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Private equity, corporate governance and out-performance of high-growth firms

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Abstract

The paper investigates how Private Equity (PE) ownership influences out-performance of a high-growth firm, and whether it differs from the effect of two other important types of financial investors: banks and non-bank financial firms. We transform the levered return on equity into a unlevered return and empirically test on some 30 thousand high growth European firms whether Private Equity' or other financial investors' ownership matter. The empirical analysis suggests three major conclusions. The shareholding by PE and bank has influence on out-performance but only if either the PE investor or the bank hold between 75 to 100 percent of firm's shares. The direction of the effect is opposite. PE has a positive, while bank has a negative influence on firm's out-performance. We also show that the out-performance of a firm with shareholding of non-bank financial firms up to 50 percent is lower than the out-performance of a firm that does not have such ownership.

Keywords: Private equity, financial investor, bank, out-performance, ownership structure

JEL Classification: M14, G24, G34

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1 Introduction

In the recent years Private Equity funds have been gaining a lot of attention from both public and policy makers. Their importance has also grown for doing business. However, big controversies surround Private Equity. Do they generate new wealth or merely redistributes existing one? In his ground-breaking article [Jensen \(1989\)](#) suggests that majority shareholding of Private Equity is a superior form of organization because it changes corporate governance. Presence of active investors and powerful incentives would lead to higher shareholder value. The first aim of the paper is to test [Jensen \(1989\)](#)'s conjecture for European firms. We shall focus on the question of whether Private Equity commitments in European firms lead to an improved governance and thus better performance. Companies with a high growth potential are of particular significance for creating wealth in an economy. Therefore we concentrate our analysis on this firm type.

Our database of European firms shows that there is a lot of deviation from Jensen's role model of PE investment via leveraged buyout. PE investment in target firms takes a universe of different forms. It reaches from small minority, over majority shareholding to complete ownership. In additions, PE shareholding is often accompanied by shareholdings of other financial investors such as bank or other financial firms. Shareholding of PE in European firms, even majority shareholding can also belong to more than one PE firm. Clearly, the impact of PE on the target' firms corporate governance differs depending on what particular feature the presence of PE shows. Thus the second aim of our study is to make the picture on the impact of PE on firms' corporate governance more complete by taking these different features of PE investment explicitly into account. Although their is a large literature on leveraged buyouts initiated by PE firms in the US and in UK there is a notable lack of research concerning the value impact on targets below majority shareholding and the uniqueness of PE among other candidates for active investing such as banks and other financial investors. Moreover studies on the impact of active investors on corporate governance have focused on rather small samples of either US or UK buyouts because of a lack of reliable ownership data for large firm samples (e.g. [Kaplan \(1989\)](#), [Nikoskelainen and Wright \(2007\)](#)).

Direct measurement of an improvement in corporate governance is impossible.¹ However, as better performance is positively related to improved corporate governance out-performance relative to peers in the same sector can be used as an indirect indicator. More specifically, certain ownership characteristics will not influence out-performance directly but only via their impact on corporate governance. Such characteristics can then be seen

¹See [Larcker et al. \(2007\)](#).

as valid proxies for the influence of PE on corporate governance. We focus on the level of PE shareholding, dispersion of shareholding and the presence of non-PE financial investors and investigate how these characteristics affect the firms out-performance via their impact on the quality of corporate governance.

The measure for out-performance is the return on equity. The capital structure of a firm clearly affects this return and renders a direct comparison of the performance of firms with different leverages impossible. This problem can be solved by transforming the levered return into a unlevered return similar to the procedure used in [Acharya et al. \(2009\)](#). Provided that improved corporate governance increase firm performance in general, the analysis of the effect of our PE-related ownership characteristics on the unlevered return will then show the effect of PE on the firms' corporate governance.

However, the firm's leverage has not only an effect on the return on equity but affects the firm's governance directly according to [Jensen \(1989\)](#). It forces the management to produce substantial cash flows and to redistribute them in the form of interest payments instead of spending it for inefficient managerial consumption ([Williamson, 1967](#)). Therefore, leverage may have an influence on the unlevered out-performance measure. We account for this effect by using leverage as a control variable in our empirical setting.

The paper follows this described path. We investigate specifically how the influence of PE ownership on the out-performance of a firm differs from the influence of other financial investors. The formula to deleverage the return is employed in a similar way as in [Acharya et al. \(2009\)](#) and empirically tested on some 30 thousand European firms. We find a positive effect of PE ownership on out-performance but only in cases in which PE investors hold between 75 to 100 percent of the firm's shares. In contrast bank ownership of this magnitude affects outperformance negatively.

The focus on the out-performance measure *unlevered return* is also important from a policy point of view. PE investors are often criticized for pushing the portfolio company's management to increase firm debt to unhealthy levels and to damage other stakeholders. Unlevered returns capture the overall return of all financiers from their investments. Thus, out-performance in this indicator reflects that all investors are better off with the outperforming company than with its peers.

We proceed by explaining the related literature in the next section. Section 3 enfold the theoretical and the econometric model. The data is described in Section 4. Section 5 presents the empirical results and the last Section concludes.

2 Private Equity and Corporate Governance

Once the firm has obtained investment capital from Private Equity the firm is a portfolio firm of the PE fund. Both the upfront payment and the fact that future states are not contractable completely create adverse incentive for the management. The management may adopt strategies that are personally profitable but impose a suboptimal high risk on the financier. The CEO may also be lazy or hold up the financier by either threatening to decide suboptimally or to leave the project (Hart and Moore, 1994). Moreover she may secretly consume private benefits at the cost of the financier (Chemla et al., 2004). Repeated interaction with the firm is clearly the precondition for detecting riskshifting activities, laziness or costly consumption of perks. But to ensure that the management really complies with the investor's goals the investor needs control rights. Only control rights allow to have a good grip on the company's strategic decision-making and prevent moral hazard. The ultimate control right is the right to hire and fire the management team. Cornelli et al. (2009) show that PE firms fire managers if their performance is insufficient.

Private Equity firms have a reputation of engaging in far reaching control activities. Wruck (2008) argues that PE refurbishes the market for corporate control and brings fresh managerial skills to a target company. They do invest when they see a possibility to improve the management and efficiency of a target firm. Williamson (1967) and Jensen (1986) consider excess cash flow (free cash flow) and high capitalization as an indication of a company's weak corporate governance. Given little debt service, the management enjoys large discretion in spending money on unprofitable projects (see also Opler et al. (1999) and Lehn and Poulsen, 1989). A PE investor targeting such a company may recognize the potential of stopping such practices of wasting resources by restructuring the company's financing and by initiating a business model that generates more profitable growth. In addition, leveraging the firms reduces the upfront equity investment and renders ownership concentration and substantial management ownership more likely. As a consequence, incentive realignment between management and owners and the reduction of possible agency conflicts may be achieved more easily. Furthermore, concentrated ownership minimizes free-riding possibilities of minority owners and reduces conflicts between shareholders. Both features support active monitoring and better corporate control (Wright et al., 2006a).

The above perspective has been often confirmed in the literature on US and UK buy outs. For example Palepu (1990) shows that buyouts are accompanied by operating improvements. In line with that Wright et al. (2006b) report in a study on the British LBO market abnormal average returns in the dimension of 30% on stock prices after the announcement of an LBO for the time 1997–2003. Acharya et al. (2009) find that the sector-picking

ability of PE houses is expected to contribute up to 45% of the out-performance of successful deals. However, leveraged buy outs and subsequent majority ownership is only one particular form of a PE investment in target firms. Our large sample of European firms shows that PE also invests in minority shareholding. Moreover, often more than one PE investor holds shares in European firms. Clearly, the impact of PE on the target' firms corporate governance differs depending on what particular feature the presence of PE shows.

For example, [Cao and Lerner \(2009\)](#) showed that premia paid by deals in which several PE firms are involved, so-called club deals, are significant higher than those by non-club LBOs. This indicates that clubbing has a positive effect on the value of the target company. [Larcker et al. \(2007\)](#) propose that the number of blockholders is positively correlated with superior performances. However, there is also a caveat. Incentive alignment within investor groups may be more difficult if the number of group members grows. In order to draw a line between influential and non-influential shareholding of the same type of investor we refer to the blockholder definition applied by [Bushman et al. \(2004\)](#). They consider blockholding as ownership of shares that exceeds 5% percent of the company's equity. Therefore we take only shareholding levels of one investor group above the above 5% into account. In order to capture effects of a possibly decreasing incentive alignment if membership grows, we investigate how many investors of the same group (Private Equity, financial firm or bank) are within the target company.

PE funds are one particular class of financial investors. Banks and non-bank financial firms are other types. Past research indicates that other financial shareholders could also play the role of active investors. In particular, the role of banks as active investors and equity holders has achieved a lot of attention in the past. It has been argued that banks that invest in equity stakes often intend to control and influence the target company's management (see e.g. [Cable \(1985\)](#), [Rajan \(1992\)](#) and [John et al. \(1994\)](#)). In line with this early literature [Gorton and Schmid \(2000\)](#) find a positive impact of bank influence on the performance of German firms. In contrast, a very recent study of [Dittmann et al. \(2010\)](#) on the effect of bankers on the board of German large listed firms report a negative impact on firm performance.

Overall, the studies often concentrate either on German or US firms and focus on listed firms. Broad evidence of bankers' influence across European firms as well as on non-listed firms is scarce. We intend to contribute to the literature in this respect. We also intend to leave the perspective of focusing only on one particular investor class. Accounting for the fact that banks are only one class of active investors we are explicitly interested in identifying distinct influences of banks', non-bank financial firms' and Private Equity's shareholding on European firms' performance. To capture these effects we apply variables for the type of a financial investor engaged in a company. Furthermore we are interested in whether the

proportion of shares hold by the single investor class matters, and whether the accumulated amount of shares per type of investor also has a significant impact on a companies' out-performance.

3 The effects of Private Equity on firm's out-performance

3.1 The theoretical model: Out-performance measure

In order to identify the role Private Equity for corporate governance and thus the success of the firm we try to address the following questions:

1. How do different influence levels on corporate governance captured by the magnitude and the dispersion of shareholding among a particular group of financial investors affect out-performance?
2. Is there a distinct influence of Private Equity on out-performance relative to other financial investors at any level of influence on corporate governance?

We review the idea of corporate governance as a concept to ensure firm's sustainable and sound business policies in order to obtain above average operating efficiency. Hence we start our analysis by developing a measure for operating returns. A leverage amplifies any operating gains due to lower weighted average costs of capital. In order to distinguish the gains from financial gearing from other value enhancing strategies we adopt the standard textbook de-leveraging approach, similar to the procedure in [Acharya et al. \(2009\)](#).

First we calculate the return of company i in t as the Return on Equity (ROE).² By unleveraging these results the gains are made comparable among different levels of debt holding. To unlever we use the unlevering formula:

$$R_{U,it} = \frac{R_{L,it} + R_{D,it} D_{it}/E_{it}}{1 + D_{it}/E_{it}}, \quad (1)$$

where $R_{U,it}$ is the unleveraged ROE of company i in t , D_{it}/E_{it} represents the leverage ratio as debt divided by equity. Since the exact interest rates of a company is a business secret, we assume for $R_{D,it}$ the LIBOR interest rate at the current point in time. Earlier investigations in other settings showed no differences for steady $R_{D,it}$ ranging from 2.5 to 7.5% ([Acharya et al., 2009](#)). $R_{L,it}$ is the levered ROE.

²The data set that we use provides this variable as a return on shareholder funds.

In a second step the returns of all companies without a considerable equity share hold by financial investors are compared with firms with such an engagement. We assume a non-considerable investment if the shares hold by the blockholder amount to less than 5% of the company's equity.³ In a third step the unleveraged $R_{U,it}$ of the PE-lead companies is benchmarked to the unleveraged $R_{SU,i}$ of similar peers without PE-Investments. The allocation to the peers is geared to the industry reflected by a company's NACE Code.

$$R_{U,it} = \alpha_{it} + \beta_S R_{SU,i} + \epsilon_{it}, \quad (2)$$

where β_S to be typically 1. The residual of the unlevered return is the α_{it} , which serves as measure of out-performance. The deal level out-performance α for i in t is thus $\alpha_{it} + \epsilon_{it}$ and the leverage effect can be seen as the difference of $R_{L,it} - R_{U,it}$. This approach assumes in line with [Badertscher et al. \(2009\)](#) tax gains to have no significant effect on a companies' out-performance. Consequently the leverage amplification on alpha can be seen as $(\alpha_{it} + \epsilon_{it})D_{it}/E_{it}$.

3.2 The econometric model

Our econometric exercise is aimed at testing the impact of ownership of a bank, non-bank financial company (e.g. a hedge fund), and private equity presence among shareholders on firm's out-performance. In particular, we estimate a panel out-performance model in which different ownerships of PE, bank and financial company in year t impacts the out-performance measure in the same year t . We estimate a firm-effects model and calculate standard errors that are robust and corrected for clustering at the firm level.

The basic performance equation we estimate is:

$$\begin{aligned} \alpha_{it} = & \sum_{j=1}^4 \beta_{PE_j} PE_{it}^j + \sum_{j=2}^4 \beta_{PE*N_{PE_j}} (PE_{it}^j)(\# PE_{it}) + \\ & + \sum_{j=1}^4 \beta_{Fin.Comp._j} Fin.Comp.^j_{it} + \sum_{j=2}^4 \beta_{Fin.Comp.*N_{Fin.Comp._j}} (Fin.Comp.^j_{it})(\# Fin.Comp.^j_{it}) + \\ & + \sum_{j=1}^4 \beta_{Bank_j} Bank^j_{it} + \sum_{j=2}^4 \beta_{Bank*N_{Bank_j}} (Bank^j_{it})(\# Bank_{it}) + \\ & + Debt_{it} + \epsilon_{it}, \end{aligned} \quad (3)$$

³See [Laeven and Levine \(2009\)](#) and [Faccio and Lasfer \(2000\)](#) for a detailed analysis of these issues.

where the subscripts refer to i 'th firm at time t . Superscript j in PE_{it}^j , $Fin.Comp_{it}^j$, and $Bank_{it}^j$ takes values from 1 to 4. $j = 1$ means that there is at least one PE, financial company, and bank, respectively with an ownership of altogether between 5 and 25 %. $j = 2$ implies ownership between 25 and 50, $j = 3$ means ownership between 50 and 75, and $j = 4$ means ownership between 75 and 100.⁴ As mentioned in an outset, we also include interaction terms of shareholding percentage and number of shareholders of this type for cases when shareholding percentage ranges from 25 to 50, from 50 to 75, and from 75 to 100. Specification (3) implies that the marginal effect of private equity and of other financial investors on firm performance is solely determined by the respective coefficient β . As Jensen (1989) puts it, the debt burden serves a corporate governance instrument of its own. It sets an incentive for the generation of sufficient Cash Flows and reduces the possibilities for value-decreasing discretionary spending within the firm. We account for the direct influence on corporate governance by including debt (scaled by total assets) into our performance equation.

4 Data

The major goal of the current study is to analyze how the presence of private equity investors influence the out-performance of a high-growth firm at any substantial shareholding level and compare the PE-influence with the one other financial investors have. We therefore need reliable firm-specific data as well as data on the environment in which the firm operates. The data on firm-specific variables come from November 2008 edition of *Amadeus* database that is compiled by Bureau van Dijk. To the best of our knowledge the version of *Amadeus* database that we use provides the best currently available coverage of financial and shareholding information for both listed and unlisted firms in European countries. We retrieve consolidated annual financial statements for firms in 22 European countries for years 2002 to 2007. We define a firm to be a "high-growth" firm if its sales (or operating revenues)⁵ are above the third quartile of the sales/operating revenues distribution. We do the following analysis only for such firms.

4.1 Geographical composition

Table 1 lists countries and number of data points available for the analysis. Samples (1a), (1b), and (1c) include firms that have all three types of investors (PE, financial firms and

⁴For all j we exclude the lower boundary and include the upper one. For example, $Bank_3$ means that there is at least one bank with an ownership of altogether larger than 50 and smaller or equal than 75 %.

⁵Sales and operating revenues are used interchangeably in *Amadeus* data base.

banks). Sample (1a) includes firms from the following 16 countries: Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Serbia, Spain, Sweden, Switzerland, and the United Kingdom. Sample (1b) is a subsample of (1a) and includes countries that have more than 10 observations: France, Germany, Netherlands, Norway, and Spain, while (1c) includes only the UK. Sample (1c) is constructed since previous evidence suggests clearly that the PE market in UK is different from the rest of Europe. Samples (2a), (2b), and (2c) include firms that have at least one type of investor, Private Equity (P), financial firm (F), or bank (B), respectively. For example, 2a includes targets that have at least one PE investor but other financial investors including banks may also hold shares in these firms. Samples (3a) and (3b) do not restrict the types of investors that firms have: either P, F or B. Solely, (3a) restricts the sample to fifteen countries that appear in (1a). (3b) additionally includes firms from 14 additional countries: Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Iceland, Latvia, Luxembourg, Poland, Romania, Slovenia, and Ukraine, thus making the sample contain 30 countries.

4.2 The age and ownership structure of a firm

The distribution of age in different samples is given in Figure 1. We do not differentiate between listed and unlisted firms since the *Amadeus* database gives only current state and it is nontrivial to get information on possible swapping between being public and private for each firm in our sample starting from 2002.

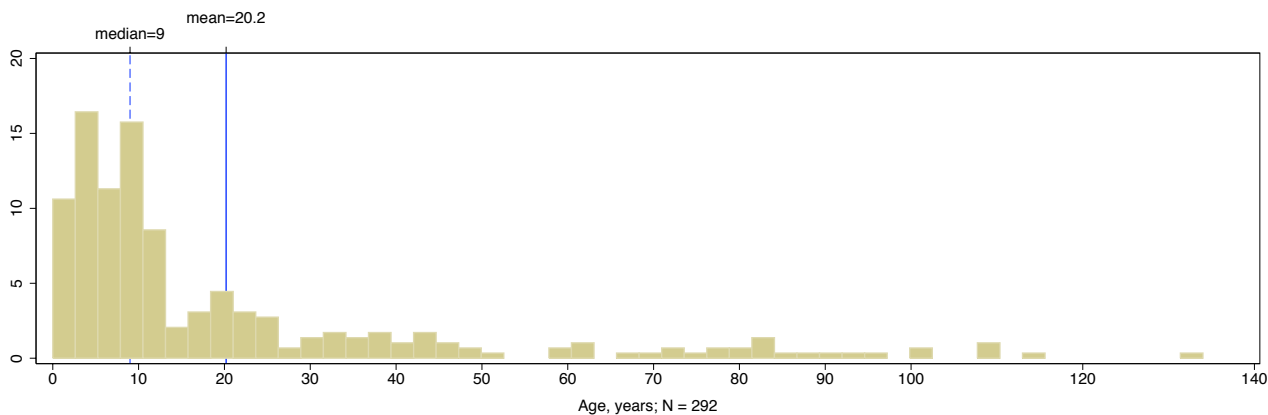
The *Amadeus* database contains ownership data (history of shareholders via web-access), which runs back to 2000. The database enables us to identify the type of the shareholder, though the classification of the PE investment is not unambiguous. We have made three rounds of classification comparisons from September, October, and November editions of *Amadeus* database by inquiring and choosing PE firm in accordance with NACE code of the investor,⁶ and additionally checked the names of investors with the established list of the PE firms from PEI Services Ltd.⁷

We are interested on the impact of investor type, shareholding and concentration of shareholdings on firms' out-performance via their effect on corporate governance. Thus

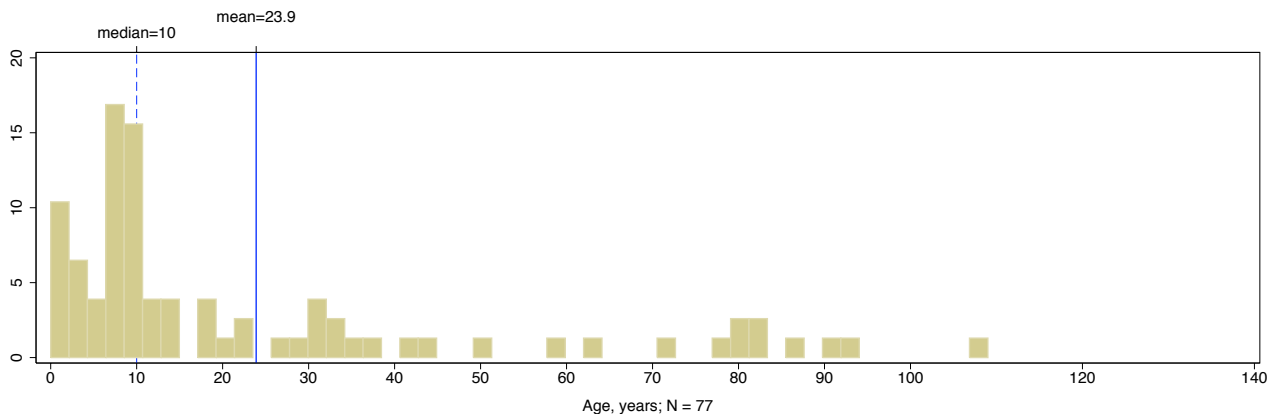
⁶Investor is considered to be Private Equity fund if its activity is described as Activities auxiliary to financial intermediation, except insurance and pension funding (6710), Administration of financial markets (6711), Security broking and fund management (6712), Activities auxiliary to financial intermediation n.e.c. (6719), Activities auxiliary to insurance and pension funding (6720), Activities auxiliary to insurance and pension funding (6720), Business and management consultancy activities (7414), Management activities of holding companies (7415), Call center activities (7486), or Other business activities n.e.c. (7487).

⁷A subscription to "private equity info" was acquired at <http://www.privateequityinfo.com>.

Panel A: Sample (1a)



Panel B: Sample (1b)



Panel C: Sample (1c)

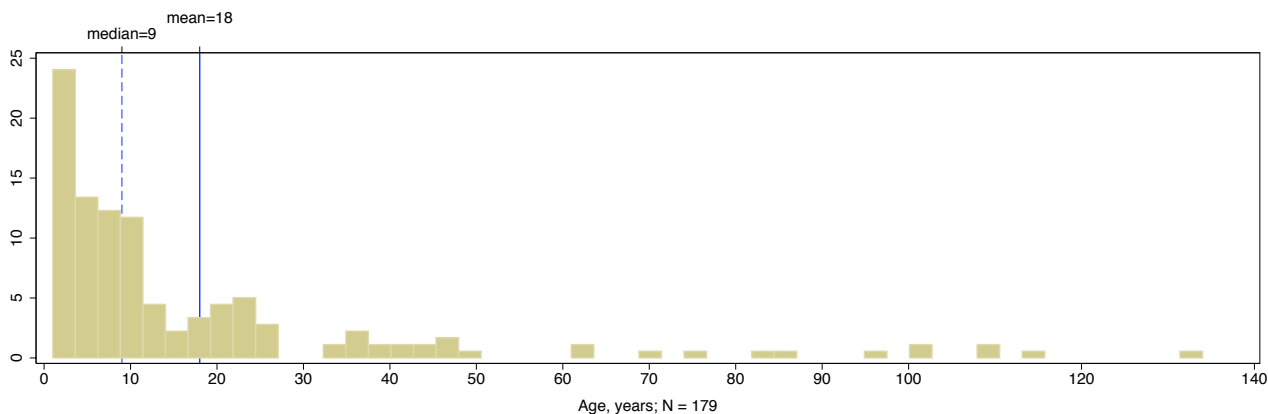
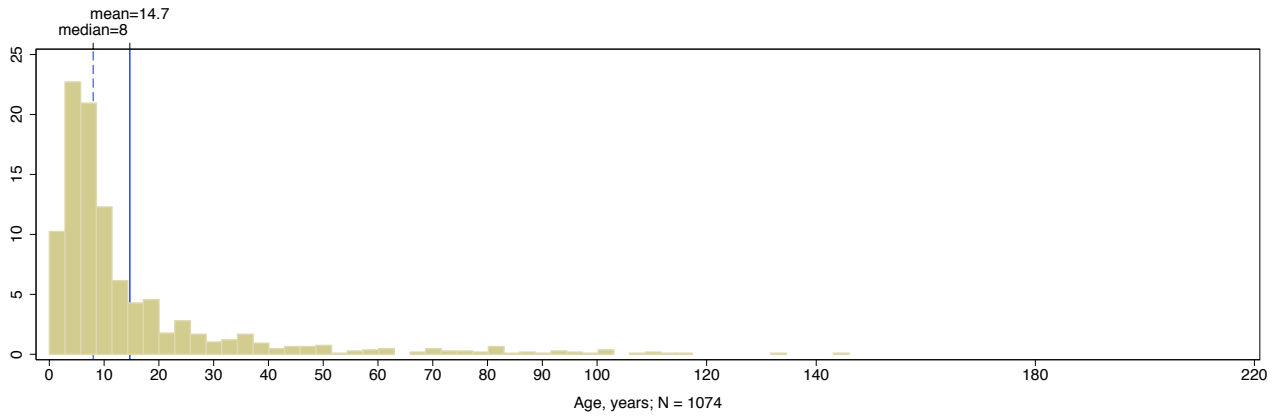


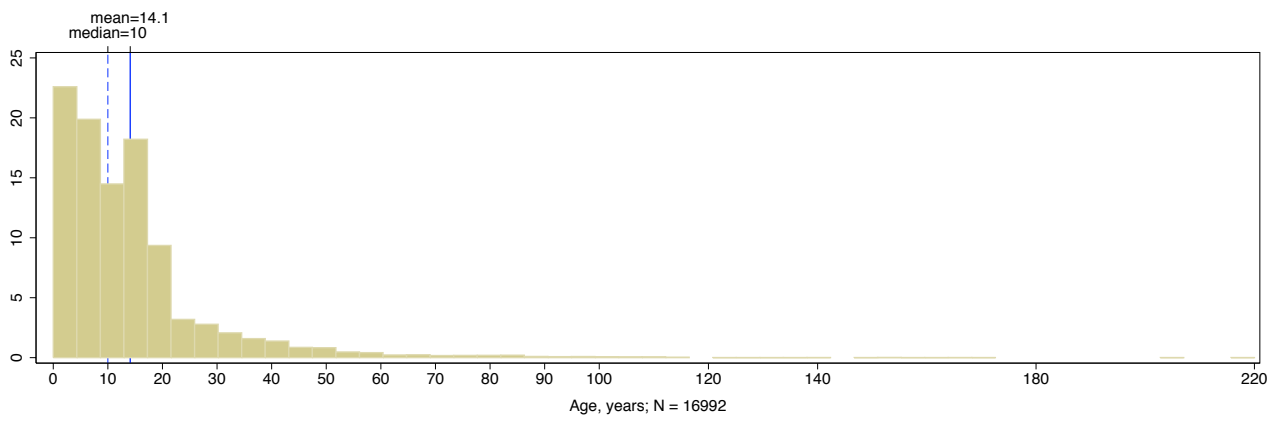
Figure 1: Distribution of age of firms

In each panel the vertical dotted line represents the median and the vertical solid line represents the mean of the age distribution.

Panel D: Sample (2a)



Panel E: Sample (2b)



Panel F: Sample (2c)

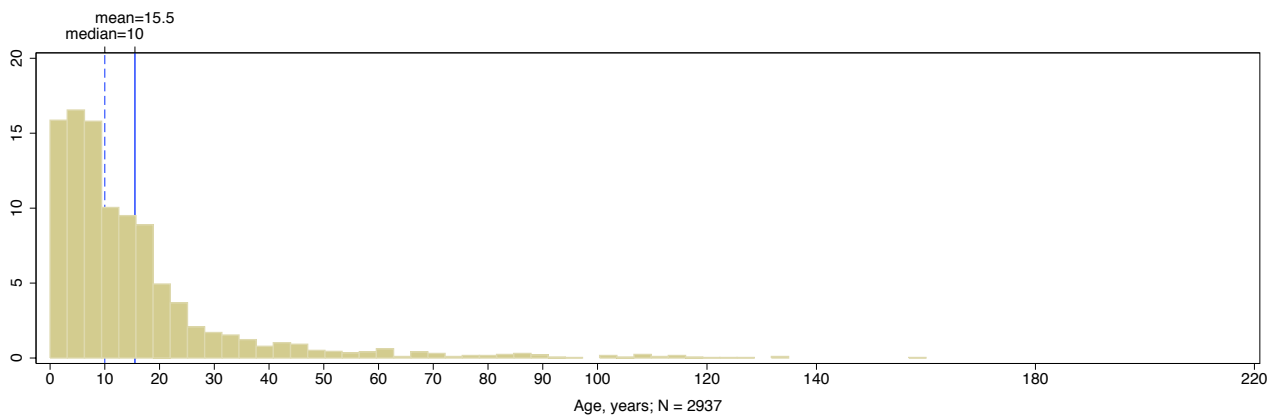


Figure 1 continued.

Table 1: Samples used in the analysis

| | (1a) P &F &B | (1b) P &F &B | (1c) P &F &B | (2a) P | (2b) F | (2c) B | (3a) any | (3b) any |
|----------------------|-----------------|-----------------|-----------------|-----------|-----------|-----------|-------------|-------------|
| Austria | | | | | 20 | 18 | | 58 |
| Belgium | 5 | | | 76 | 1222 | 125 | 2097 | 2097 |
| Bosnia & Herzegovina | | | | | 1 | | | 1 |
| Bulgaria | | | | | 144 | 24 | | 347 |
| Croatia | | | | 1 | 27 | 63 | | 250 |
| Czech Republic | | | | | 36 | 20 | | 213 |
| Denmark | 3 | | | 24 | 599 | 63 | 927 | 927 |
| Estonia | | | | 1 | 84 | 22 | | 197 |
| Finland | 8 | | | 21 | 181 | 46 | 521 | 521 |
| France | 27 | 27 | | 233 | 1471 | 438 | 4367 | 4367 |
| Germany | 16 | 16 | | 43 | 273 | 198 | 961 | 961 |
| Greece | 3 | | | 5 | 154 | 132 | 720 | 720 |
| Hungary | | | | | 36 | 24 | | 176 |
| Iceland | | | | | 2 | 2 | | 5 |
| Ireland | 4 | | | 13 | 7 | 16 | 35 | 35 |
| Italy | 1 | | | 26 | 924 | 225 | 2387 | 2387 |
| Latvia | | | | | 2 | 2 | | 4 |
| Luxembourg | | | | 1 | 14 | 4 | | 36 |
| Netherlands | 10 | 10 | | 23 | 217 | 30 | 364 | 364 |
| Norway | 11 | 11 | | 56 | 5829 | 171 | 7706 | 7706 |
| Poland | | | | 2 | 146 | 48 | 661 | 617 |
| Portugal | 1 | | | 8 | 241 | 45 | | 661 |
| Romania | | | | 2 | 308 | 26 | | 850 |
| Serbia | 1 | | | 1 | 37 | 20 | 134 | 134 |
| Slovenia | | | | | 3 | 11 | | 55 |
| Spain | 18 | 18 | | 107 | 2782 | 511 | 5042 | 5042 |
| Sweden | 6 | | | 62 | 1351 | 101 | 2556 | 2556 |
| Switzerland | 4 | | | 16 | 13 | 19 | 54 | 54 |
| Ukraine | | | | | 144 | 19 | | 599 |
| United Kingdom | 186 | | 186 | 378 | 1056 | 576 | 3989 | 3989 |
| Total | 304 | 82 | 186 | 1099 | 17324 | 2999 | 32521 | 35929 |

we need to know the number of shareholders for each type and year and also to aggregate shareholdings by investor type and year.

Among other types of investors, the *Amadeus* database differentiates a bank (“B”) and a financial company (“F”). Figure 2 present the distribution of ownership of PE, bank, and financial company in different samples. The means of the distributions are virtually the same in samples (1a), (1b), and (1c). The distributions are practically indistinguishable implying that PE, and banks, own more or less the same portion, with portion of financial companies being a bit larger. We further notice that none of these three types of investors has more than

75% of shares in a firm. In case of the UK, none of these three types of investors has more than 50% of shares in a firm, except for one firm that has two PE investors having 50.16% together. In the “least one” cases 100% ownership is present and prevails in samples (2b) and (2c). The average ownership in these two samples is more than 50%.

4.3 Outliers

Some firms’ characteristics seem unrealistically huge or small. In order to reduce the impact of such outlying observations we have winsorized these characteristics at one percent from the top and the bottom of its empirical distribution. More specifically, we first calculated the 1st and 99th percentiles of the empirical distribution of characteristics. We then have replaced values of a characteristic smaller (larger) than the 1st (99th) percentile with the value of the 1st (99th) percentile. We have also winsorized the resulting α , the out-performance measure, in the same manner. The histograms for different samples appear in Figure 3.

5 Empirical Results

Table 2 presents the results of estimation of Eq (3) for different samples. Each column contains coefficients from a fixed effects panel regression. The time dimension of our panel is not particularly rich. A firm is typically observed 1.1 times in samples starting with 1, ranging from 1 to 2 times and approximately 1.3 times (from 1 to 6) in all other samples. Due to small sample instance, many coefficient in the first three cases are not estimated.

5.1 Firms with *all* three types of investors

In firms that have all three types of investors, the out-performance of those that have PE ownership in a range from 50 to 75 is lower than the out-performance of those that do not have PE ownership in this range. Additionally, the out-performance is higher if a financial company owns shares in a range from 25 to 50%. These two observations are though not supported by samples (1b) and (1c), which implies that these statistically coefficient are driven by 36 firms, the difference between samples (1a), (1b), and (1c). Combined together, the results of first three columns suggest that the out-performance in a firm with all three types of investors is nearly random.

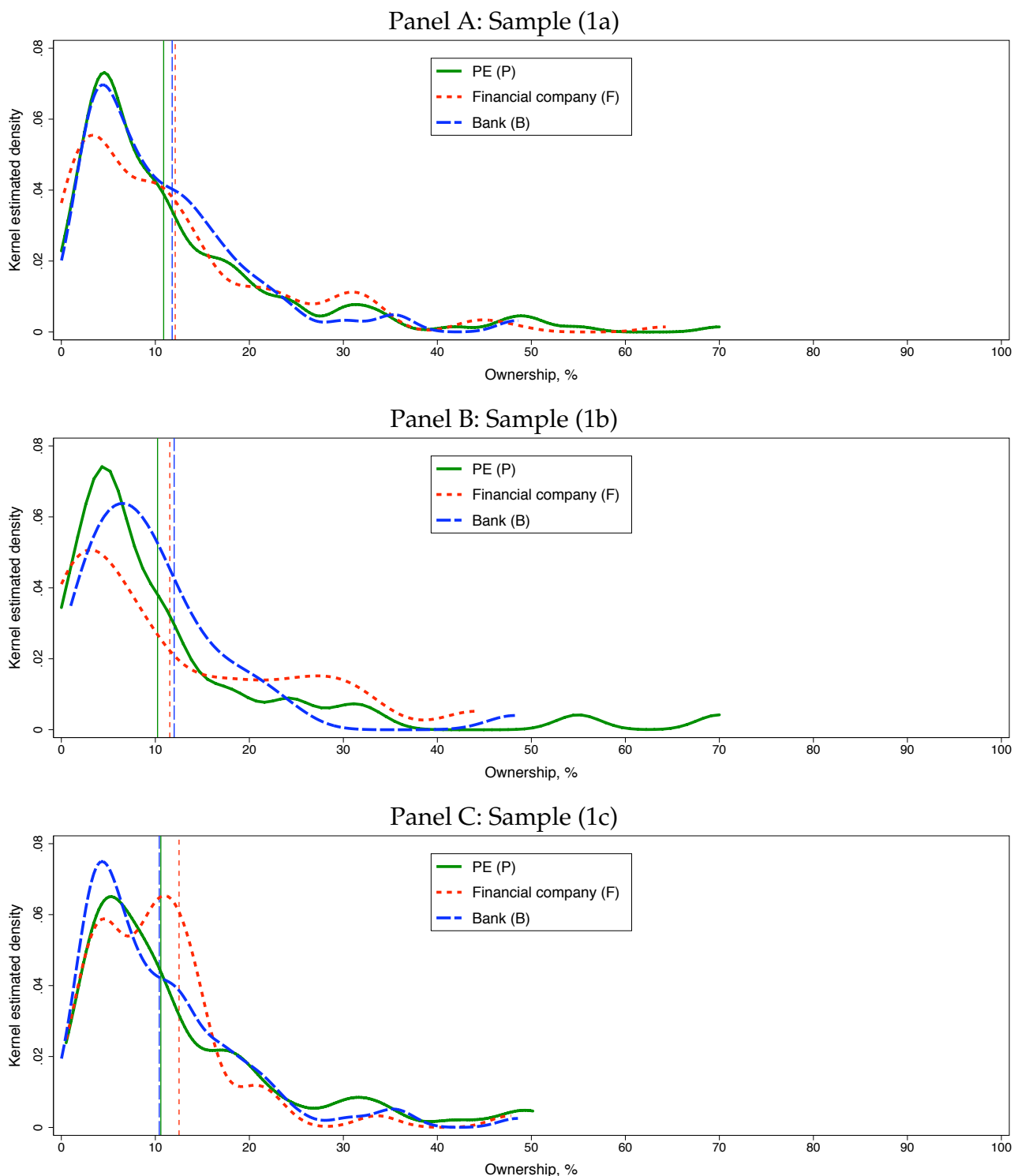


Figure 2: Distribution of ownership by type of investor

Notes: The solid curve is the distribution of PE ownership, the dashed curve is the distribution of bank ownership, and the dotted curve is the distribution of financial company ownership in a firm. The respective vertical lines present the means of the distributions.

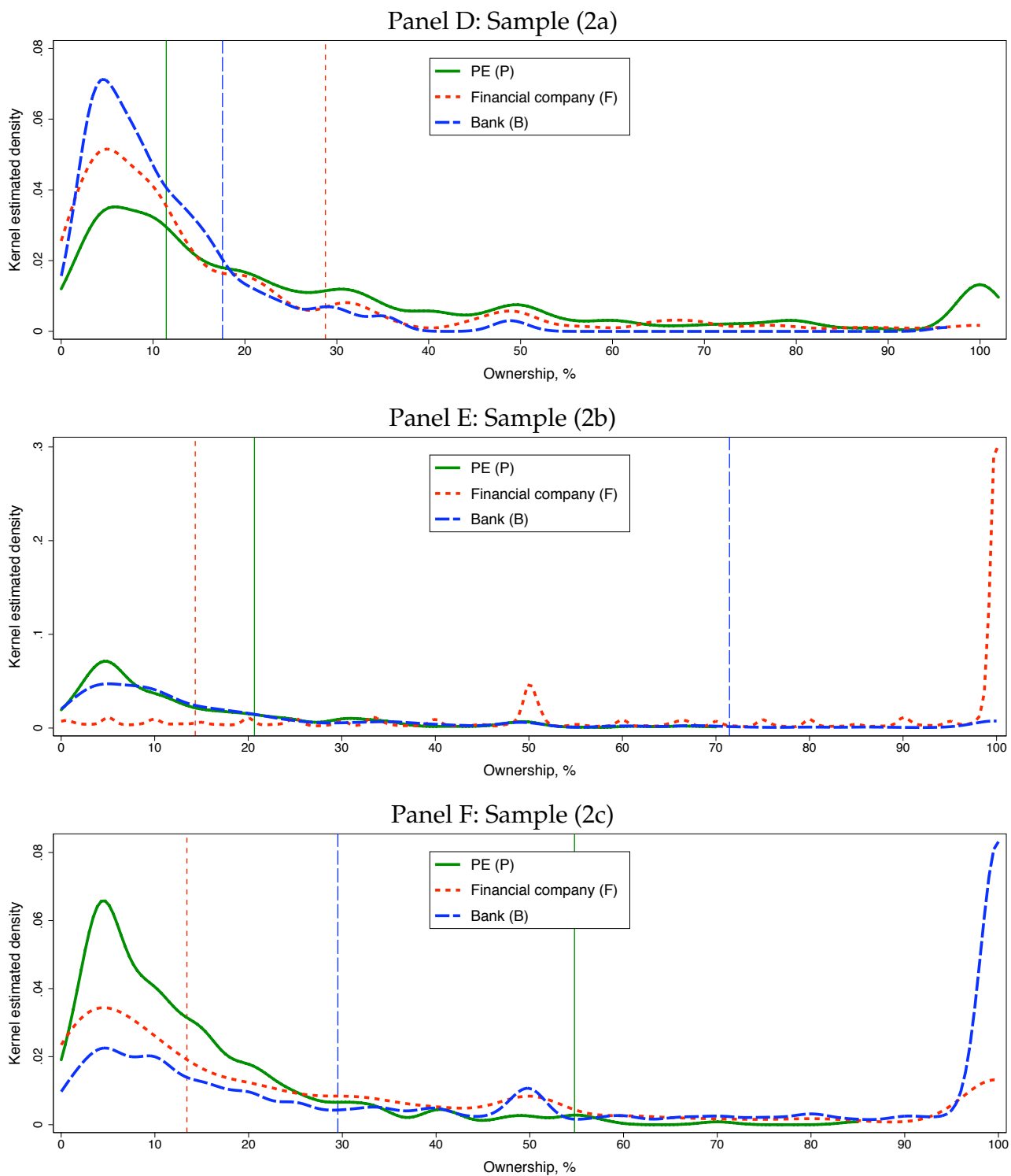


Figure 2 continued.

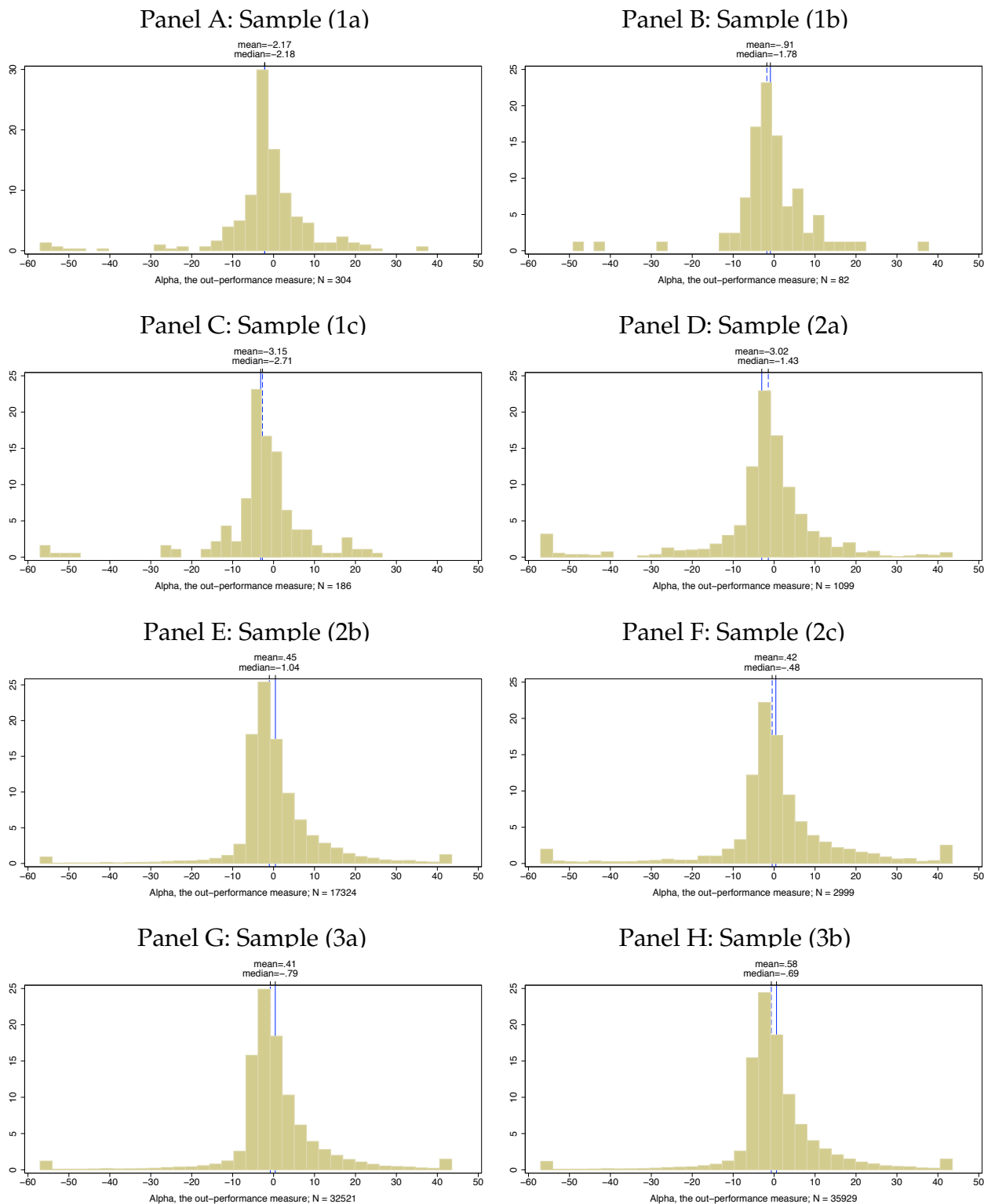


Figure 3: Distribution of α , the out-performance measure

In each panel the vertical dotted line represents the median and the vertical solid line represents the mean of the alpha distribution.

Table 2: Fixed-effects estimation

| Dependent variable: α -out-performance | | | | | | | | |
|---|---------------------|-------------------|---------------------|-------------------|---------------------|--------------------|---------------------|---------------------|
| Variable | (1a) | (1b) | (1c) | (2a) | (2b) | (2c) | (3a) | (3b) |
| P in (5:25] | -4.19 (-1.09) | 0.97 (0.20) | -1.45 (-0.22) | 0.91 (0.30) | 0.49 (0.16) | -5.53* (-1.67) | -0.03 (-0.02) | -0.08 (-0.06) |
| P in (25:50] | . | . | . | -10.61 (-1.43) | -15.56 (-0.79) | -19.30 (-1.10) | -3.17 (-0.80) | -3.22 (-0.81) |
| (P in (25:50]) x (#P) | -1.69 (-0.60) | . | -2.12 (-0.63) | 1.83 (0.76) | 1.57 (0.38) | 3.73 (0.75) | 0.11 (0.08) | 0.11 (0.07) |
| P in (50:75] | -31.42** (-2.90) | . | . | 9.39 (1.16) | 7.91 (0.71) | -8.43 (-0.39) | 6.88 (1.49) | 6.26 (1.36) |
| (P in (50:75]) x (#P) | 7.91** (2.85) | 3.31* (3.14) | -10.40** (-2.63) | -2.20 (-1.26) | -2.15 (-1.27) | 3.71 (0.78) | -1.80 (-1.41) | -1.73 (-1.36) |
| P in (75:100] | . | . | . | 38.16** (2.55) | . | 2.96 (0.18) | 21.88*** (2.90) | 17.44*** (2.62) |
| (P in (75:100]) x (#P) | . | . | . | 0.39 (0.36) | . | . | 1.19 (1.60) | 1.42** (1.97) |
| F in (5:25] | -5.63* (-1.92) | 1.94 (0.40) | -8.41* (-2.14) | -2.80 (-0.76) | -2.73* (-1.79) | -2.26 (-0.80) | -1.69** (-2.35) | -1.51** (-2.18) |
| F in (25:50] | . | . | . | -19.24 (-0.66) | -2.91 (-1.30) | -3.22 (-0.31) | -3.56*** (-3.20) | -2.86*** (-2.65) |
| (F in (25:50]) x (#F) | 18.04*** (3.03) | . | . | 20.45 (1.05) | 0.18 (0.17) | 1.67 (0.29) | 0.11 (0.17) | -0.01 (-0.01) |
| F in (50:75] | . | . | . | 9.77 (0.86) | 4.47* (1.73) | -29.01 (-1.46) | 0.82 (0.47) | 0.64 (0.37) |
| (F in (50:75]) x (#F) | . | . | . | . | -3.35*** (-2.61) | 12.84 (1.26) | -2.52** (-2.37) | -2.37** (-2.25) |
| F in (75:100] | . | . | . | 36.80 (1.65) | 1.60 (0.71) | . | -0.84 (-0.52) | 0.36 (0.23) |
| (F in (75:100]) x (#F) | . | . | . | . | -1.57 (-1.50) | 10.26 (1.57) | -1.31 (-1.38) | -1.63* (-1.75) |
| B in (5:25] | 1.94 (0.47) | -5.90 (-1.13) | 11.26 (1.49) | 0.76 (0.20) | -3.46 (-1.60) | 2.75 (1.38) | 0.67 (0.61) | 1.01 (0.94) |
| B in (25:50] | . | . | . | 9.49 (0.06) | 1.06 (0.06) | 2.67 (0.75) | 3.31 (1.43) | 2.26 (1.03) |
| (B in (25:50]) x (#B) | -0.06 (-0.27) | . | . | -0.43 (-0.09) | -0.21 (-0.30) | -0.04 (-0.08) | -0.18 (-0.56) | -0.12 (-0.38) |
| B in (50:75] | . | . | . | . | 7.30 (0.37) | 3.69 (0.67) | 7.42* (1.80) | 4.85 (1.24) |
| (B in (50:75]) x (#B) | . | . | . | . | -8.33 (-0.93) | -0.55 (-0.25) | -2.07 (-1.19) | -1.50 (-0.87) |
| B in (75:100] | . | . | . | . | 2.49 (0.36) | -8.26** (-2.50) | -6.31*** (-2.64) | -7.79*** (-3.49) |
| (B in (75:100]) x (#B) | . | . | . | . | . | 0.43 (0.86) | 0.27 (0.68) | 0.36 (0.91) |
| Current Liabilities / Total Assets | -74.78** (-2.48) | -13.06 (-0.31) | -104.53* (-2.39) | 0.38 (0.05) | -9.06*** (-6.56) | -2.35 (-0.64) | -5.26*** (-5.70) | -6.18*** (-7.22) |
| Number of groups | 282 | 74 | 175 | 891 | 14492 | 2289 | 25692 | 28260 |
| Number of obs | 304 | 82 | 186 | 1099 | 17324 | 2999 | 32521 | 35929 |

Notes: *t*-statistics are in parentheses; *, **, and *** indicate statistical significance at the 5%, 1%, and 0.1% test levels, respectively

¹ (1a), (1b), and (1c) samples include firms that have all three types of investors (PE, financial firms and banks). (1a) includes firms from the following 15 countries: Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Serbia, Spain, Sweden, Switzerland, United Kingdom; (1b) is a subsample of (1a) and includes countries that have more than 30 observations: France, Germany, Netherlands, Norway, and Spain, while (1c) includes only UK;

² (2a), (2b), and (2c) samples include firms that have at least one type of investor, PE, financial firm, or bank, respectively;

³ (3a) and (3b) do not restrict the types of investors that firms have. Solely, (3a) restricts the sample to countries that appear in (1a). (3b) additionally includes firms from 14 countries: Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Iceland, Latvia, Luxembourg, Poland, Romania, Slovenia, and Ukraine.

5.2 Firms with *at least one type of investor*

In a sample of firms that have at least one PE investor but unrestricted with regard to other types, firms with ownership by PE in a range from 75 to 100% do out-perform those that do not have such ownership structure. Apart from this influence, the out-performance in this sample with at least one PE investor varies randomly. The number of PE investors has no influence on out-performance. The interaction terms between ownership ranges of PE and number of the PE funds in the firm lacks significance.

The number of firms in sample (2b) with at least one financial firm investing but no restriction with regard to other types is fifteen times bigger than that of with at least one PE investor (2a). The only coefficient that is strongly statistically significant is at the interaction term between ownership of a financial firm in a range 50 to 75% and number of the shareholding financial firms.⁸ Given that the coefficient of the ownership of a financial firm in a range 50 to 75% is statistically insignificant, the result is determined by the number of financial firm investors. The larger the number of financial firm investors whose combined ownership falls in a range from 50 to 75%, the smaller the out-performance of a firm in comparison to a peer group. This may indicate low incentive alignment within shareholding financial firms and a lack of a coherent strategy to influence the target firms' corporate governance.

In the sample with at least one bank investor one result stands out. Specifically, the majority ownership (ownership in a range from 75 to 100%) by a bank implies lower out-performance. Interestingly, if at least one bank investor is present minority shareholding by a PE firm has a negative influence on a firm's out-performance.

5.3 Firms with *any type of investor*

The difference between samples (3a) and (3b) is 3408 firm (about 10%), but the signs of coefficients and their significance are identical. Thus, no sample bias is introduced in (3a) by excluding 14 countries from an analysis. The following comments apply to both (3a) and (3b) samples.

When the sample is unrestricted in terms of type of investor, the results keep most of the features of the results of restricted samples. The out-performance of a firm with PE ownership in a range 75 to 100% is statistically significantly bigger than that of firm without such ownership structure.

⁸Recall that percentage ownership is the sum of percentage ownerships of multiple investors of a particular type this year.

The result that the ownership by a financial firm up to 25% has a negative effect on out-performance backs the result from samples (1a) and (1c). The unrestricted samples also imply that the out-performance of a firm with financial firm ownership in a range from 25 to 50% is lower. The out-performance of a firm with a larger number of financial firms, whose combined ownership lies in a range between 50 and 75 is lower than that of peer group. This result is in line with the findings from sample (2b).

Finally, in accordance with results obtained for sample (2c), a bank's ownership in a range between 75 and 100% affects the relative performance of the firm negatively. This is exactly the opposite result of what was found for the private equity engagement. As with PE all other levels of ownership remain insignificant.

Note that in all samples that we have analyzed we find that debt [scaled by firm's total assets] has a negative influence on firm's α -out-performance. Thus, debt is a burden for a firm on its way to out-perform its peers. Jensen (1989)'s conjecture of debt as a corporate governance device with positive effect on performance is not confirmed.

6 Concluding Remarks

In recent years the policy makers have become increasingly concerned with the effect of private equity on corporate governance of a firm. Although corporate governance is a very clear concept it is very difficult to quantify and there is no consensus as for a direct measurement of corporate governance. Therefore, we follow an indirect way and apply the out-performance approach. We explore the influence of PE ownership of different levels on out-performance of a target firm. This procedure enables us to shed new light on the ticklish issue of PE influence on targets' corporate governance as improved corporate governance in general affects out-performance positively.

Our empirical analysis of the impact of levels and dispersion of PE ownership in high growth targets is based on a large data base of European firms. We find that PE affects out-performance of high growth firms. However the impact is restricted to large PE shareholding levels. Only if PE ownership lies in a range from 75 to 100% the influence on out-performance of the target is statistically different from zero and positive. In this range, PE "outperforms" other financial investors. The out-performance of a firm with bank ownership in a range from 75 to 100% is lower than out-performance of a firm without such ownership. Third, our analysis shows that minority shareholding of non-bank financial firms has a negative effect on firm's out-performance.

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