The effect of Institutional Ownership on Firm Performance.

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ABSTRACT,
The goal of this study was to find what effect Institutional Ownership has on firm performance in Germany. A positive relationship between the two was expected due to the influence of institutions through 'active monitoring' and the access to resources as well as managerial skills. The effect was studied by using the percentage of shares held by institutional owners as a measure for institutional ownership. To measure increases or decreases in firm performance, four different dependent variables were used, namely Return on Assets (ROA), Return on Equity (ROE), the Price/Earnings ratio (P/E) and the Cash flow per Share. Multiple control variables were used to control for increases or decreases in performance not attributable to Institutional Ownership. These control variables were, Size, the Price/Book ratio, the Debt/Assets ratio and the Firms Tangible Assets ratio. After finding a high correlation between Size and IO, a second regression was done excluding this variable. The Panel Data Regressions resulted in no significant evidence for the relationship between Institutional Ownership and firm performance when including Size, but a moderate to large coefficient for Institutional Ownership's' effect on ROE after omitting Size.

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Keywords
Institutional Ownership, Firm Performance, Active Monitoring, Agency-Theory, Corporate Governance, Passive Investors

1 INTRODUCTION

As a company becomes larger and larger, separation of ownership and control is often the only option. Fama and Jensen (1983) argue that this separation survives because of the benefits that a specialized management team brings, but also as a way of approaching agency problems. Agency problems arise with separation of control, as management is supposed to act in the best interests of the shareholders. According to Jensen and Meckling (1976), larger shareholders have more incentive to monitor the management as for smaller shareholders, the costs incurred in the process are not worthwhile. As described in more detail later on, institutional ownership has increased tremendously over the past leading the market capitalization of smaller, individual investors to decline. All in all, the aforementioned trend could have an impact on agency problems. As institutional ownership has grown so rapidly over the past years, the goal of this study is to analyse the relationship between institutional ownership and firm performance for publicly listed firms in Germany. This paper will investigate whether a higher percentage of institutional ownership leads to an increase in the performance of the firm. The firms can also be differentiated by their characteristics, like size, tangible assets, debt structure and share price. This study has the following main research question:

Q1: What is the effect of institutional ownership on firm performance?

To better understand the relationship, however, this paper will first investigate the following sub-questions:

Q2: What is institutional ownership?
And;
Q3: What is the presence of institutional ownership in Germany?

Different studies have tried to answer what the relationship is between institutional ownership and firm performance. A number of these studies focused on single countries in emerging markets, other studies have focused on multiple countries at the same time. Also, different measures for firm performance have been used, like cashflow and shareholder value (measured by Tobin's Q). Furthermore, the stability of institutional ownership and firm performance has also been studied. Only a few studies focused on the effect of institutional ownership for the largest European country measured by GPD (IMF, 2019); Germany. On top of that, as institutional ownership has been growing which will become apparent later on, a new dataset in a post-financial crisis world makes the environment for this study different from others. The results of these studies are mixed, therefore, no definitive answer is present. All in all, additional support for the relationship between institutional ownership and firm performance is provided. These points are in which the academic relevance of this paper lies. Practically, it is relevant to both shareholders and companies. Companies can reassess their ownership structure and see whether it is beneficial to the performance of the firm. If institutional ownership does have a positive impact on firm's performances, individual firms would benefit from finding institutional investors who want to invest in their firm, as this would have the potential to raise their performance. Shareholders and other stakeholders will benefit from this reassessment, as the benefits of the increase of firm performance due to changes in ownership structure by the company will eventually be shared with them.

The next section includes a literature review on this topic followed by a hypothesis that will be derived from this. In the third section, the methodology and data of this research will be explained. Part four will include the results of the research. The last part is a conclusion of the results together with its implications.

2 LITERATURE REVIEW

2.1 What is Institutional Ownership?

Institutional investors have one thing in common, that is that they are all legal entities. Different legal forms exist nevertheless, joint-stock companies aiming to maximize profit, such as closed-end funds or, in the case of private equity funds, limited liability partnerships. Sovereign wealth funds have different legal forms altogether as they are state-owned by nature. Furthermore, institutional investors can be independent, or they can be a subsidiary of another company, such as a mutual fund that is part of a bank. On top of that, institutional investors are often 'intermediary investors'. This means that the institution manages money from other people and invests this to make money, but there are exceptions. Sovereign wealth funds serve as ultimate owners when it functions as a financial stabilizer. In a private equity firm, the institution co-invests with the limited partners, forming a hybrid between the two. Çelik and Isaksson (2014) distinguish between three different categories of institutional investors. Firstly, 'traditional institutional investors', these are investment funds, pension funds and insurance companies. The second category is 'alternative institutional investors', under which hedge funds, ETF's (Exchange Traded Funds), private equity firms and SWF's (Sovereign Wealth Funds) fall. Lastly, they mention asset managers as a category, as this type has been growing rapidly. Apart from these main categories, other types exist as well, such as endowment funds, closed-end investment companies and non-pension fund money managed by banks. (Çelik and Isaksson, 2014)

Investment funds, one of the 'traditional institutional investors', can also be differentiated among. The EC (2020) describes investment funds as "products created with the sole purpose of gathering investors' capital, and investing that capital collectively through a portfolio of financial instruments such as stocks, bonds and other securities." Different directives exist for different types of European based investment funds, however. For mutual funds, this is the directive on undertakings for collective investment in transferable securities (UCITS). This type of fund is the largest vehicle of investing for small investors, ac-

counting for around 75% of their collective investments. Buyers from outside of Europe can also invest in UCITS. Non-European mutual funds can invest in European stock as well, however. The alternative investment fund managers (AIFM) directive covers funds not regulated by the UCITS directive, such as private equity funds, hedge funds and real estate funds as well as many different other types of institutional funds. Investment funds are not the only type of institutional investors, however, as mentioned before. (EC, 2020)

An important differentiation can be made between types of institutional investors and different strategies that institutions have when analyzing their portfolio. First of all, institutions can be managed passively or actively. When managed passively, they do not partake in buying and selling shares to exert influence on the managers of the firms. (Appel et al., 2016) Another type of passivity is where institutions decide not to engage in corporate governance, but rather engage in "rational ignorance" and sell their shares when problems arise. (McLaren, 2004) For the sake of differentiating between these two types of passivity, in this study, the words "Active/Passive investing" and "Active/Passive Monitoring" are used.

If we look at the number of passive institutional investors, according to research by Appel et al. (2016) the percentage of passive mutual funds that are passively managed in the US tripled from 1998 until 2014 to 33,5%. Although the market capitalization of these passive investors quadrupled over the same period, it was relatively a lot smaller at only 8% in 2014. In the EU, similar trends have occurred, because of the quick rise of ETFs and indices, passive investing has become very popular. As of 2019, indices accounted for 9% of the market share and ETFs 7%. (Glow, 2019) As the passive investing means these institutions do not buy or sell shares in order to exert influence on the managers, these passive investors raise questions about their effectiveness in monitoring their portfolio, as they can not use buy/sell tactics to control managers in the short run. Although passive investing does not mean active monitoring can not be present, the objective of passive investors is often one of the following two: to index (as if it resembles a market), or invest in a style of companies (such as large-cap companies) and have diversified portfolios with minimal expenses. (Appel et al., 2016) The first type does often not meet with firm management according to McLaren (2004). The second type, as it is so diversified, and expenses are minimal, active monitoring could also be assumed to be minimal. All in all, the monitoring of passive investors, although not non-existent, could definitely be questioned.

Not only can institutional investors be differentiated by type, but they also differ in investment strategy. Wang (2014) differentiates between those adopting an active monitoring- and those adopting a passive monitoring strategy. Fundamental research is used by active monitoring firms to make decisions regarding investments, this often involves meeting with the managers of the firm. According to McLaren (2004), large ownership stakes are used by institutional ownership to engage with the investee firm through the means of shareholder activism and dialogue. Active monitoring firms in the UK often have senior managers dedicated to governance activities with multiple subordinates who often engage in a dialogue with the investee companies. (Roberts et al., 2006) Active investors monitor often because their stakes are large, or because they represent the interest of stakeholders leading to a breach of contract in case of no active monitoring. (Schleifer and Vishny, 1986) On the contrary, many passive institutional investors use different techniques, such as indexing or quantitative strategies. Passive institutional investors can make use of either exit or replacement when the investee company is not performing as hoped for. This might seem blunter, but engagement tactics are difficult and depend on the investor's ability to influence the top-management of the investee company. (McLaren, 2004) passive monitoring institutions decide not to engage in active monitoring as it is costly, named as "rational ignorance" by Thompson and Davis (1997). Other investors might not engage in active monitoring because of the uncertainty of the benefits, or they prefer having liquidity or limited institutional capabilities. On top of that, some investors face conflicts of interest, or insider trading rules that limit the possibility to engage more actively. (Coffee et al., 1997) (McLaren, 2004)

2.1.1 Institutional Ownership in Germany

In 2019 alone, the number of assets held by funds in the EU grew by 17% according to Funds Europe (2020). Their results also show that Germany is the largest European country by the level of fund ownership, with 23% owned by UCITS & regulated alternative investment funds, followed by the UK with 14%. In fact, assets held by investment funds in Germany more than doubled since 2011 (OECD, 2019). As for domestic institutional ownership in Germany overall, it accounted for almost a third of the capitalization (Deutsche Bundesbank, 2014). On top of that, more than half of the total capitalization is held by foreign owners, which, according to Deutsche Bundesbank (2014), can almost all be assumed to be institutional investors.

The OECD releases statistics of institutional ownership per OECD country on a yearly basis for Investment Funds, Insurance Companies, and Pension Funds, or the 'traditional institutional investors' as Çelik and Isaksson (2014) calls them. In 2018, investment funds financial assets were worth close to 2 trillion. Insurance companies held the highest number of financial assets, with just over 2 trillion. Pension funds assets summed up to 641 billion. (OECD, 2018)

2.2 Effects of Institutional Ownership on Firms

When a firm's size increases, ownership and control are often separated by creating an executive board running the company on a daily basis and a supervisory board

that represents the shareholders. The Agency Theory describes the relationship of the principal, the owner, and the agent or agents who control the company in the name of the principal. Although often a good solution, this does bear its costs as the interests of the principal and the agent need not be the same. (Guesnerie et al., 1989) Furthermore, Jensen and Meckling (1976) stated that the incentive to monitor becomes larger as the shareholder gets a larger stake in the company. The ownership structure of the firm is partially defined by the aforementioned division of ownership and control as well as how the shares of the firm are spread over different shareholders. Also, different types of owners influence the firm in different ways.

There are multiple arguments for why institutional ownership would have a positive effect on firm performance. These effects that institutional ownership can have on performance stem from different thoughts. First of all, the Financial Economist Roundtable (1998) saw the increased institutional ownership as a favourable development as it would solve problems with ownership and control separation. He noted that the more diffuse the ownership, the less effective the voting rights become, therefore institutions would circumvent this problem by being larger shareholders. Roundtable (1998) named three advantages of institutional ownership. First, as large owners benefit more from a well-performing firm, they have a greater incentive to monitor. Second, as ownership is larger, fewer costs have to be made to coordinate the management oversight activities with other shareholders. Lastly, he argues that as institutions have larger shareholdings, it would be more costly to sell the shares, therefore they would want to monitor the managers more actively. On top of that, Lin and Fu (2017) also state that as institutions have better managerial skill and access to resources as well as larger holdings, they should be able to lower the agency costs, reduce information asymmetries, maximize shareholder value and better monitor the firm.
Furthermore, Fazlzadeh et al. (2011) note that managers of firms with dispersed ownership can pursue their interests as there is no monitoring power by the shareholders. This leads the managers to act not in the best interest of the firm, which ultimately leads to a worsening performance by the firm. Similarly, Maug (1998) found that as markets become less liquid, they will have smaller holdings, which leads the institutions to monitor less, as the monitoring costs would be relatively high. This implies that monitoring is higher when the holdings are higher.

The value given to institutional activism by both the institution and the investee firm has been studied early on. Different qualitative studies showed that both sides attach value to the meetings, ranking them as the most important information source available for the investor. (Marston, 2008)(Barker, 1998) Holland and Doran (1998) find similar results, arguing that to the investors, these meetings are a crucial source of information for not only company strategy and managers capabilities, but also personalities and relationships within the company. According to the Agency Theory, information asymmetry and differences in risk aversion lead to losses of maximum potential. (Eisenhardt, 1989) These meetings can help overcome these issues. Guesnerie et al. (1989) and Marston (2008) has found that most companies keep records on investor relations in order to better prepare for meetings in the future. But not only the investor benefits from these meetings, as mentioned before. The investee firm values receiving feedback on company strategy, cashflow situation and investment plans, but it also benefits from getting market knowledge on major new projects and developments. (Marston, 2008) As both sides value institutional activism, it would be expected that it brings its profits to the firms.

However, as mentioned earlier, Wang (2014) among others has differentiated between active and passive monitoring, where active investors do partake in the aforementioned activities, passive monitoring firms by nature monitor less. In contrast, these institutions operate through the means of quantitative analysis and a replace- or exit strategy. These passive monitoring institutions would rather sell than try to monitor as it sees it as more costly to do the latter. (McLaren, 2004) The aforementioned arguments depending on institutional activism seem to be irrelevant for these passive monitoring institutions. Appel et al. (2016) suggest a positive impact on firm performance and corporate governance from these investors regardless. These benefits stem from more independent directors, protection against takeovers and more equal voting rights. Different points of view on this aspect will be discussed in more detail later on.

2.3 Previous Findings

All in all, it is broadly discussed that institutional holdings often lead to those institutions to play a role in the corporate governance of the company held, however, previous literature has competing results (Lin and Fu, 2017). This is also the case for passive monitoring institutions. (Qin and Wang, 2018) A number of findings have been listed in Table 2 (Appendix B).

The effect of passive monitoring institutions on larger firms, and the effect on incentive schemes of managers remain unexplored as the effect of institutional ownership on corporate governance has primarily focused on the role of actively monitoring making demands on managers or pressuring firms with an exit threat. (Qin and Wang, 2018) (Appel et al., 2016)

Because of the contradictory results, it remains a question what the effect of institutional ownership on firm performance is. Furthermore, the vast amount of literature has not researched the effect of institutions treating them as a homogeneous group (Tsouknidis, 2019). However, the theories suggest that institutional ownership should have a positive impact on the firm performance. For this reason, this paper aims to provide additional support for the relationship between institutional ownership and firm performance, examining a data set of a large and developed European country that is; German public listed firms. Furthermore, Germany offers an interesting environment as the allowance of bearer shares, where individual investors

allow the bank to vote on their behalf, and a large amount of debt financing results in banks playing a key role in the corporate governance of German firms. What's more, bank-influenced firms have easy access to new capital on preferential terms due to their close relationship with the debt holder. (Agarwal and Ann Elston, 2001)

2.4 Hypothesis

The 'active monitoring' view states that as institutional investors are larger shareholders, they are better able to monitor and supervise the firms they invest in, should reduce the asymmetries of information, have lower agency problems and because of this they should be able to maximize shareholder value due to their access to resources and their managerial skills. (Lin and Fu, 2017) Although passive investors have grown over the years and questions rise about their monitoring strategies, the market capitalization is still relatively low both in the US and the EU. (Appel et al., 2016) On top of that, different arguments for the benefits of passive monitoring have been found with different results in this field. For these reasons, this paper will not differentiate between the two types. (Appel et al., 2016)(Glow, 2019) (Schmidt and Fahlenbrach, 2017) (Qin and Wang, 2018)

As the majority of the investment funds partakes in active monitoring and both the investor and the investee firm have indicated they find value in meeting each other, the Agency Theory suggests a positive influence from said monitoring, as the information asymmetries decrease, interests align and the proper amount of risk aversion is used. Furthermore, better managerial skills and access to resources from the institutions should all benefit the principal-agent relationship further. In the case of passive monitoring, the presence of more independent directors, protection against takeovers and more equal voting rights still benefit the firm. For these reasons, the following hypothesis has been derived.

H1: Institutional ownership has a positive impact on firm performance.

3 DATA & METHODOLOGY

3.1 Data

Firms used in the sample for this research were collected through ORBIS, using German active publicly listed companies from 2010-2018, excluding financial companies. The total amount of firms analyzed this way are 598. This way, there should be sufficient post-financial crisis data, 2019 is not used as not all companies data will be available for 2019, this should be less of a problem using 2018 as the latest year. Furthermore, the number of years should be enough to find changes over time. The types of institutional owners used are Banks & Financial companies, Insurance companies, Hedge funds and Mutual & Pension funds. Venture capital is excluded in this paper as the goal is to explain longer-term post-IPO performance whereas venture capitalist by nature focus on the early pre- and post-IPO performance of the firm. The relationship between institutional ownership and firm performance is subject to simultaneity bias, as superior firm performance could attract institutional investors. (Cornett et al., 2007) To avoid this simultaneity problem, for this research, the institutional ownership is shifted forward by one year. The first year's data will be lost that way, however. On top of that, to account for outliers, the top and bottom 1 per cent of the data will be adjusted using the Winsorize method.

3.2 Methodology

The analysis will be done through two means. Firstly, a descriptive analysis with a correlation matrix. And secondly, a panel data regression as well as a cross-sectional analysis using the 5 explanatory variables to find the effect of institutional ownership on firm performance. The following model resembles the relationship between firm performance and institutional ownership.

$$FP_{i_t} = \alpha + \beta 1\ IO_{i_t-1} + \beta 2\ Size_{i_t} + \beta 3\ FTA_{i_t} + \beta 4\ D/A_{i_t} + \beta 5\ P/B_{i_t} + \epsilon_{i_t} \quad (1)$$

In which FP, firm performance, will be measured by ROE and ROA using net income for accounting-based measures, and by Price/Earnings and Cashflow per Share for market-based measures. Institutional ownership, IO, is the sum of the percentage of institutional owners as given by ORBIS' database. Size will be measured as the natural logarithm of the total assets. The FTA (Firms Tangible Assets) is calculated by dividing the tangible fixed assets by the total assets. D/A is the amount of debt divided by the total assets of the firm. Lastly, P/B is the Price/Book ratio of the company.

Multiple studies have used one or more variables that were used in this study. By including these variables, a more complete view will be given on the effects of different variables on the firm performance as the correlation matrix will be able to show which variable could have been accountable for which part of the increase in firm performance. After the correlation matrix, a panel data regression will be done. For this, a Pooled-, Fixed effects-, and Random-effects model will be used. A Hausman test and a Breusch and Pagan Langrangian multiplier (LM) test will be executed to choose which of the three models previously described suits our data best. This will be described in more detail in the Results section.

3.3 Variables

3.3.1 Dependent Variables

To measure the firm-based performance of the firm, ROA and ROE will be used calculated by dividing net income by total assets and owner's equity respectively. ROA shows the amount of profit each unit of asset generated. Therefore, it shows the efficiency with which the firm operates. (Petersen and Schoeman, 2008) This measure has been widely used by many others. (Tsouknidis, 2019) (Cornett et al., 2007) (Fazlzadeh et al., 2011) (Al-Najjar, 2015) The ROA has different benefits over Tobin's Q, another measure that is often used because the latter reflects opportunities for growth on market value. ROA however, is focused on current performance. Also, Tobin's Q

is more likely to result in endogeneity problems, where institutions buy winners and sell losers. (Cornett et al., 2007) Furthermore, ROE is used as another measure for firm performance, as also used by Al-Najjar (2015). This is calculated by dividing the net income of the firm by the total owners' equity. This ratio shows the profit per unit of equity, showing how much profit the firm can create for its shareholders.

For market-based measures, Price/Earnings and Cashflow per share are used. First of all, the P/E ratio resembles expectations about future profitability, as a higher P/E suggests that people expect the earnings to go up and vice versa. All in all, it measures the confidence of the market in the firm's shares. (Tayeh et al., 2015) Cashflow per share is the amount of cash generated per share, this cash is available to cover capital expenditure and dividends. A firm with a higher ratio is better able to make purchases for the long term which equips it to do better business. In conclusion, it is a measure of financial flexibility. (Tayeh et al., 2015) By using these two variables, a good representation of the market's evaluation of the company should be formed.

3.3.2 Independent Variables

The first independent variable is *Institutional Ownership*, this will be measured by summing the different institutional ownership stakes as available on ORBIS. Only institutions that keep their account in Germany are required to report their holdings. (Deutsche Bundesbank, 2014) So there will be a bias towards domestic institutional ownership. This variable will reflect the percentage of shares held by institutional owners. It will be used to answer the hypothesis. The following variables will be control variables; variables that could explain the increase in firm performance. By using these control variables, this study tests whether it was institutional ownership that leads to the increase in firm performance, or whether there was another variable in play that was responsible for this.

Next to IO, different control variables will be used. The first control variable is *Size*, measured by the natural logarithm of assets for scale adjustment. Size may negatively affect firm performance due to the increased bureaucratic steps needed to operate (Xu and Wang, 1999), furthermore, according to Sun and Tong (2003) larger firms have higher agency costs and respond less flexible when changes in market conditions arise. On the other hand, economies of scale could benefit larger companies resulting in better performance. (Lin and Fu, 2017) All in all, it is unclear what the effect of size is on firm performance, for this reason, Size is used as a control variable. This measure is used by different other studies as well. (Lin and Fu, 2017) (Cornett et al., 2007) (Bhattacharya and Graham, 2009) (Al-Najjar, 2015) (Brickley et al., 1988) (Anderson and Reeb, 2003)

The pecking order theory, which states that firms prefer internal over external financing and when necessary prefer debt over equity, suggests that higher leverage has a negative relationship with firm performance. (Frank and Goyal, 2003) (Bhattacharya and Graham, 2009) Furthermore, Akhtar (2013) found that high leverage positively affects ROA but negatively influences ROE. Also, Bangun et al. (2017) found leverage influences both ROE and ROA significantly. Because of these two contradicting points, the ratio of *Total Debts to Assets (D/A)* is used as a control variable. This ratio is also used by Bhattacharya and Graham (2009) and Tsouknidis (2019).

Another control variable that will be used in this research is the *Firms Tangible Assets (FTA)*, measured by dividing the tangible assets of the firm by its total assets. This ratio is used as the tangible assets contribute value to the firm. Furthermore, the resource-based view states that firms can achieve an advantage resulting in increased firm performance by acquiring strategic assets, these are assets that are important to gain a competitive advantage. (Wernerfelt, 1984) However, most intangible assets do not meet the requirements to be considered as strategic assets. (Riahi-Belkaoui, 2003) For these reasons, a firm with a high percentage of tangible assets might get a higher ROA as more assets deliver value. (Al-Najjar, 2015) By using this variable, this will be accounted for.

Lastly, the *Price/Book (P/B)* ratio will be used as a control variable. This ratio is used to account for differences in growth opportunities between the firms. Firms with a low price/book ratio have better investment opportunities as they could easier obtain financing. (Sánchez-Ballesta and García-Meca, 2007) These firms would then be able to grow faster over the years. On top of that, according to Skinner and Sloan (2002) growth-firms are penalized for not meeting earnings goals. This means they have a larger incentive to meet their benchmarks.

4 RESULTS

This part will discuss what results come from the different analysis done. First of all, descriptive statistics on the sample will be presented. Hereafter, a correlation analysis will be done. Lastly comes a presentation of the regression analysis as well as the discussion hereof.

4.1 Descriptive Statistics

Table 3 shows the descriptive statistics for the sample used. The starting amount of firms were 598, however, several firms have been deleted where there was no data as of ORBIS database's availability. Also, the institutional ownership has been shifted by one year losing the year 2010 from the data set. Furthermore, different companies did not exist yet at the start of the period or the end, resulting in fewer observations for these companies. Different variables were more widely available also for the remaining 578 companies, this leads to the difference in observations for the different variables. The number of observations ranges from 2613 to 4151.

The table also shows the mean and the standard deviation for Institutional Ownership, which are 8.9% and 14% respectively. The mean ROA over the period was close to zero with only 0.7%, the mean ROE over the same pe-

riod was 1.2%. For the other independent variables, P/E and Cashflow per share, the means were 30.86 and 5.53 thousand respectively. Tables for the individual year's statistics can be found in Appendix C. From these tables it can be observed that Institutional Ownership has increased slightly from a mean of around 8% in 2011 to 10% in 2018 (shifted forwards by one year). ROA is less stable, with the first year performing at 1.3% then falling to a low of -0.5% over the few following years before staying around 1.4% for the last three years. ROE varies a lot as well going from -1.6% in 2012 to +1.5% in 2013 after it switches sign once again in 2015 and 2016 from where returns range from 2-5% for the last three years.

The frequency table for institutional ownership, table 1 is depicted below, what can be observed is that 38% of the observations throughout the year were companies with approximately 0% IO. Over 50% of the observations had between 0.1% and 19% however. Clearly institutional ownership is skewed to the left with a lot of companies having no institutional investors and the majority having around 0-10%.

Table 1: Frequency Table for Institutional Ownership

	Frequency	Percentage	Cumulative %
0-0.09%	1578	38.11	38.11
0.1-4,9%	874	21.11	58.21
5-9.9%	452	10.92	70.13
10-19%	546	13.19	83.31
20-29%	354	8.55	91.86
30-39%	177	4.27	96.14
40-49%	91	2.20	98.33
50-100%	69	1.67	100

4.2 Correlation Analysis

Table 5 in Appendix E shows the correlations between the variables. What is notable for the independent variables is that IO and size have a moderate to high correlation indicating that larger firms often have higher institutional ownership. This is as expected, as previous research has already found positive relationships between firm size and institutional ownership. (Al-Najjar, 2015) Apart from institutional ownership and size, the dependent variables at weak correlations with each other. To avoid multicollinearity, however, in the next section, regressions will be executed both with and without Size as an independent variable.

As for the correlations between the dependent variables. The accounting-based performance measures ROE and ROA are highly correlated with each other at 0.83. The market-based measures Price/Earnings and Cashflow per Share only have a 0.069 correlation, thus these two measures should give different insights into the effects of the independent variables on firm performance.

What can be observed from the table as well is that both the accounting-based measures have a positive correlation with IO whereas both the market-based measures correlate negatively with IO. All of these correlations are statistically significant at 99% except for P/E at 90%. The correlations between the dependent variables and the independent variables are all different either positive or negative. One interesting observation nevertheless is the high correlation between ROE and FTA which is 0.72 at 99% significance.

4.3 Regression Analysis

In this part, the Panel Data Regression Analysis is discussed. Again, to avoid multicollinearity, the regressions will be run twice, once including and once excluding Size as a variable. The steps are as follows. The Pooled model is computed first, treating the companies as a homogeneous group. A Fixed Effect model is computed hereafter, this model assumes that differences between individual effects are correlated with the independent variables used. To see whether this test is better than the Pooled model, the F-Statistic is computed, if the null-hypothesis is rejected successfully, the Fixed Effects model suits the data better than the Pooled model. The Random Effects model is computed as well, this model assumes that the individual differences are uncorrelated with the independent variables. Again, a test is done to compare it with the Pooled model, this test is the Breusch and Pagan Test (LM). If both the F-Test and the Breusch and Pagan Test are significant, a Hausman test is conducted to see whether the Fixed or the Random effects model is appropriate. If only the F-Test or the LM-Test proves to be significant, the Fixed or the Random model suits the data best respectively. If neither of the tests are significant, the Pooled model is used. (Hun, 2011) Tables 6, 7, 8, 9 in Appendix F show the panel regression analysis for ROA, ROE, Price/Earings and Cashflow per Share respectively.

4.3.1 Results including Size

For the Pooled regression, the F-statistics were significant at the 99% level for each dependent variable used. For ROA all variables' 'T' statistics were significant at 99%, except for IO which was not significant. For ROE, IO was not significant either, Price/Book ratio was only significant at the 95% level, the other independent variables were significant at 99% again. In the case of the Price/Earnings Pooled regression, IO and Debt/Assets were insignificant. All other variables were again significant at 99%. The last Pooled regression analysis for Cashflow per Share was the only one with a significant T-Value for IO. Only Debt/Assets was not significant for this regression.

Having computed the F-Test statistic for the Fixed Effects models, it can be observed that all of these were significant. In the case of ROA and ROE, this was with 99% confidence. For Price/Earnings, it was at 90% significance and for Cashflow per Share, it was 95% significance. As we reject the null hypothesis, it can be concluded that the Fixed effect model is better than the Pooled model for these regressions, as it better explains the individual differences observed. (Hun, 2011)

The Random Effects Models for all dependent variables were significant as measured by the Chi^2 statistic at 99% significance. The Breusch and Pagan Langrarian Multiplier (LM) was examined for the four dependent variables as well. The null-hypothesis, that states that the cross-sectional variances are zero, were rejected at 99% significance for all variables. This means significant random effect is present in the panel data, the random effect model is, therefore, better suited to deal with the heterogeneity than the Pooled model for all dependent variables. (Hun, 2011)

As for all dependent variables, the F-Test and the Breusch and Pagan test were significant, the Hausman test statistic is computed to compare the Fixed and the Random effects models. The null-hypothesis states that the individual effects are not correlated with any regressor in the model. (Hausman, 2015) If the null-hypothesis is rejected then the Random Effects model proves to be problematic, therefore the Fixed Model would be more appropriate. The test statistic of the Hausman tests were all rejected at 99% significance, except for Price/Earnings. Therefore, the Fixed Effects model suits the data best for ROA, ROE and Cashflow per Share. For Price/Earnings, the Random Effects model is used, thus assuming individual differences are not correlated with the independent variables for these models.

Looking at the effects of the variables, small negative coefficients can be observed for IO on ROA and ROE, however, these are not significant. For Price/Earnings and Cashflow per Share, relatively larger coefficients can be observed, nevertheless, again insignificant. For this reason, the effect of institutional ownership remains unclear.

Although IO did not have significant coefficients, this is not necessarily the case for the control variables used. First of all, Size returned positive coefficients for both ROE and ROA with 99% significance. For Price/Earnings however, Size had a negative influence on the performance. An explanation for this could be that larger firms are more often included in indices and mutual funds, which leads to their shares being bought without a thorough investigation into the valuation of the companies. As indices are widely used, this would boost up the price of the shares. The Price/Book ratio returned positive coefficients for all four dependent variables, only for Cashflow per Share this was not significant. This is opposite to as was expected, firms with higher growth opportunities due to the higher probability of attracting capital needed performed worse. Perhaps this is the result of previous winners, which resulted in their share price to ramp up, to keep winning and remain profitable. As for the Debt/Assets ratio, all coefficients had negative signs, albeit insignificant for the P/E ratio. Firms that attracted more debt financing relative to the number of assets they have, performed worse on all measures of firm performance. This is surprising especially for the ROE, as debt financing should be a way of increasing wealth for the equity holders. The negative impact of debt financing goes against traditional corporate finance models, these models state that firms look for optimal debt financing to gain tax benefits. (Hovakimian et al., 2001) On the other hand, according to Titman and Wessels (1988) firms that were profitable in the past use earnings to pay off debt, resulting in lower debt/assets ratios for these firms. Furthermore, equity issues are often done after an increase in stock price. (Masulis and Korwar, 1986) Lastly, FTA had no significant coefficients for either four dependent variables. However, as Size had a high correlation with IO, mulitcollinearity problems could have hindered the results. Therefore, the regression will now be run excluding Size.

4.3.2 Results excluding Size

After excluding Size as an independent variable, the F-Test, Breusch and Pagan test and the Hausman Test resulted in the same regressions suitable for the data, namely, the Fixed Effects model for ROA, ROE and Cashflow per Share, and the Random Effects model for Price/Earnings.

For ROA, no significant effect from Institutional Ownership on performance was found again. Price/Book and FTA returned very small or insignificant values. Debt to Assets again returned a large negative coefficient, however this time significant at 99%. An increase of Debt/Assets by 10% would mean a decrease in ROA by +/- 2.6%. Although this could look like an argument against taking on debt, a more appropriate way would be to look at the results for ROE, as this reflects the shareholder value created by the debt. The results for ROE tell an even more troublesome story about Debt/Assets, with a coefficient of -.864 significant at 99%. Here an increase of Debt/Assets by 10% results in a +/-8.6% decrease in ROE, meaning taking on debt would have a detrimental effect on performance. However, the question remains what the impact of IO is on ROE, after excluding Size, again an insignificant value is returned. The Price/Book, although returning a positive significant coefficient, this was extremely small. The FTA returned an insignificant value.

The coefficient for the effect of IO on Price/Earnings was -8.72 although insignificant. For Cashflow per Share, this was positive yet insignificant again, thus no strong conclusions can be drawn from those. Only small significant coefficients were found for Price/Book on Price/Earnings and FTA on Cashflow per Share.

All in all, after excluding Size, still no significant coefficients for the effect of IO on performance were found. Thus it remains a question what the true effect is if any. Nevertheless, one worthwhile point to mention is the role of Debt. It played a negative role for all dependent variables when Size was still included, and even after excluding Size, this large negative role was still there for three of the four variables. Observing these large negative influences from Debt question the role it plays, this is not within the scope of this study, however.

4.4 Cross-sectional Regression

The Fixed and the Random Effects models account for an omitted variable possibly being responsible for variations, for example, quality of management. In other words, a variable not included in this study could be responsible for the differences, resulting in endogeinity problems. A Cross-Sectional Regression, however, assumes no omitted variable bias is present. Looking back at the example of quality of management, it would thus be assumed to remain stable over time. To perform a cross-sectional regression, the average for each value over the 8 years resulting in a one-dimensional data set representing one fabricated point in time. This way, instead of looking at whether IO leads to changes over time, the Cross-Sectional Regression looks at whether at one point in time, firms with higher IO have better performance. The results are shown in table 10 in Appendix E. Again, the regression is done once with and once without Size. As the amount of observations dropped to only around four hundred, it can be observed that the significance levels dropped as well. Both the F-tests for Cash flow per Share were insignificant. As for the impact of Institutional Ownership, no significant values were found either, whats more, the coefficients for ROA and ROE next to zero. Lastly, observing the R-squared statistics, it can be seen that the models are very inaccurate in explaining the variability, as the highest R-squared is only 0.205 with the majority being even lower. This is an argument for using the panel data, as it is likely that an omitted variable better explains variability between the firms.

5 CONCLUSION AND IMPLICATIONS

5.1 Conclusion

The goal of this study was to find what effect Institutional Ownership has on firm performance in Germany. A positive relationship between the two was expected due to the influence of institutions through 'active monitoring' and the access to resources as well as managerial skills. The effect was studied by using the percentage of shares held by institutional owners as a measure for institutional ownership. To measure increases or decreases in firm performance, four different dependent variables were used, namely Return on Assets (ROA), Return on Equity (ROE), the Price/Earnings ratio (P/E) and the Cashflow per Share. Multiple control variables were used to control for increases or decreases in performance not attributable to Institutional Ownership. These control variables were, Size, the Price/Book ratio, the Debt/Assets ratio and the Firms Tangible Assets ratio. After finding a high correlation between Size and IO, a second regression was done excluding this variable. The Panel Data Regressions resulted in no significant evidence for the relationship between Institutional Ownership and firm performance when including Size, but a moderate to large coefficient for Institutional Ownership's' effect on ROE after omitting Size.

The role of Debt was also briefly touched upon, as high Debt ratios showed a negative impact on all four measures. And even after finding high correlations between IO and Size which could potentially cause problems, and therefore running the regressions again, the role of Debt still showed large negative coefficients for all dependent variables except for the Price/Earnings ratio. Nevertheless, the role of debt and the debt-equity choice is not in the scope of this study, so no strong conclusions can be drawn from this.

5.2 Limitations

Some limitations have to be kept in mind when interpreting the results. The main potential problem is the reporting requirements for institutions about their holdings. In Germany, only domestic institutions are required to report their holdings. According to Fancello and Linciano (2018), the average equity held by institutions in Germany is around 25%, in this study, an average of 8.9% is found, so data on institutional ownership is clearly limited. Furthermore, ORBIS' data is limited depending on the variable. This meant that gaps in the data were present, even after cleaning up the companies with almost no data available. The latter also comes with a sample selection bias, as companies with were excluded due to their lack of data. Furthermore, although the results suggest a slightly negative relationship between Institutional Ownership and ROA/ROE, and a positive relationship with Cashflow per Share, the P-Values are insignificant. Larger sample sizes could be obtained in the future by including more years of data or increasing the number of firms by including multiple countries. Another option is to differentiate between industries, as the effect of institutional ownership could differ between those. Nevertheless, because of the insignificant P-Values, the results can not be generalized. Generalization towards other countries is also not possible due to potential differences between the countries.

5.3 Practical Implementations

Although no significant relationship between institutional ownership and firm performance has been found, this does not mean that institutions fail to do their job fully. The institutional ownership data was shifted by one year for this study to prevent simultaneity bias, where institutions buy the winners. So with that in mind, it is possible that institutions do pick the winners and gain superior profits because of that. Nevertheless, the second role of institutions, which is the managing and improving of the firms held, can not be confirmed by this study to be executed effectively. Having studied the relationship, it is unclear whether institutional ownership leads to success. This is an important practical implementation for individual investors as well as institutions looking to invest or trying to manage their portfolio with more care. At all times, the individual or institutional investor should bear in mind that institutional ownership is not a guarantee for better performance based on this study. Furthermore, if indeed institutional ownership does not lead to better performance, in the future, institutions or researcher should find how this relationship could be improved so that the access to financing, knowledge and managerial skill does not go to waste.

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Appendices

Appendix A: Previous Findings

Table 2: Arguments for positive effect of institutional ownership

	Findings	Author(s)
	Positive Impact:	
1	Pressure-sensitive firms, firms that are more likely to partake in voting due to their larger stakes, monitor more actively than pressure insensitive firms, which in turn prefer free-riding as the costs to monitoring are not worth it due to their smaller stakes	Brickley et al. (1988)
2	The number of institutional investors positively affects the cashflow of the firm	Cornett et al. (2007)
3	A relationship between volatility of institutional ownership and firm performance found, with a more positive relationship for stable institutional ownership.	Elyasiani and Jia (2010)
4	Positive relationship found between institutional ownership and firm performance in China	Lin and Fu (2017)
5	Positive relationship found between ownership concentration and firm performance, but not between foreign- & institutional ownership and firm performance	Lee (2008)
6	Positive relationship found between passive monitoring investors and firm performance studying firms at the bottom and top of the Russel 1000 and Russel 2000 indices respectively	Appel et al. (2016)
	No Impact:	
7	No significant relationship found between ownership structure and firm performance studying Spanish non-financial firms	Sánchez-Ballesta and García-Meca (2007)
8	No relationship between found institutional ownership and firm performance	Agrawal and Knoeber (1996)
9	Studying pension funds in the UK, Faccio and Lasfer (2000) found that do not add value to the companies they hold	Faccio and Lasfer (2000)
10	No relationship found between institutional ownership and firm performance in Jordanian firms	Al-Najjar (2015)
	Negative Impact:	
11	Foreign independent institutions enhance shareholder value (Tobin's Q) and operating performance (ROA) Negative or insignificant results for non-independent domestic institutions. Studying firms in the US	Ferreira and Matos (2008).
12	Negative relationship found between institutional ownership and firm performance	Bhattacharya and Graham (2009)
13	Negative relationship found between passive institutional investors and firm performance studying firms in the Russel 1000 and Russel 2000 indices	Schmidt and Fahlenbrach (2017)

Appendix B: Descriptive Statistics

Table 3: 2011-2018 Descriptive Statistics

Variable	N	Min	Max	Mean	St. Dev.
ROA	3951	-.68	.292	.0073	.14
ROE	3827	-2.181	.713	.012	.36
Price/Earnings	2613	.24	349,97	30.86	47.78
Cash/S (th €)	3196	-3.96	126.81	5.53	16.46
IO	4151	0	1.28	.089	.14
LN A. (th €)	4067	5.6	18.5	11.86	2.69
Price/Book	3523	-5.88	18.98	2.42	3.08
Debt/Assets	3568	.03	1.63	.56	.26
FTA	3790	0	.93	.21	.22

Note: Cash/S: Cashflow per Share; LN A.: Natural Logarithm of Total Assets

Table 4: Individual Year's Descriptive Statistics

	2011					**2012**				
Variable	N	Min	Max	Mean	St. Dev.	N	Min	Max	Mean	St. Dev.
ROA	457	-.68	.292	.013	.14	468	-.68	.292	.0051	.14
ROE	450	-2.181	.713	-.0098	.42	459	-2.181	.713	-.016	.42
Price/Earnings	299	.24	349,97	26.31	49.17	295	.24	349,97	26.05	46.91
Cash/S (th €)	351	-3.96	126.81	5.29	14.97	368	-3.96	126.81	5.90	18.04
IO	487	0	1.21	.076	.13	495	0	.752	.081	.12
LN Assets (th €)	472	5.6	18.5	11.65	2.71	483	5.6	18.5	11.69	2.71
Price/Book	395	-5.88	18.98	1.89	2.69	414	-5.88	18.98	2.12	3.13
Debt/Assets	413	.03	1.63	.54	.25	423	.03	1.63	.55	.25
FTA	436	0	.93	.21	.21	448	0	.93	.22	.22
	2013					**2014**				
ROA	483	-.68	.292	-.0056	.16	494	-.68	.292	-.0018	.15
ROE	462	-2.181	.713	.015	.32	471	-2.181	.713	.0018	.37
Price/Earnings	299	.24	349,97	36.62	60.79	314	.24	349,97	34.74	52.71
Cash/S (th €)	389	-3.96	126.81	5.76	18.17	391	-3.96	126.81	4.81	14.52
IO	504	0	.752	.080	.12	519	0	.902	.082	.14
LN Assets (th €)	493	5.6	18.5	11.72	2.74	510	5.6	18.5	11.78	2.72
Price/Book	421	-5.88	18.98	2.28	2.95	430	-5.88	18.98	2.28	2.85
Debt/Assets	430	.03	1.63	.56	.26	445	.03	1.63	.56	.27
FTA	456	0	.93	.21	.22	470	0	.93	.21	.22
	2015					**2016**				
ROA	500	-.68	.292	.0032	.14	509	-.68	.292	.013	.14
ROE	481	-2.181	.713	-.0043	.38	491	-2.181	.713	0.028	.33
Price/Earnings	325	.24	349,97	30.24	42.93	358	.24	349,97	27.48	35.78
Cash/S (th €)	400	-3.96	126.81	4.90	14.89	412	-3.96	126.81	5.60	16.39
IO	525	0	1	.089	.15	529	0	1.28	.10	.16
LN Assets (th €)	515	5.6	18.5	11.89	.15	520	5.6	18.5	11.98	2.63
Price/Book	441	-5.88	18.98	2.54	3.00	461	-5.88	18.98	2.58	3.05
Debt/Assets	450	.03	1.63	.56	.27	461	-5.88	18.98	2.58	3.05
FTA	481	0	.93	.22	.23	488	0	.93	.22	.22
	2017					**2018**				
ROA	518	-.68	.292	.017	.13	522	-.68	.292	.014	.13
ROE	503	-2.181	.713	0.051	.29	510	-2.181	.713	0.025	.34
Price/Earnings	364	.24	349,97	35.84	50.32	359	.24	349,97	29.29	41.21
Cash/S (th €)	435	-3.96	126.81	6.26	18.16	450	-3.96	126.81	5.65	15.96
IO	541	0	1.28	.10	.16	551	0	.91	.10	.15
LN Assets (th €)	534	5.6	18.5	11.99	2.66	540	5.6	18.5	12.13	2.61
Price/Book	475	-5.88	18.98	3.09	3.60	486	-5.88	18.98	2.43	3.07
Debt/Assets	470	.03	1.63	.54	.26	478	.03	1.63	.54	.25
FTA	500	0	.93	.21	.22	511	0	.93	.21	.22

Note: Cash/S: Cashflow per Share; LN Assets: Natural Logarithm of Total Assets

Appendix C: Correlation Table

Table 5: Correlation table

	ROA	ROE	P/E	Cash/S (th €)	IO	LN A. (th €)	Price / Book	Debt / Assets	FTA
ROA	1								
ROE	0.831*	1							
P/E	-0.276*	-0.275*	1						
Cash/S (th €)	0.086*	0.088*	-0.069*	1					
IO	0.100*	0.104*	-0.04***	-0.078*	1				
LN A. (th €)	0.259*	0.226*	-0.137*	0.147*	0.412*	1			
Price/Book	-0.009	-0.062*	0.178*	-0.012	0.016	-0.146*	1		
Debt/Assets	-0.191*	-0.051*	-0.04***	0.013	0.066*	0.130*	-0.050*	1	
FTA	0.080*	0.722*	0.178	0.21*	-0.032**	0.122*	-0.099*	0.104*	1

*: 99% significance **: 95% significance ***: 90% significance;
Note: Cash/S: Cashflow per Share; LN A.: Natural Logarithm of Total Assets

Appendix D: Panel Data Analysis Results

Table 6: ROA Panel Regression Results

ROA	Pooled	**Fixed**	Random	Pooled	**Fixed**	Random
Intercept	-.099*	-.081	-.116*	.059*	.152*	.097*
IO	-.0158	-.0240	-.027	.0967*	-.011	.022
LN A. (th €)	.146*	.019*	.018*	-	-	-
Price/Book	.004*	.0057*	.005*	.002*	.006*	.004*
Debt/Assets	-.156*	-.253	-.209*	-.134*	-.257*	-.204*
FTA	.049*	-.043	.0227	.060*	-.039	.033***
F-Test	97.74*	69.30*		60.41*	81.64*	
Chi-2-Test			381.08*			282.04*
LM test	Chi2-Test =	602.97*		LM test	Chi2-Test =	107.08*
Hausman test	Chi2-Test =	44.02*		Hausman test	Chi2-Test =	79.76*

*: 99% significance **: 95% significance ***: 90% significance;
Note: The tests in bold proved most appropriate by the LM & Hausman tests;
LN A.: Natural Logarithm of Total Assets

Table 7: ROE Panel Regression Results

ROE	Pooled	**Fixed**	Random	Pooled	**Fixed**	Random
Intercept	-.253*	-.275	-.330*	.066*	.452*	.184*
IO	-.007	-.088	-.064	.214*	-.048	.096***
LN A. (th €)	.0311*	.058*	.047*	-	-	-
Price/Book	.005**	.023*	.012*	-.001	.023*	.007**
Debt/Assets	-.248*	-.8738	-.518*	-.136*	-.864*	.421*
FTA	.086*	-.058	.096***	.088	-.048	.107**
F-Test	36.96*	41.47*		12.54*	47.31*	
Chi-2-Test			167.10*			83.51*
LM test	Chi2-Test =	1833.50*		LM test	Chi2-Test =	1398.80*
Hausman test	Chi2-Test =	83.73*		Hausman test	Chi2-Test =	129.57*

*: 99% significance **: 95% significance ***: 90% significance;
Note: The tests in bold proved most appropriate by the LM & Hausman tests;
LN A.: Natural Logarithm of Total Assets

Table 8: Price/Earnings Panel Regression Results

P/E	Pooled	Fixed	**Random**	Pooled	Fixed	**Random**
Intercept	50.26*	13.59	54.05*	27.90*	30.94*	31.99*
IO	-3.39	3.86	.595	-16.76**	4.75	-8.72
LN A. (th €)	-2.12*	1.40	-2.03*	-	-	-
Price/Book	2.91*	2.09***	2.47*	3.28*	2.09*	2.70*
Debt/Assets	-1.68	-20.10	-6.54	-9.46*	-19.55	12.00
FTA	10.94**	23.12	9.61*	11.40**	23.21	9.48
F-Test	19.98*	1.97***		19.88*	2.41**	
Chi-2-Test			38.39*			30.40*
LM test	Chi2-Test =	133.72*		LM test	Chi2-Test =	57.46*
Hausman test	Chi2-Test =	4.07		Hausman test	Chi2-Test =	4.70

*: 99% significance **: 95% significance ***: 90% significance;
Note: The tests in bold proved most appropriate by the LM & Hausman tests;
LN A.: Natural Logarithm of Total Assets

Table 9: Cashflow per Share Panel Regression Results

Cash/Share	Pooled	**Fixed**	Random	Pooled	**Fixed**	Random
Intercept	-12.58*	3.36	-3.41	2.99*	8.11*	6.01*
IO	-20.03*	2.39	-.528	-9.02*	2.64	.954
LN A. (th €)	1.43*	.380	.779*	-	-	-
Price/Book	.297*	.018	.020	.146	.020	.017
Debt/Assets	-2.18	-3.32**	-2.74**	-.286	-3.46*	-2.84**
FTA	15.02*	-3.03	3.37***	16.48	-2.93	3.65***
F-Test	50.18*	2.38**		36.62*	2.75**	
Chi-2-Test			20.63*			8.93**
LM test	Chi2-Test =	1493.87*		LM test	Chi2-Test =	1284.00*
Hausman test	Chi2-Test =	47.84*		Hausman test	Chi2-Test =	32.83*

*: 99% significance **: 95% significance ***: 90% significance;
Note: The tests in bold proved most appropriate by the LM & Hausman tests;
LN A.: Natural Logarithm of Total Assets

Appendix E: Cross-Sectional Regression Results

Table 10: Cross-Sectional Regression Results

Cross-Sectional	ROA	ROE	P/E	C/S	ROA	ROE	P/E	C/S
Intercept	-.136*	.218*	538.79	9.66	.055*	.035	160.23	9.82
IO	-.000	-.000	-.368	6.15	-.000	-.000	-.499	6.27
LN A. (th €)	.017*	.022*	-32.93	.015	-	-	-	-
Price/Book	-.001	.002	42.26**	.049	-.003**	-.001	46.99*	.045
Debt/Assets	.141*	-.068***	-95.36	-12.02	-.117*	-.029	-158.32	-11.98
FTA	.068*	.064	-79.84	31.86***	.082*	.081	-98.61	31.86***
F-Test	23.36*	10.77*	2.09**	0.59	10.23*	1.18	2.15***	0.74
R-squared	0.205	0.107	0.033	0.009	0.083	0.010	0.021	0.009
N	458	455	401	317	458	455	401	317

*: 99% significance **: 95% significance ***: 90% significance;
Note: The tests to the left include Size as a variable, whereas those to the right do not;
LN A.: Natural Logarithm of Total Assets