes to hire additional capital following better investor protection, we can check whether better investor protection increases the marginal contribution of investment  $K$  to the value  $V$  of the firm under domestic control (starting from the original value of  $K$  and hence of the effective, ex-expropriation minority ownership share  $(1-a)(1-s)$ ). Formally, using (2) we can see that

$$\frac{d^2V}{dKdq} = -c_q f_k + \frac{d\lambda}{dq} [(1-a)(1-s)f_k - r] > 0 \quad (6)$$

The sign of expression (6) again depends on the exact specification of the cost share  $c$  as is made clear by

*Proposition 3:* The condition for improved investor protection to lead to an increase in the  $K/L$  ratio of domestically controlled firms is more easily satisfied the smaller are  $c_q$  and  $c_{ss}$  and the larger is  $c_{qs}$  for third derivatives  $c_{sss}$  and  $c_{qss}$  of the cost function  $c$  equal to zero.

For a proof, see Appendix I. For third derivatives  $c_{sss}$  and  $c_{qss}$  equal to zero, a higher value of  $c_q$  per se makes higher values of  $K$  and also  $K/L$  less likely as evident from (6), as this increases the direct dependence of the expropriation cost share  $c$  on  $q$ . Conversely, a higher value of  $c_{qs}$  and a lower value  $c_{ss}$  make higher values of  $K$  and of  $K/L$  more likely, as this increases the sensitivity of the expropriation rate  $s$  to a change in shareholder protection,  $q$ .

## **II. The Data**

### **A. Foreign Ownership**

The firm-level data used in this study are taken from the Amadeus database compiled by Van Dijk. This data source provides regular accounting data on European firms and information on main shareholders, including their nationality. Ownership data reflect voting rights rather than cash rights, which is appropriate as this paper is about the potential benefits of foreign control in an environment of poor investor protection. Most firms with complete ownership data are non-traded, and these are the firms we focus on (see Appendix II for information on sample construction, data sources and variable definitions). Using firm-level data, we can construct the national, asset-weighted foreign-ownership shares for 2000, as reported in Table I. The table also provides the national foreign-ownership share averaged for the period 1996-2000. It is seen that the average foreign ownership figure for Eastern Europe over the 1996-2000 period is much lower than the 2000 figure. This suggests there has been an upward trend in foreign ownership in Eastern Europe over the 1996-2000 period, as is confirmed by Figure 1. The figure also reveals a slight reduction in the foreign ownership of non-traded equity in Western Europe over this period.

Foreign ownership can only imply the ‘importation’ of better international investor protection, if the foreign owners are in control of the company. This suggests that foreign owners will opt for a considerable ownership shares if they decide to invest in a non-traded company at all. This is confirmed by the sample frequency distribution of firm-level foreign ownership shares, as seen in Figure 2. Most firms with any foreign ownership are in fact fully foreign-owned and thus under foreign control. About 20.5 and 15.9 percent of non-traded firms in Western and Eastern Europe, respectively, are fully foreign owned. In contrast, 74.4 and 71.1 percent of non-traded firms in Western and Eastern Europe are fully domestically owned. Among firms with partial foreign ownership, many not surprisingly have a foreign ownership share in the 50-52.5 percent bracket. Effective foreign control, however, may be possible with a foreign ownership share of less than 50 percent.<sup>5</sup>

It is interesting to see how foreign ownership shares for non-traded firms differ from the more frequently discussed foreign ownership shares of exchange-traded firms. To construct foreign ownership shares for traded equities, we divide figures on absolute foreign

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<sup>5</sup> As a reflection of this, the U.S., for instance, counts foreign investments with an ownership share from a threshold of 10 percent as FDI rather than portfolio investment.

ownership of traded equities – available from the Coordinated Portfolio Investment Survey of the IMF - by the capitalization of the country's stock market. Foreign ownership shares for both non-traded and traded equity for 1997 are provided in Table II. The non-traded and traded foreign ownership shares are shown to differ substantially for several individual countries, even if they are very similar for Europe as a whole at 25.6 and 24.3 percent, respectively. The correlation coefficient between the two national foreign ownership shares can be computed to be negative at -0.11, although not significantly different from zero at 5 percent.

### ***B. Institutional Indices***

We use several indices of investor protection and more broadly the rule of law. The variables IMPROPER (increasing in the propriety of public administration) and INSIDERT (increasing in the scarcity of insider trading) are taken from the World Competitiveness Report; these variables are recorded yearly. A further five variables, ANTIDR (anti-director rights), ACCSTAN (accounting standards), EFFJS (efficiency of the judicial system), ROL (rule of law), and CORRUPT (corruption) are from LLSV (1998) without time-varying values. Figure 3 provides simple scatter diagrams plotting each of the institutional indices against country-level foreign ownership, with all data averaged over the 1996-2000 period. The separate panels of the figure reflect that the IMPROPER and INSIDERT variables are available for both Western and Eastern European countries, while the institutional indices taken from LLSV (1998) are available only for Western Europe. All of the scatter diagrams display an apparently negative relationship between the institutional indices and foreign ownership. Note that in the IMPROPER and INSERT panels Luxembourg is a clear outlier with a relatively high foreign ownership share. Taking the IMPROPER figure as an example, we see that several Eastern European countries (the Check Republic, Hungary, Poland and Slovenia) and several Western European countries (Belgium, Greece, Italy and Portugal) combine a low score for IMPROPER with high foreign ownership, while the Nordic countries (Denmark, Finland, Norway and Sweden) and Switzerland display a high IMPROPER score and low foreign ownership.

### ***C. Other Variables***

The subsequent empirical analysis of foreign ownership includes two firm-level variables: Assets as an index of firm size and Solvency, defined as shareholders' equity as a percent of assets. In this we follow Kang and Stulz (1997) who find that foreign holdings of

Japanese exchange-traded shares are biased towards large firms and firms with low leverage (and also towards firms with low unsystematic risk and firms in manufacturing industries). Dahlquist and Robertsson (2001) similarly investigate the foreign ownership of publicly traded Swedish shares to find that foreigners prefer to invest in large firms, firms paying low dividends, and firms with large cash positions on their balance sheets.

Our analysis includes several macroeconomic variables as well. GDP should be negatively related to foreign ownership, as larger countries are expected to hold a larger share of their own assets if international investments serve to diversify portfolio risk. We also include GDP per capita, even if it is not clear a priori how this variable is expected to affect foreign ownership levels. Consumers in wealthy countries have a taste for differentiated products as supplied by firms from many countries, which can explain high inward FDI in rich countries. Conversely, rich countries own the tangible and intangible capital necessary to undertake FDI, which serves to explain FDI from rich to poor countries. Next, economic Openness, defined as exports plus imports divided by GDP, can be expected to be positively related to foreign ownership if foreign asset ownership is a complement to trade, while a negative relationship results if foreign ownership and international trade are substitutes. To test whether international investment in non-traded equity is a substitute for well developed stock markets, we also include two variables that capture aspects of stock market development: TURN is the stock exchange turnover as a percent of stock market capitalization and SMCAP is the stock market capitalization as a percent of GDP. Next, withholding taxes on dividends accruing to foreign residents a priori are expected to have a negative impact on foreign ownership. Our withholding tax variable, WT, is the minimum of withholding taxes on dividends accruing to American, British, German and Japanese residents (if foreign). Finally, we include three variables that measure the accessibility to foreign investors of the local markets for capital and for control. First, FCONTROL measures the perceived extent to which foreign investors are free to acquire control in a domestic company. Second, LCMARKET reflects whether local capital markets are equally accessible to foreign companies. Finally, CBVENT indicates whether cross-border ventures can be negotiated freely with foreign partners without government restraint.

#### ***D. Summary Statistics***

Summary statistics for all our variables, in yearly averaged form, are provided in Table III, with the Assets, GDP and GDP per capita variables in logs. The values of the qualitative variables reflect their respective scaling. Simple correlations among the foreign

ownership variable and other variables are reported in Table IV with statistically significant correlations printed in bold face. The foreign ownership variable is shown to display a negative and statistically significant correlation with all the indices of institutional quality. These institutional indices are also all positively correlated with each other, not least because they in some instances measure overlapping phenomena (for instance, in the case of the IMPROPER and CORRUPT variables). Further, the institutional indices are all positively correlated with GDP per capita, as richer countries tend to have better institutional environments. The table, finally, indicates that the three market access variables (FCONTROL, LCMARKET and CBVENT) are positively correlated with each other.

### **III. Empirical Results**

#### **A. *Determinants of Foreign Ownership***

The empirical work aims to examine the role of indicators of investor protection and the rule of law as determinants of foreign ownership of non-traded equities. Table V contains the set of benchmark regressions that differ in the representation of the data and in the institutional and other explanatory variables that are included. The first three regressions in the table include the FCONTROL variable from the group of variables related to the ease of foreign access to local ownership and control and the IMPROPER variable from the group of institutional variables related to investor protection and the rule of law. The first three regressions in the table differ in the way the data are represented. Regression 1, based on averaged data per year and country, shows a negative and significant coefficient for the IMPROPER variable, suggesting that less corruption engenders lower foreign ownership. Regression 2 instead applies weighted least squares to individual-firm data, with the weight being the inverse of the number of firms per country and per year, with a similarly negative and significant coefficient for the IMPROPER variable.

Regression 3 applies weighted least squares to averaged firm-level data, with the weight being the inverse of the number of firms in a country. This is our preferred specification as by construction it rules out any serial correlation among firm-level variables. In regression 3, we see that foreign ownership is positively related to asset size and solvency in line with the findings of Kang and Stulz (1997) and Dahlquist and Robertsson (2001) for traded equities. Further, GDP and GDP per capita enter negatively and positively, respectively, suggesting that the foreign ownership share of non-traded equity is larger in smaller and richer countries. In regression 3, the stock market capitalization variable,



SMCAP, further enters positively, suggesting a complementarity between foreign ownership and stock market development, while the withholding tax variable, WT, also enters positively.<sup>6</sup>

Next, the table contains two regressions in columns 4 and 5 where FCONTROL in regression 3 is replaced by LCMARKET and CBVENT. Neither of these alternative access variables is significant, while the IMPROPER variable remains negative and significant. Next, the table represents 6 regressions in columns 6 through 11 where alternative institutional variables (i.e., INSIDERT, ANTIDR, ACCSTAN, EFFJS, ROL and CORRUPT) replace the IMPROPER variable in regression 3. All of these alternative institutional and legal variables enter the regressions with negative coefficients that are significant in all but the ACCSTAN specification. This is strong evidence supporting the hypothesis that foreign ownership and good investor protection are substitutes in the case of non-traded equities. Note that some of the signs of the coefficients for the control variables are not robust to the inclusion of different institutional indices. In particular, unlike regression 3 the SMCAP variable displays negative and significant coefficients in four of these additional 6 regressions, while the WT obtains a negative and significant coefficient in the EFFJS regression.

### ***B. Sectoral Effects of Institutional Indices on Foreign Ownership***

The value of foreign ownership as a mechanism to ‘import’ good investor protection may differ across economic sectors. Generally, sectors in need of large external finance, say, on account of substantial growth opportunities, are expected to suffer relatively much from poor domestic investor protection and, conversely, they stand to benefit much from foreign ownership. It may also be that some sectors are particularly vulnerable to the expropriation of minority shareholders due to, say, the complexity of their business or the nature of their assets. To check whether there is some sectoral variation in the impact of the institutional environment on foreign ownership, we performed a set of regressions like regressions 3 and 6-11 of Table V with the difference that the institutional index is replaced by a set of interaction terms of the institutional index and 11 sectoral dummy variables. The results are reported in Table VI.

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<sup>6</sup> The positive sign of the WT variable cannot mean that foreign owners are attracted by higher withholding taxes per se. They could be attracted by the additional education or productive services financed by higher taxes. Alternatively, higher taxes in a particular country may be borne disproportionately by domestic firms, as multinationals are able to receive an off-setting foreign tax credit from their home tax authorities. In this scenario, foreign-owned firms have a comparative advantage in operating in high-tax countries to give rise to a positive relationship between tax burden and foreign ownership.

We first see that there is no evidence that poor investor protection induces more foreign ownership in the agriculture, fishing and mining sectors. In fact, the ACCSTAN variable is positive and significant for the agriculture and mining sectors. The absence of a negative sign in these cases may reflect that these sectors make relatively little use of equity finance by minority shareholders either on account of low growth opportunities or of considerable public equity ownership. For all other sectors, there are negative and significant interaction terms for at least one of the 7 institutional indices. The largest sector is the manufacturing sector and all interaction terms with the various institutional indices apart from ACCSTAN are negative and significant for this sector.

### ***C. Comparison to Related Work***

In the theoretical model of section II, the total number of firms and the investment per firm under foreign ownership are fixed. In this setting, the rate of foreign ownership and the total value of FDI (i.e., the value of foreign-owned firms) are straightforwardly related. More generally, the quality of domestic investor protection and rule of law could have some impact on the investment per foreign-owned firm and on the overall set of undertaken projects, domestically and foreign owned, in the economy. In this scenario, the total volume of FDI could increase with better investor protection, even if the share of foreign ownership were to fall. In this paper, we limit ourselves to considering the impact of institutions on the share of foreign ownership.

One reason for this is that data on the value of the stock of FDI are frequently of poor quality. Good data on the flow of (inward) FDI are more readily available, but actual FDI flows may only be loosely related to the level of - or changes in – the underlying equilibrium FDI stocks, as affected by economic and legal institutions. All the same, several authors have related FDI flow data to institutional data. Wei (2000), for instance, finds a negative correlation between FDI inflows and the level of corruption, while Claessens, Klingebiel and Schmukler (2001) find that FDI inflows are positively related to stock market capitalization and value traded as indices of financial market development. The latter result only indirectly suggests the possibility of complementarity between foreign portfolio and direct investment in traded and non-traded stocks given that the used FDI and stock market capitalization data are in flow and stock form, respectively. Relying on flow variables entirely, Hausmann and Fernández-Arias (2000) relate the share of FDI in capital inflows to indicators of institutional quality that turn out to be statistically insignificant once controls are included in the estimation. These authors also present the result of a regression of FDI as a share of GDP on

several institutional variables that suggest somewhat inconclusively that inward FDI is positively related to a regulatory burden variable, but negatively to government effectiveness and shareholder protection variables.

#### ***D. Capital Intensity and Foreign Ownership***

Foreign-owned firms may be able to abstain from costly expropriation of minority shareholders, which provides foreign-owned firms with a lower marginal cost of capital guiding investment decisions as seen in section II. An important corollary is that foreign-owned firms are expected to operate with a higher capital/labor ratio than domestic firms in countries with poor investor protection (see Proposition 1.4). Next, we consider whether there is evidence supporting this theoretical prediction. For this purpose, we measure a firm's capital/labor ratio as (the log of) the ratio of total assets to employment. Table VII first provides some statistics on the average capital/labor ratio per country for (i) all firms, (ii) foreign-owned firms (with foreign ownership of 50 percent or more), and (iii) domestically owned firms (with less than 50 percent foreign ownership). For Europe as a whole, foreign-owned firms are shown to have a higher capital/labor ratio than domestically owned firms. Especially in Eastern Europe, foreign-owned firms are shown to use relatively capital-intensive production techniques. On the other hand, for the four Nordic countries the average capital/labor ratio of foreign-owned firms at 5.2 is actually slightly less than for domestically owned firms at 5.3. This is at least suggestive that foreign-owned firms use relatively capital-intensive production techniques primarily in countries with poor investor protection.

To test this, we relate the firm-level capital/labor ratio to the foreign ownership share and to an interaction term of the domestic ownership share (equaling one minus the foreign ownership share) and a particular index of institutional quality. Table VIII reports six regressions along these lines, each with an interaction term based on a different institutional variable. The regressions all include country and industry fixed effects. In all six cases, the foreign ownership variable and the interaction term obtain positive and significant coefficients. The positive coefficient on the interaction variables suggests that reducing institutional quality leads to a reduction of the capital/labor ratio that is more severe for firms with a relatively high domestic ownership share.<sup>7</sup> Next, the positive coefficients on the

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<sup>7</sup> Note that the reduction in the capital/labor ratio following a worsening in institutional quality would not be exactly proportional to the domestic ownership share as the interaction term by itself suggests. A change in institutional quality could also have an impact on the capital/labor ratio that is independent of the foreign ownership share. This independent part is not estimated as the institutional index does not enter the regression by itself given the inclusion of country fixed effects.

foreign ownership and interaction variables together suggest that increasing foreign ownership increases the capital/labor ratio in countries with a low value for the institutional variable and actually reduces the capital/labor ratio in countries with an institutional variable beyond a certain value. Taking the INSIDERT equation, for instance, we see that increasing foreign ownership would lead to a lower capital/labor ratio in countries with a value of INSIDERT beyond 6.5 (these are Denmark, Finland, Germany, Netherlands, Luxembourg and Sweden).<sup>8</sup> Hence, the regression is consistent with the raw data that indicate lower capital/labor ratios of foreign-owned firms in Finland and Sweden. This evidence suggests that foreign-owned firms actually have a higher cost of capital in countries with high-level investor protection. Under conditions of perfect investor protection, foreign-owned firms can indeed be expected to face a relatively high cost of capital on account of informational barriers. Foreign firms that attempt to raise capital locally may face an information disadvantage, as they themselves are foreign. Foreign firms could of course raise capital in their home capital market, but this introduces the problem that for the capital providers it is difficult to assess the viability of a (for them) foreign project.

#### **IV. Conclusions**

For firms with an exchange listing, poor shareholder protection frequently is countered by a higher concentration of shares among a few shareholders that in practice are often domestic. Large concentrations of shares in domestic hands reduce the volume of shares that is available to foreign investors as portfolio investments. Poor investment protection, as suggested by previous research, thus can be an explanation of the home bias in investment portfolios. In the case of non-traded shares, a large concentration of shares equally has the benefit that the incentive to expropriate minority shareholders is reduced. A large concentration in the hands of a foreign firm additionally reduces the scope for expropriating minority shareholders, if the foreign firm is subject to high-level investor protection and legal standards in its home country. Foreign ownership of non-traded shares in the form of FDI thus may be an attractive mechanism to avoid shareholder expropriation. This paper has presented a theoretical model of a domestic entrepreneur's choice between owning a firm himself – in an environment of poor investor protection – or selling the firm wholly to a foreign investor. The model yields the predictions that the share of foreign ownership - through FDI - is higher

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<sup>8</sup> Similarly, the estimates of Table 8 suggest that increasing foreign ownership reduces capital insensitivity if IMPROPER is beyond 6.5, if ANTIDR is beyond 2.8, if ACCSTAN is beyond 68, if EFFJS is beyond 9.0, if ROL is beyond 9.5, and if CORRUP is beyond 9.0.

in countries with poor investor protection, and that domestic firms respond to poor investor protection by underinvestment leading to a lower capital/labor ratio of domestically owned firms relative to foreign-owned firms.

Analogous to the home bias literature, we test the first hypothesis by examining empirically whether the foreign ownership share of non-traded equity is higher in countries with poor investor protection. To test the second hypothesis, we examine whether poor investor protection leads to a larger reduction in the capital/labor ratio of firms with a relatively low foreign ownership share. This paper provides support for both of these hypotheses. Together these results are strong evidence that foreign ownership and control in fact enable firms to ‘import’ good investor protection into environments of poor investor protection. These results suggest that countries that improve their domestic investor protection can look forward to a drop in the foreign ownership of non-traded equities. Policy makers, to the extent that they see a high foreign ownership rate as undesirable, should indeed focus on improving local investor protection – rather than on reducing foreign ownership by maintaining or strengthening explicit or implicit barriers to foreign ownership and control.

A higher FDI share in countries with poor investor protection can come about in one of two ways: from higher upstart investments by foreigners or through international mergers and acquisitions with a dominant foreign partner. In future research, it may be interesting to examine to what extent international merger and acquisition activity is driven by international differences in standards of investor protection. If firm value is higher in countries with high standards of investor protection, one would expect the firm resulting from an international merger or acquisition to be domiciled in the country with the better investor protection.

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**APPENDIX I**  
**Proof of Propositions**

Proof of Proposition 1.

1. Eq. (2') implies that for domestically owned firms  $f_k = r^e > r$

with  $r^e = r / \left[ 1 - c - \left[ 1 - \frac{1}{\lambda} \right] [a(1-s) + s - c] \right]$ . This means that domestic firms operate

with relatively little capital as  $\frac{dK}{dr} = \frac{f_{ll}}{f_{kk}f_{ll} - f_{kl}^2} < 0$ .

2. First, we show that poor domestic investor protection can cause  $a$  can to be more than its value with perfect investor protection given by  $a'$  (where a ' denotes values under perfect investor protection). To see this, consider the case where the optimal expropriation rate  $s$  is just zero, i.e.  $c_s(q,0) = 1 - a$  while conditions (2)-(4) and the financing constraint hold. From part 1, we see that  $K < K'$ . Note that  $f(K, L) - wL$  is

concave w.r.t.  $K$ , as  $\frac{d[f(K, L) - wl]}{dK} = f_k > 0$  and

$$\frac{d^2[f(K, L) - wl]}{dK^2} = \frac{f_{kk}f_{ll} - f_{kl}^2}{f_{ll}} < 0 \text{ with } f_l = w. \text{ Then}$$

$(1-a)(1-s)[f(K, L) - wL] - rK = 0$  implies  $(1-a)(1-s) < (1-a')(1-s')$  (with  $s = s' = 0$ )

so that  $a > a'$ . Conversely, to see that  $a$  can be less than  $a'$  consider the case where a change in  $q$  does not lead to an adjustment of  $K$  or  $(1-a)(1-s)$ . This is the case where

$$\frac{d^2V}{dKdq} = 0 \text{ (an expression for } \frac{d^2V}{dKdq} \text{ is given below as part of the proof of Proposition$$

- 3). This implies  $\frac{da}{dq} = \lambda \frac{1-a}{1-s} \frac{c_{qs}}{c_{ss}} > 0$  (as also seen below). For low values of  $q$ , we

thus can have  $a < a'$ .

3. Poor investor protection with its associated expropriation costs reduces the value  $V$  of a domestically owned firm below its value  $V'$  under perfect investor protection. The equality of  $V = V^*(\hat{\omega})$  then yields a demarcation value of  $\hat{\omega}$  dividing the domestically and foreign owned sectors of less than one. This implies that the foreign ownership share  $\hat{\sigma}(\hat{\omega})$  is more than  $\sigma'$  as equal to  $\sigma(1)$ . Thus  $\hat{\sigma}(\hat{\omega}) > \sigma(1)$ .



4. For domestically owned firms, we have  $f_k = r^e > r$  and  $f_l = w$ , while for foreign firms we have  $\omega f_k = r$  and  $\omega f_l = w$ . The assumption of homogeneity of a degree  $\beta$  (less than one) of the production function  $f$  implies that  $f(K, L) = \beta L f(k, 1)$  with  $k$  equal to  $K/L$ . This means that  $f_k(K, L) = \beta f_k(k, 1)$ . Similarly,  $f_l(K, L) = \beta f_l(1, 1/k)$ . All domestically owned firms have the same capital labor ratio  $k$  given implicitly by  $\frac{f_k(k, 1)}{f_l(1, 1/k)} = \frac{r^e}{w}$ , while all foreign-owned firms have a capital labor ratio  $k^*$  given implicitly by  $\frac{f_k(k^*, 1)}{f_l(1, 1/k^*)} = \frac{r}{w}$ . It is straightforward that  $k < k^*$  given that  $r^e > r, f_{kk} < 0$  and  $f_{ll} < 0$ .

Proof of Proposition 2.

Substituting for  $ds/dq$  into (5), we get

$$\frac{dV}{dq} = -c_q \left[ 1 - \frac{c_{qs}}{c_q} \frac{\lambda(1-a)}{c_{ss}} \right] [f(K, L) - wL]$$

where  $\lambda = \frac{1-s}{1-s-(1-a)/c_{ss}}$ . Substituting for  $\lambda$ , we find that  $\frac{dV}{dq} > 0$  if

$$\frac{c_{qs}}{c_q} > \frac{c_{ss}}{1-a} - \frac{1}{1-s}, \text{ and vice versa. The fact that } \lambda > 0 \text{ implies } \frac{c_{ss}}{1-a} - \frac{1}{1-s} > 0.$$

From the equality of  $V = V^*(\hat{\omega})$ , we can find  $\frac{d\hat{\omega}}{dq} = \frac{dV/dq}{dV^*(\hat{\omega})/d\hat{\omega}} > 0$ . Thus the fact

that  $\frac{dV}{dq} > 0$  implies  $\frac{d\hat{\omega}}{dq} > 0$ , and vice versa. A higher demarcation value  $\hat{\omega}$  means a

lower foreign ownership share as  $\frac{d\sigma}{d\hat{\omega}} = -\frac{dH(\hat{\omega})}{d\hat{\omega}} < 0$ .

Proof of Proposition 3.

We wish to evaluate (6) for the original value of  $K$  and thus of  $(1-a)(1-s)$  after allowing firms to optimally readjust  $a$  and  $s$  while maintaining  $c_s(q, s) = 1-a$ . This implies the adjustments of  $a$  and  $s$  are given by

$$\frac{ds}{dq} = -\lambda \frac{c_{qs}}{c_{ss}} < 0 \quad \text{and} \quad \frac{da}{dq} = \lambda \frac{1-a}{1-s} \frac{c_{qs}}{c_{ss}} > 0.$$

We can use these derivatives to evaluate  $d\lambda/dq$  while maintaining  $K$  to yield

$$\frac{d\lambda}{dq} = -\lambda^2 \frac{1}{c_{ss}^2} \frac{1-a}{1-s} \left[ \lambda c_{qs} \left[ \frac{2}{1-s} - \frac{c_{sss}}{c_{ss}} \right] + c_{qss} \right]$$

Substituting for  $d\lambda/dq$  into (6), we get

$$\frac{d^2V}{dKdq} = -c_q f_k - \lambda^2 [(1-a)(1-s)f_k - r] \frac{1-a}{(1-s)c_{ss}^2} \left[ \lambda c_{qs} \left[ \frac{2}{1-s} - c_{sss} \right] + c_{qss} \right].$$

Note that  $(1-a)(1-s)f_k - r < 0$  given the concavity of  $f(K, L) - wL$  w.r.t.  $K$  (see above under the proof of Proposition 1.2) and the financing constraint

$$(1-a)(1-s)[f(K, L) - wL] - rK = 0. \quad \text{With } c_{sss} = c_{qss} = 0, \text{ we have } \frac{d^2V}{dKdq} > 0 \text{ if}$$

$$\frac{c_{qs}}{c_q} > \left[ -2\lambda^3 \frac{(1-a)(1-s)f_k - r}{f_k} \frac{1-a}{(1-s)^2 c_{ss}^2} \right]^{-1}, \text{ and vice versa. Remembering that}$$

$$\lambda = \frac{1-s}{1-s - (1-a)/c_{ss}} > 0, \text{ we can see that the condition for } \frac{d^2V}{dKdq} > 0 \text{ is more easily}$$

satisfied the smaller are  $c_q$  and  $c_{ss}$  and the larger is  $c_{qs}$ . With  $\frac{d^2V}{dKdq} > 0$ ,  $K$  is

optimally increased following a higher value of  $q$ . This means that  $r^e$  as defined in the proof of Proposition 1.1 declines. Following the logic of Proposition 1.4, the ratio  $K/L$  increases as well.

## APPENDIX II

### Data Sources, Sample Construction and Variable Definitions

#### The Amadeus data set and the foreign ownership sample construction

Firm-level data are from the January 2001 and several preceding versions of the AMADEUS ‘Top 200,000’ Database compiled by Van Dijk. Firms are included if they meet one of three criteria regarding the magnitude of operating revenues, total assets and the number of employees.<sup>9</sup> Van Dijk asserts that 95 percent of the companies in each country that meet at least one of the three criteria are included. As a rule, bankrupt companies are kept in the database for 5 additional years so that the 2001 database includes firms that went bankrupt in the 1996-2000 period. The database provides a NACE rev1 sector code for each firm.

Our ownership variables are based on direct ownership information and they reflect voting rights, which is appropriate as we are interested in the potential benefits of (direct) foreign control. Faccio and Lang (2002) conclude for a sample of 13 European countries that there are significant discrepancies between ownership and control in only a few of the countries in their sample. Sweden, Switzerland, Italy and Finland are shown to be countries where a significant proportion of firms have dual class shares. We exclude entries of firms traded at a stock exchange and firms in primarily public sectors or whose sector is unknown. We select firms with consolidation code ‘U1’, which covers firms that have an unconsolidated statement but no consolidated companion statement. Thus is to exclude holdings companies with consolidated statement that may own subsidiaries worldwide. We drop observations with erroneous data in the form of a solvency ratio (ratio of shareholders funds to assets) that is negative or more than one.

#### Other variable definitions and data sources

Name	Definition, incl. unit or scale	Source
Assets	Value of total assets in thousands of 1990 €, log transformation	Amadeus
Solvency	Ratio of shareholders funds to assets in percent	Amadeus
GDP	GDP in billions of 1990 €, log transformation	Ameco (EC)
GDP per capita	GDP per capita in thousands of 1990 €, log transformation	Ameco (EC),
Openness	(Exports + imports) / GDP	Ameco (EC)
TURN	Ratio of turnover stock exchange to stock market capitalisation in percent; turnover is computed either under the "trading system view", which only counts transactions that pass through the stock exchange trading systems (Greece, Italy, Luxembourg, Austria, Portugal, Finland, Poland and Slovenia), or under a reporting system which includes all on- and off-market transactions	IFSE
SMCAP	Ratio of stock market capitalisation to GDP in percent	IFSE
WT	Minimum of the withholding tax on dividends accruing to UK,US, Japanese or German residents if foreign	Publications by PriceWaterhouseCoopers (and its predecessors) and the International Bureau for Fiscal Documentation
FCONTROL	Survey responses to " <i>Foreign investors are free to acquire control in a domestic company</i> ", scale 0-10 with high marks indicating relatively higher freedom of foreign control	World Competitiveness Yearbook

<sup>9</sup> For the UK, Germany, France, Italy, Ukraine and the Russian Federation, the inclusion thresholds are € 15 million in operating revenues, € 30 million in assets, and 150 employees. For other countries, they are € 10 million in operating revenues, € 20 million in assets and 100 employees.

(Variable definitions and data sources, continued)

Name	Definition, incl. unit or scale	Source
LCMARKET	Survey responses to " <i>Local capital markets are equally accessible to domestic and foreign companies</i> ", scale 0-10 with high marks indicating relatively easier access to foreign companies	World Competitiveness Yearbook
CBVENT	Survey responses to " <i>Cross-border ventures can be negotiated freely</i> ", scale 0-10 with high marks indicating relatively higher freedom of negotiation	World Competitiveness Yearbook
IMPROPER	Survey responses to " <i>Improper practices (such as bribing or corruption) do not prevail in the public sphere</i> ", scale 0-10 with high marks indicating relatively higher scarcity of improper practices.	World Competitiveness Yearbook
INSIDERT	Survey responses to " <i>Insider trading is not common in the stock market</i> ", scale 0-10 with high marks indicating relatively higher scarcity of insider trade	World Competitiveness Yearbook
ANTIDR	Anti-director rights, index ranging from 0 to 6, based on the inclusion of 6 specific shareholder's rights (taken from company law or commercial code)	LLSV (1998)
ACCSTAN	Accountancy standards measured as number of 90 potentially important items included in the 1990 annual report of surveyed companies. Produced by International accounting and auditing trends, Center for International Financial Analysis and Research	LLSV (1998)
EFFJS	Efficiency of judicial system, assessment produced by the Business International Corp. (average 80-83), scale 0-10, lower scores indicate lower efficiency levels.	LLSV (1998)
ROL	Rule of law, monthly assessment produced by the International Country Risk agency (average of April and October from 1982 to 1995), scale 0-10 (original scale 0-6), lower scores indicate lower tradition for law and order	LLSV (1998)
CORRUPT	Monthly assessment of the corruption in government produced by the International Country Risk agency's (average of April and October from 1982 to 1995), scale 0-10 (original scale 0-6), lower scores indicate higher levels of corruption	LLSV (1998)
Industry sectors	Representing firms with NACE classification based on the first 2 digits as follows: 01-02: Agriculture, hunting and forestry 05: Fishing 10-14: Mining and quarrying 15-37: Manufacturing 40-41: Electricity, gas and water supply 45: Construction 50-52: Wholesale and retail trade 55: Hotels and restaurants 60-64: Transport, storage and communication 65-67: Financial intermediation 70-74: Real estate, renting and business activities Other NACE codes are removed from the sample representing mainly public sector activities	Amadeus

**Table I**  
**Foreign Ownership Shares of Non-Traded Equity**

The foreign ownership share is asset-weighted, in percent and based on at least 35 observations per year. The average foreign ownership share over 1996-2000 is the average of the annual averages. Regional averages are averages of national averages.

Country	Number of Firms in 2000	Foreign Ownership Share, 2000	Average Foreign Ownership Share, 1996-2000
Austria	149	21.4	24.1
Belgium	629	29.0	40.3
Bulgaria	419	18.4	7.2
Czech Republic	275	60.5	51.0
Denmark	927	22.5	22.7
Finland	126	7.4	6.5
France	2489	14.6	15.4
Germany	551	14.2	13.7
Greece	201	23.2	29.0
Hungary	61	86.7	83.2
Italy	1364	29.7	33.5
Netherlands	487	42.6	40.4
Norway	1555	24.6	18.2
Poland	120	33.5	17.6
Romania	1390	31.0	21.3
Portugal	111	18.9	18.6
Slovenia	70	34.8	33.9
Spain	1005	9.6	22.1
Sweden	1308	4.1	3.9
United Kingdom	852	7.0	15.6
Europe	14089	26.7	25.9
Western Europe	11754	19.2	21.7
Eastern Europe	2335	44.2	35.7

**Table II**  
**Comparing Foreign Ownership Shares of Traded and Non-Traded Equity**

The foreign ownership share of non-traded equity is asset-weighted, in percent and based on at least 35 observations for 1997. The foreign ownership share of traded equity is constructed as foreign ownership of traded equity as a share of stock market capitalization in percent. Data on foreign ownership of traded equity are from the 'The results of the 1997 coordinated portfolio investment survey' of the IMF. Stock market capitalization data are from the International Federation of Stock Exchanges.

Country	Foreign Ownership of Non-Traded equity	Foreign Ownership of Traded Equity
Austria	28.4	20.9
Belgium	38.7	13.9
Denmark	27.0	19.2
Finland	30.0	36.7
France	20.1	27.4
Germany	12.1	19.7
Greece	34.8	13.4
Italy	33.4	25.6
Netherlands	27.8	39.8
Norway	16.4	25.2
Poland	17.6	23.2
Portugal	27.1	29.6
Spain	33.6	26.2
Sweden	14.4	26.6
United Kingdom	23.0	17.8
Europe	25.6	24.3
Western Europe	26.2	24.4

**Table III**  
**Summary Statistics**

Summary information is for yearly observations over the 1996-2000 period with firm variables averaged for each country and year. Observations based on fewer than 35 firms per country and year are dropped. Foreign Ownership is for non-traded equities. Assets is the log of firm assets. Solvency is the ratio of shareholders funds to assets in percent. GDP is log of GDD. GDP per capita is log of GDP per capita. Openness is the ratio of the sum of exports and imports to GDP. TURN is the ratio of turnover on the stock exchange to stock market capitalization in percent. SMCAP is the ratio of stock market capitalization to GDP in percent. WT is the minimum of the withholding tax on dividends accruing to UK, US, Japanese or German foreign residents. FCONTROL is an index of the freedom of foreign control. LCMARKET is an index of ease of access of foreign companies to domestic capital markets. CBVENT is an index of the freedom to negotiate cross-border ventures. IMPROPER is an index of proper practices in the public sphere. INSIDERT is an index of the scarcity of insider trading. ANTIDR is an index of anti-director rights of shareholders. ACCSTAN is an index of accounting standards. EFFJS is an index of the efficiency of the judicial system. ROL is an index of the rule of law. CORRUPT is an index of the level of corruption. See Appendix II for variable definitions and data sources.

	Number of Observations	Number of Countries	Min	Mean	Median	Max	Std deviation
Foreign Own.	92	21	0.443	24.0	22.1	57.7	10.9
Assets	90	20	5.97	9.72	10.0		1.11
Solvency	92	21	23.0	34.5	32.2	59.2	7.45
GDP	90	20	2.12	5.16	5.04	7.63	1.40
GDP per capita	90	20	0.00694	2.36	2.76	3.38	1.04
Openness	89	20	0.329	0.685	0.588	1.47	0.273
TURN	67	16	29.6	97.3	80.1	304	62.4
SMCAP	88	20	0.0916	63.3	45.7	272	57.5
WT	90	20	0	10.2	10	15	5.61
FCONTROL	80	18	2.77	8.35	8.71	9.63	1.07
LCMARKET	80	18	5.66	8.28	8.36	9.39	0.744
CBVENT	79	17	4.72	7.95	8.24	9.29	1.09
IMPROPER	80	18	1	5.47	5.35	9.53	2.42
INSIDERT	80	18	2.91	5.87	5.85	8.87	1.31
ANTIDR	66	14	0	1.85	2	4	1.10
ACCSTAN	66	14	36	64.2	62	83	12.2
EFFJS	66	14	5.5	8.60	9.5	10	1.60
ROL	66	14	6.18	9.07	9.23	10	1.12
CORRUPT	66	14	6.13	8.68	8.93	10	1.23

**Table IV**  
**Correlation Matrix**

Correlation coefficients for observations over the 1996-2000 period with firm variables averaged for each country and year. Observations based on fewer than 35 firms per country and year are dropped. Foreign Ownership is for non-traded equities. Assets is the log of firm assets. Solvency is the ratio of shareholders funds to assets in percent. GDP is log of GDD. GDP per capita is log of GDP per capita. Openness is the ratio of the sum of exports and imports to GDP. TURN is the ratio of turnover on the stock exchange to stock market capitalization in percent. SMCAP is the ratio of stock market capitalization to GDP in percent. WT is the minimum of the withholding tax on dividends accruing to UK, US, Japanese or German foreign residents. FCONTROL is an index of the freedom of foreign control. LCMARKET is an index of ease of access of foreign companies to domestic capital markets. CBVENT is an index of the freedom to negotiate cross-border ventures. IMPROPER is an index of proper practices in the public sphere. INSIDERT is an index of the scarcity of insider trading. ANTIDR is an index of anti-director rights of shareholders. ACCSTAN is an index of accounting standards. EFFJS is an index of the efficiency of the judicial system. ROL is an index of the rule of law. CORRUPT is an index of the level of corruption. See Appendix II for variable definitions and data sources. Bold print indicates significance of the correlation coefficient at five percent.



(Table IV, continued)

	Foreign Ownership	Assets	Solvency	GDP	GDP per cap.	Openness	TURN	SMCAP	WT	FCONTROL	LCMARKET	CBVENT	IMPROPER	INSIDERT	ANTIDR	ACCSTAN	EFFJS	ROL	CORRUPT
Foreign Ownership	1	0.098	-0.15	-0.08	0.022	<b>0.26</b>	-0.24	<b>-0.24</b>	0.14	-0.02	<b>-0.28</b>	-0.11	<b>-0.59</b>	<b>-0.49</b>	<b>-0.53</b>	<b>-0.52</b>	<b>-0.39</b>	<b>-0.36</b>	<b>-0.58</b>
Assets		1	<b>-0.69</b>	<b>0.836</b>	<b>0.86</b>	<b>-0.32</b>	0.22	<b>0.52</b>	-0.14	<b>0.24</b>	<b>0.34</b>	<b>0.31</b>	<b>0.44</b>	<b>0.52</b>	0.067	0.14	<b>0.26</b>	0.23	0.1
Solvency			1	<b>-0.71</b>	<b>-0.82</b>	<b>0.275</b>	-0.07	<b>-0.33</b>	-0.03	<b>-0.52</b>	<b>-0.6</b>	<b>-0.54</b>	<b>-0.4</b>	<b>-0.28</b>	<b>0.35</b>	-0.17	<b>-0.25</b>	-0.24	0.058
GDP				1	<b>0.738</b>	<b>-0.51</b>	<b>0.561</b>	<b>0.411</b>	-0.18	<b>0.26</b>	<b>0.22</b>	0.092	<b>0.22</b>	<b>0.38</b>	-0.11	<b>0.25</b>	0.01	-0.05	-0.1
GDP per cap.					1	<b>-0.27</b>	0.11	<b>0.488</b>	-0.02	<b>0.33</b>	<b>0.66</b>	<b>0.59</b>	<b>0.77</b>	<b>0.634</b>	0.18	<b>0.549</b>	<b>0.841</b>	<b>0.847</b>	<b>0.776</b>
Openness						1	<b>-0.29</b>	-0.05	<b>0.306</b>	0.038	0.034	0.028	-0.1	-0.06	-0.19	-0.09	<b>0.375</b>	<b>0.597</b>	<b>0.374</b>
TURN							1	0.14	-0.13	0.097	0.063	-0.13	-0.02	0.02	0.035	0.21	<b>-0.27</b>	<b>-0.26</b>	-0.13
SMCAP								1	<b>-0.47</b>	<b>0.376</b>	<b>0.446</b>	<b>0.25</b>	<b>0.49</b>	<b>0.463</b>	<b>0.28</b>	<b>0.435</b>	<b>0.348</b>	0.078	<b>0.369</b>
WT									1	-0.18	-0.04	0.069	-0	-0.07	-0.13	<b>-0.33</b>	-0.11	<b>0.35</b>	-0.1
FCONTROL										1	<b>0.7</b>	<b>0.691</b>	<b>0.302</b>	<b>0.383</b>	0.01	-0.12	0.22	-0	0.13
LCMARKET											1	<b>0.72</b>	<b>0.63</b>	<b>0.571</b>	0.2	-0.03	<b>0.459</b>	<b>0.403</b>	<b>0.547</b>
CBVENT												1	<b>0.58</b>	<b>0.461</b>	0.15	-0.07	<b>0.428</b>	<b>0.397</b>	<b>0.443</b>
IMPROPER													1	<b>0.753</b>	<b>0.68</b>	<b>0.553</b>	<b>0.76</b>	<b>0.679</b>	<b>0.861</b>
INSIDERT														1	<b>0.357</b>	0.24	<b>0.596</b>	<b>0.623</b>	<b>0.686</b>
ANTIDR															1	<b>0.382</b>	<b>0.38</b>	0.2	<b>0.54</b>
ACCSTAN																1	<b>0.636</b>	<b>0.3</b>	<b>0.574</b>
EFFJS																	1	<b>0.717</b>	<b>0.872</b>
ROL																		1	<b>0.733</b>
CORRUPT																			1

**Table V**  
**Determinants of Foreign Ownership**

The dependent variable is the foreign ownership share. Eq. (1) uses data that are averages per country and per year. Observations of foreign ownership based on fewer than 35 firms per country and per year are deleted. Eq. (2) uses firm level data with weighted least squares with the weight being equal to the inverse of the number of firms per country and per year. Eq. (3)-(11) use average data per firm with weighted least squares with the weighted being the inverse of the number of firms per country. Countries with data on foreign ownership for fewer than 35 firms are deleted. Assets is the log of firm assets. Solvency is the ratio of shareholders funds to assets in percent. GDP is log of GDD. GDP per capita is log of GDP per capita. Openness is the ratio of the sum of exports and imports to GDP. TURN is the ratio of turnover on the stock exchange to stock market capitalization in percent. SMCAP is the ratio of stock market capitalization to GDP in percent. WT is the minimum of the withholding tax on dividends accruing to UK, US, Japanese or German foreign residents. FCONTROL is an index of the freedom of foreign control. LCMARKET is an index of ease of access of foreign companies to domestic capital markets. CBVENT is an index of the freedom to negotiate cross-border ventures. IMPROPER is an index of proper practices in the public sphere. INSIDERT is an index of the scarcity of insider trading. ANTIDR is an index of anti-director rights of shareholders. ACCSTAN is an index of accounting standards. EFFJS is an index of the efficiency of the judicial system. ROL is an index of the rule of law. CORRUPT is an index of the level of corruption. Eq. (1) includes year fixed effects. All regressions include industry fixed effects See Appendix II for variable definitions and data sources. \* and \*\* indicate significance at the 5% and 1% level, respectively. Heteroscedasticity-consistent errors are given in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Assets	1.0 (2.5)	1.9 ** (0.20)	3.0 ** (0.38)	2.9 ** (0.38)	3.0 ** (0.38)	3.2 ** (0.40)	1.9 ** (0.29)	1.8 ** (0.29)	1.8 ** (0.29)	2.0 ** (0.29)	1.7 ** (0.29)
Solvency	0.55 (0.42)	1.1 10 <sup>-2</sup> (1.3 10 <sup>-2</sup> )	7.7 10 <sup>-2</sup> ** (2.7 10 <sup>-2</sup> )	7.4 10 <sup>-2</sup> ** (2.8 10 <sup>-2</sup> )	6.6 10 <sup>-2</sup> * (2.7 10 <sup>-2</sup> )	8.1 10 <sup>-2</sup> ** (2.9 10 <sup>-2</sup> )	6.9 10 <sup>-2</sup> ** (1.9 10 <sup>-2</sup> )	6.5 10 <sup>-2</sup> ** (1.9 10 <sup>-2</sup> )	6.5 10 <sup>-2</sup> ** (1.9 10 <sup>-2</sup> )	6.6 10 <sup>-2</sup> ** (1.9 10 <sup>-2</sup> )	7.4 10 <sup>-2</sup> ** (1.9 10 <sup>-2</sup> )
GDP	0.81 (2.3)	-3.9 ** (0.40)	-5.4 ** (0.84)	-5.0 ** (0.79)	-5.3 ** (0.84)	-3.9 ** (0.77)	-1.3 * (0.51)	-0.30 (0.44)	-0.39 (0.44)	-0.40 (0.43)	-2.6 ** (0.54)
GDP per cap.	5.1 (4.9)	6.0 ** (1.1)	9.2 ** (1.9)	11 ** (2.2)	11 ** (2.1)	0.41 (1.1)	-5.5 ** (1.5)	-7.6 ** (1.8)	0.48 (3.1)	1.7 (3.0)	9.9 ** (2.7)
Openness	17 * (7.3)	3.4 (1.8)	4.2 (2.4)	1.9 (2.5)	3.0 (2.4)	15 ** (2.4)	5.6 * (2.7)	11 ** (2.6)	13 ** (2.4)	18 ** (3.2)	14 ** (2.5)
TURN	-2.2 10 <sup>-2</sup> (2.9 10 <sup>-2</sup> )	-6.7 10 <sup>-4</sup> (4.3 10 <sup>-3</sup> )	-7.2 10 <sup>-3</sup> (6.0 10 <sup>-3</sup> )	-1.2 10 <sup>-2</sup> (5.9 10 <sup>-3</sup> )	-1.1 10 <sup>-2</sup> (6.0 10 <sup>-3</sup> )	-8.3 10 <sup>-3</sup> (6.0 10 <sup>-3</sup> )	-1.0 10 <sup>-2</sup> (6.2 10 <sup>-3</sup> )	-1.8 10 <sup>-2</sup> ** (6.1 10 <sup>-3</sup> )	-2.9 10 <sup>-2</sup> ** (7.0 10 <sup>-3</sup> )	-2.7 10 <sup>-2</sup> ** (5.8 10 <sup>-3</sup> )	-3.2 10 <sup>-3</sup> (6.3 10 <sup>-3</sup> )
SMCAP	-1.7 10 <sup>-2</sup> (2.2 10 <sup>-2</sup> )	-1.7 10 <sup>-2</sup> (2.2 10 <sup>-2</sup> )	4.6 10 <sup>-2</sup> ** (1.5 10 <sup>-2</sup> )	6.1 10 <sup>-2</sup> ** (1.6 10 <sup>-2</sup> )	5.4 10 <sup>-2</sup> ** (1.4 10 <sup>-2</sup> )	-1.6 10 <sup>-3</sup> (1.2 10 <sup>-2</sup> )	-2.8 10 <sup>-2</sup> * (1.3 10 <sup>-2</sup> )	-4.1 10 <sup>-2</sup> * (1.6 10 <sup>-2</sup> )	-3.6 10 <sup>-2</sup> ** (1.4 10 <sup>-2</sup> )	-3.7 10 <sup>-2</sup> ** (1.2 10 <sup>-2</sup> )	-2.0 10 <sup>-2</sup> (1.3 10 <sup>-2</sup> )
WT	-0.22 (0.21)	5.8 10 <sup>-2</sup> (5.2 10 <sup>-2</sup> )	0.36 ** (8.9 10 <sup>-2</sup> )	0.42 ** (9.2 10 <sup>-2</sup> )	0.39 ** (8.8 10 <sup>-2</sup> )	0.11 (7.9 10 <sup>-2</sup> )	3.6 10 <sup>-4</sup> (7.1 10 <sup>-2</sup> )	-6.6 10 <sup>-2</sup> (7.0 10 <sup>-2</sup> )	-0.18 * (7.4 10 <sup>-2</sup> )	5.6 10 <sup>-2</sup> (6.7 10 <sup>-2</sup> )	0.27 ** (8.0 10 <sup>-2</sup> )

**(Table V, continued)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FCONTROL	0.71 (1.1)	1.3* (0.43)	0.21 (0.61)	-	-	1.7* (0.68)	0.95 (0.51)	0.7 (0.6)	1.4** (0.52)	0.55 (0.50)	1.6** (0.52)
LCMARKET				-2.1 (1.1)	-	-	-	-	-	-	-
CBVENT				-	-1.1 (0.62)	-	-	-	-	-	-
IMPROPER	-1.9* (0.97)	-3.3* (0.24)	-4.0** (0.47)	-4.1** (0.50)	-4.1** (0.45)	-	-	-	-	-	-
INSIDERT				-	-	-2.7** (0.45)	-	-	-	-	-
ANTIDR				-	-	-	-2.6** (0.41)	-	-	-	-
ACCSTAN				-	-	-	-	-2.2 10 <sup>-2</sup> (5.6 10 <sup>-2</sup> )	-	-	-
EFFJS				-	-	-	-	-	-2.4** (0.73)	-	-
ROL				-	-	-	-	-	-	-4.5** (1.2)	-
CORRUPT				-	-	-	-	-	-	-	-6.6** (0.68)
<i>Adj. R<sup>2</sup></i>	<i>0.96</i>	<i>0.29</i>	<i>0.37</i>	<i>0.37</i>	<i>0.35</i>	<i>0.36</i>	<i>0.29</i>	<i>0.29</i>	<i>0.29</i>	<i>0.29</i>	<i>0.30</i>
<i>Sample size</i>	<i>67</i>	<i>53360</i>	<i>23 907</i>	<i>23 907</i>	<i>23 829</i>	<i>23 907</i>	<i>23 426</i>	<i>23 426</i>	<i>23 426</i>	<i>23 426</i>	<i>23 426</i>
<i># Country</i>	<i>16</i>	<i>16</i>	<i>17</i>	<i>17</i>	<i>16</i>	<i>17</i>	<i>14</i>	<i>14</i>	<i>14</i>	<i>14</i>	<i>14</i>

**Table VI**  
**Impact of Institutional Indices on Foreign Ownership across Sectors**

The dependent variable is the foreign ownership share. Data are averaged per firm. Estimation uses weighted least squares with the weight being the inverse of the number of firms per country. Countries with data on foreign ownership for fewer than 35 firms are deleted. Each regression includes the following variables: Assets which is the log of firm assets; Solvency which is the ratio of shareholders funds to assets in percent; GDP which is log of GDD; GDP, which per capita is log of GDP per capita; Openness, which is the ratio of the sum of exports and imports to GDP; TURN, which is the ratio of turnover on the stock exchange to stock market capitalization in percent; SMCAP, which is the ratio of stock market capitalization to GDP in percent; WT, which is the minimum of the withholding tax on dividends accruing to UK, US, Japanese or German foreign residents. FCONTROL, which is an index of the freedom of foreign control; a set of industry fixed effects. Each regression, as represented by a row in the table, in addition contains interaction terms of one of the following variables with a set of industry fixed effects: IMPROPER, which is an index of proper practices in the public sphere; INSIDERT, which is an index of the scarcity of insider trading; ANTIDR, which is an index of anti-director rights of shareholders; ACCSTAN, which is an index of accounting standards; EFFJS, which is an index of the efficiency of the judicial system. ROL is an index of the rule of law; CORRUPT, which is an index of the level of corruption. All regressions include industry fixed effects. See Appendix II for variable definitions and data sources. Only the coefficients for the interaction terms are reported. \* and \*\* indicate significance at the 5% and 1% level, respectively. Heteroscedasticity-consistent errors are given in parentheses.

Institutional Index	Agriculture	Fishing	Mining	Manu- facture	Utilities	Con- struction	Trade	Hotels and restau- rants	Transpor t and communi- cation	Banks	Real estate	Adj. R <sup>2</sup>
IMPROPER	-0.93 (1.3)	-3.9 (2.9)	0.2 (1.6)	-4.1** (0.56)	-3.5** (0.86)	-4.2** (1.2)	-4.2** (0.62)	-0.28 (1.6)	-4.1** (0.93)	-2.4* (1.1)	-4.5** (0.7)	0.37
INSIDERT	-0.91 (3.1)	-2.9 (4.8)	6.3 (5.5)	-3.7** (0.78)	-1.5 (1.6)	-3.7 (2.6)	-2.5** (0.9)	6.3 (4.0)	-0.27 (2.0)	0.98 (0.81)	-3.8** (1.4)	0.36
ANTIDR	-5.7 (4.8)	-5.0 (12)	4.2 (2.8)	-2.2** (0.56)	0.33 (1.5)	-3.5* (1.4)	-4.5** (0.76)	-2.0 (2.4)	-2.0 (1.3)	2.5 (1.4)	-1.9* (0.77)	0.29
ACCSTAN	0.63** (0.22)	1.5 10 <sup>-2</sup> (0.45)	0.65** (0.18)	-3.8 10 <sup>-2</sup> (7.9 10 <sup>-2</sup> )	-1.6 10 <sup>-2</sup> (0.16)	0.11 (0.18)	-6.6 10 <sup>-2</sup> (8.8 10 <sup>-2</sup> )	0.17 (0.18)	4.5 10 <sup>-2</sup> (0.14)	-0.54** (0.17)	-0.19 (0.10)	0.29
EFFJS	1.2 (2.3)	-3.2 (4.7)	0.47 (1.8)	-3.6** (0.80)	-3.0 (1.7)	-2.3 (1.3)	-1.0 (0.86)	-1.4 (1.5)	-3.0* (1.2)	1.8 (1.4)	-2.9** (1.0)	0.29
ROL	-2.7 (3.2)	-10 (6.4)	-4.1 (3.2)	-5.3** (1.3)	-4.5* (1.9)	-3.3 (1.9)	-3.2* (1.4)	-3.6 (2.5)	-6.5** (2.0)	1.6 (1.7)	-6.6** (1.7)	0.29
CORRUPT	-2.6 (3.1)	-9.7 (6.8)	-2.2 (2.7)	-7.2** (0.74)	-7.1** (1.9)	-6.2** (1.5)	-5.8** (0.86)	-5.3* (2.1)	-7.7** (1.5)	-0.3 (1.7)	-8.3** (1.2)	0.30

**Table VII**  
**Data on Capital Intensity**

Capital intensity of the log of the ratio of total assets to employment. Data are averages of firm-level averages. Averages for all firms are only reported if based on 35 or more firm observations. Foreign owned firms are firms with 50 percent or more foreign ownership. Domestically owned firms are firms with less than 50 percent foreign ownership. For Luxembourg there are fewer than 35 foreign owned or domestically owned firms as indicated between brackets. Regional averages are averages of national averages.

	All firms	Foreign Owned Firms	Domestically Owned Firms
Austria	5.2	5.3	5.1
Belgium	5.9	5.9	5.9
Bulgaria	1.2	2.9	1.1
Czech Republic	3.5	3.7	3.3
Denmark	5.1	5.2	5.1
Finland	5.5	5.2	5.6
France	5.3	5.6	5.2
Germany	5.5	5.8	5.5
Greece	4.9	4.9	4.8
Hungary	3.4	3.6	3.2
Italy	5.4	5.5	5.4
Luxembourg	5.4	5.7 (26)	5.1 (12)
Netherlands	5.2	6.5	4.9
Norway	5.1	5.2	5.1
Poland	3.2	3.9	2.9
Romania	1.6	1.9	1.5
Portugal	4.9	5.0	4.9
Spain	5.2	5.2	5.2
Sweden	5.5	5.2	5.5
United Kingdom	5.2	5.6	5.1
Europe	4.6	4.9	4.5
Western Europe	5.3	5.5	5.2
Eastern Europe	2.6	3.2	2.4

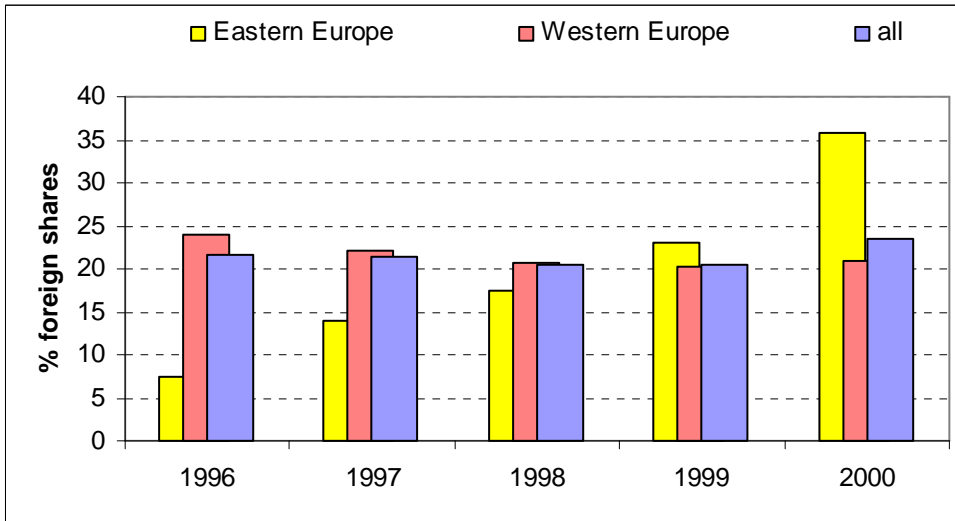
**Table VIII**  
**The Impact of Foreign Ownership on Capital Intensity**

The dependent variable is capital intensity constructed as the log of the ratio of total assets to employment. Variables are averages of firm data. Estimation uses weighted least squares with the weight being the inverse of the number of firms per country. Countries with fewer than 35 firm-level observations are deleted. Foreign ownership is the share of foreign ownership of equity. Each regression contains an interaction term of one of the following variables with 1 – the foreign ownership share: IMPROPER, which is an index of proper practices in the public sphere; INSIDERT, which is an index of the scarcity of insider trading; ANTIDR, which is an index of anti director rights of shareholders; ACCSTAN, which is an index of accounting standards; EFFJS, which is an index of the efficiency of the judicial system. ROL is an index of the rule of law; CORRUPT, which is an index of the level of corruption. All regressions include industry fixed effects. See Appendix II for variable definitions and data sources. Only the coefficients for the foreign ownership variable and its interaction term in each regression are reported. \* and \*\* indicate significance at the 5 and 10 percent level, respectively. Heteroscedasticity-consistent errors are given in parentheses.

Institutional Index	Foreign Ownership	Interaction of Foreign Ownership and Institutional Variable	Adj. R <sup>2</sup>	No. of Firms (No. of Countries)
IMPROPER	3.7 10 <sup>-2**</sup> (7.9 10 <sup>-4</sup> )	5.7 10 <sup>-3**</sup> (4.3 10 <sup>-5</sup> )	0.90	21891 (17)
INSIDER	5.1 10 <sup>-2**</sup> (5.0 10 <sup>-4</sup> )	7.9 10 <sup>-3**</sup> (8.3 10 <sup>-5</sup> )	0.92	21891 (17)
ANTIDR	2.4 10 <sup>-2**</sup> (6.9 10 <sup>-4</sup> )	8.5 10 <sup>-3**</sup> (3.1 10 <sup>-4</sup> )	0.88	20954 (13)
ACCSTAN	5.1 10 <sup>-2**</sup> (4.8 10 <sup>-4</sup> )	7.5 10 <sup>-4**</sup> (5.4 10 <sup>-6</sup> )	0.93	20954 (13)
EFFJS	5.6 10 <sup>-2**</sup> (4.9 10 <sup>-4</sup> )	6.2 10 <sup>-3**</sup> (4.6 10 <sup>-5</sup> )	0.93	20954 (13)
ROL	5.4 10 <sup>-2**</sup> (3.5 10 <sup>-4</sup> )	5.7 10 <sup>-3**</sup> (3.2 10 <sup>-5</sup> )	0.93	20954 (13)
CORRUPT	6.1 10 <sup>-2**</sup> (4.1 10 <sup>-4</sup> )	6.8 10 <sup>-3**</sup> (4.6 10 <sup>-5</sup> )	0.93	20954 (13)

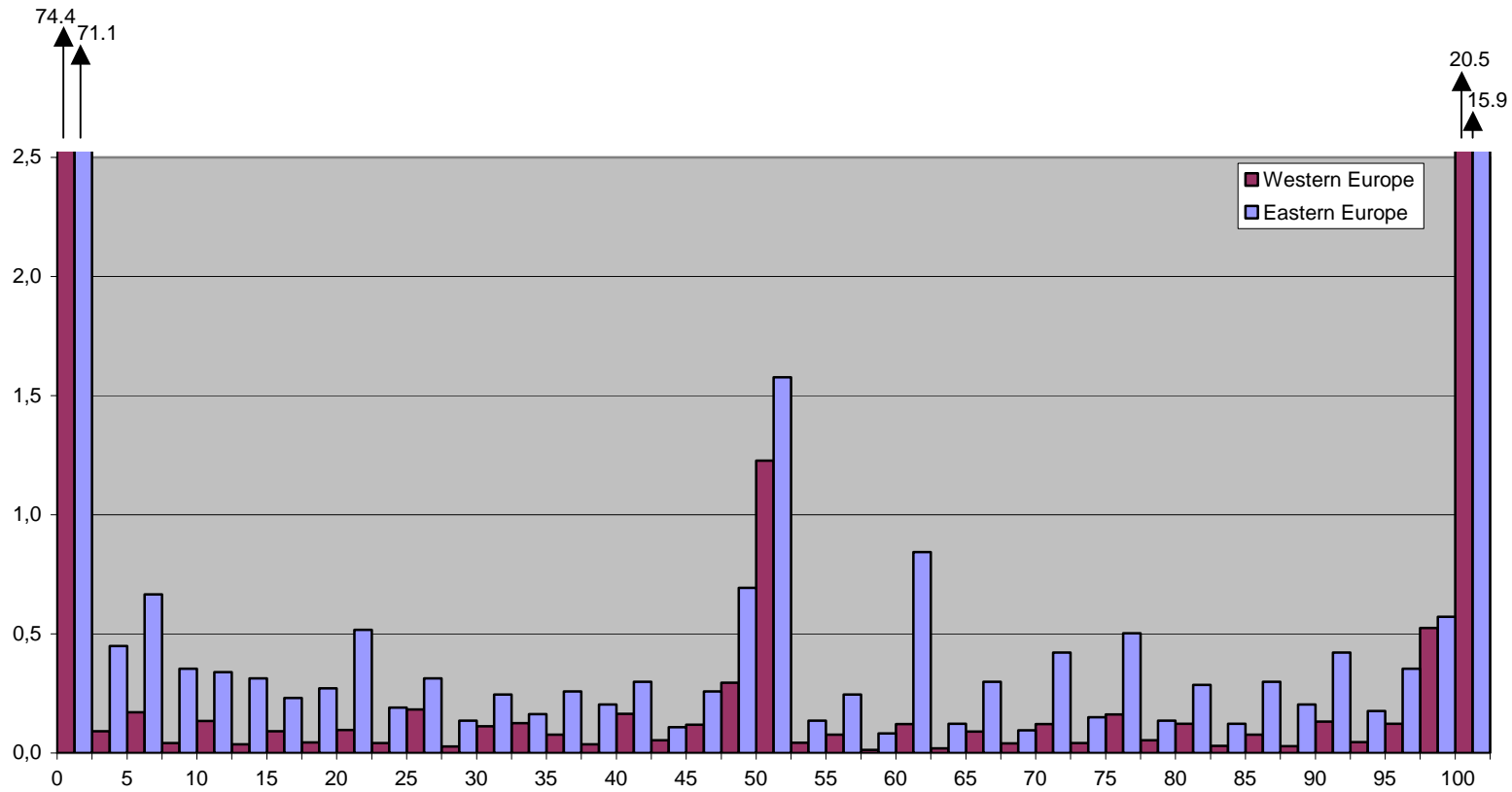
**Figure 1**  
**Evolution of Foreign Ownership**

Data are averages for all firms in the concerned region and year in percent.



**Figure 2**  
**Distribution of Foreign Ownership at Firm Level**

Data indicate the percentage of firms that have a foreign ownership share in percent in a certain bracket. Firm level data are time averages. There are 40 brackets, with the first bracket covering [0, 2.5> percent, the second bracket covering [2.5, 5> percent, etc..

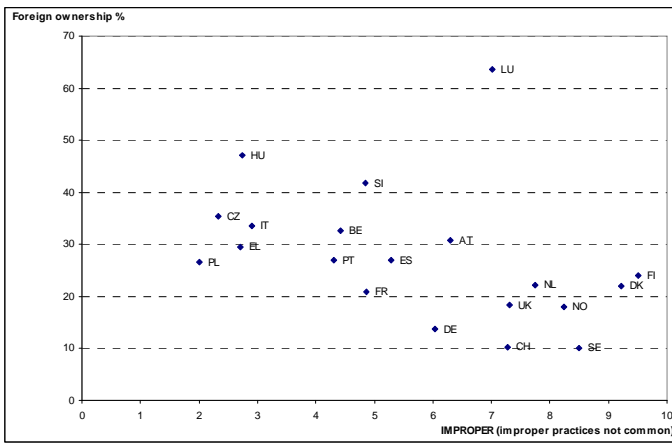




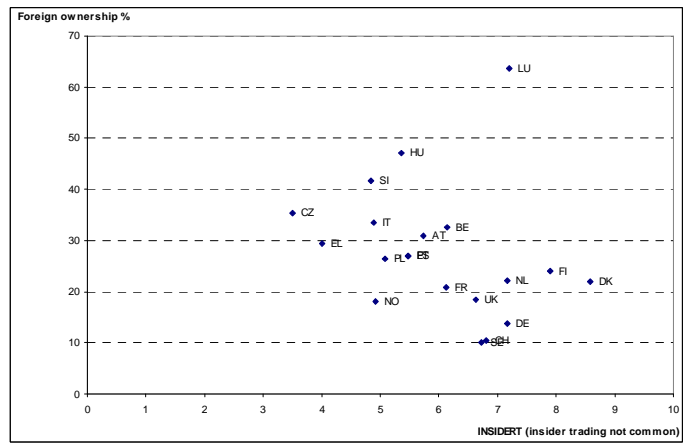
**Figure 3**  
**Institutional Indices and Foreign Ownership**

Data on foreign ownership are averages of firm-level averaged data. A particular country is not represented if there are fewer than 35 averaged firm-level observations. Each panel plots foreign ownership against an institutional index. IMPROPER is an index of proper practices in the public sphere. INSIDERT is an index of the scarcity of insider trading. ANTIDIR is an index of anti-director rights of shareholders. ACCSTAN is an index of accounting standards. EFFJS is an index of the efficiency of the judicial system. ROL is an index of the rule of law. CORRUPT is an index of the level of corruption. In the case of IMPROPER and INSIDERT data are averaged over time. See Appendix II for variable definitions. Legend of country labelling: AT: Austria; BE: Belgium; CZ: Czech Rep.; DE: Germany; DK: Denmark; EL: Greece; ES: Spain; FI: Finland; FR: France; HU: Hungary; IT: Italy; NL: Netherlands; NO: Norway; PL: Poland; PT: Portugal; SE: Sweden; SI: Slovenia; UK: United Kingdom.

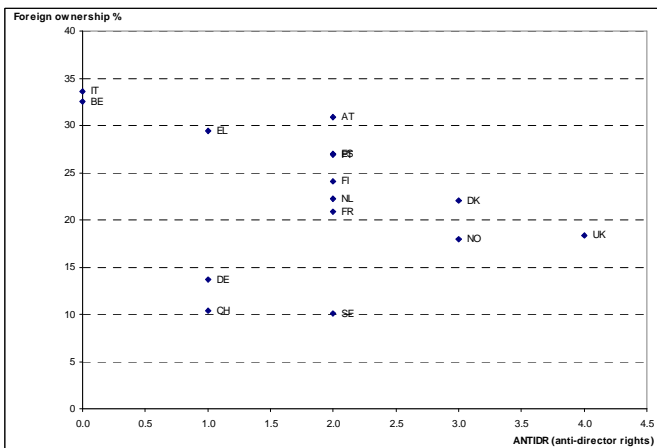
**A: IMPROPER**



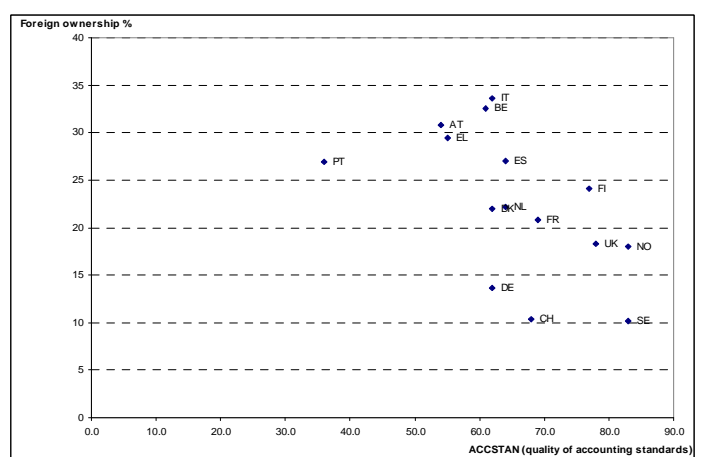
**B: INSIDERT**



**C: ANTIDIR**

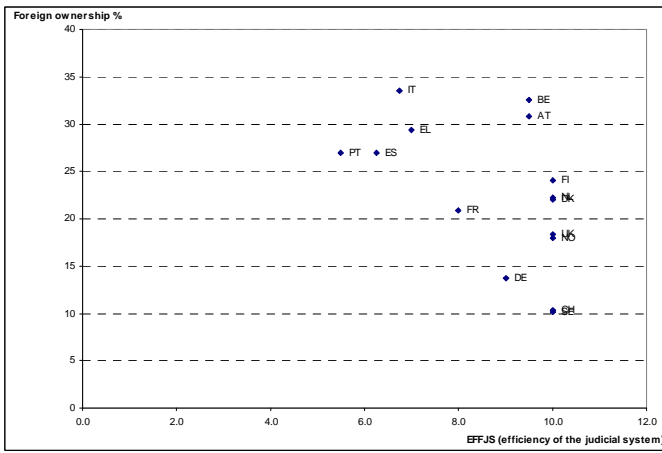


**D: ACCSTAN**

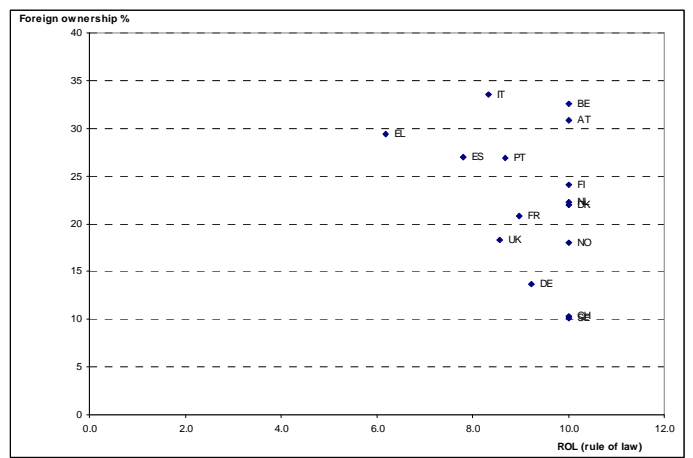


(Figure 3, continued)

E: EFFJS



F:ROL



G: CORRUPTION

