THE IMPACT OF INSTITUTIONAL INVESTORS' OWNERSHIP ON PERFORMANCE AND FINANCIAL POSITION: EVIDENCE FROM FIRMS IN THE REPUBLIC OF CROATIA

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Abstract

The research problem of this study is focused on examining the impact of the ownership of institutional investors on the corporate governance of Croatian companies. The problem was approached comprehensively such that institutional investors were analysed as both homogeneous and heterogeneous groups (investment funds, pension funds, insurance companies). The results of this study reveal a statistically significant impact of institutional investor ownership being viewed as both homogeneous and heterogeneous groups on business performance and financial position, which reduces the gap between ownership intentions and management interests, thereby resulting in an increase in shareholder wealth while limiting the satisfaction and social goals of a company.

Keywords: *institutional investors; corporate governance; investment time horizon; portfolio investment style; business performance; financial position; panel data; GMM estimators*

Subject classification codes: *C23; C32; G18; G23; G32; G38; K22*

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1. INTRODUCTION

In contemporary joint-stock firms, where there is a separation of ownership and management functions, increasing shareholder value at the expense of firm satisfaction and social ambitions has become a requirement. Consequently, the system of corporate governance is of utmost value in this context, as it provides firms with guidance for increasing their performance and enhancing their operating activities by reducing agency costs (Matić and Papac 2010; Orsag and Sabol 2014). Corporate governance mechanisms ensure that the interests of all shareholders are protected without neglecting the interests of other stakeholder groups (Dropulić Ružić 2011). Their ultimate goal is to bridge the gap between ownership intentions and management interests that emerges in the

principal-agent relationship (Gillan and Starks 2003; Tipurić 2008; Orsag and Sabol 2014). According to Goić (1995), the efficiency of the principal-agent relationship can be expressed in the relation between the value of the management's results and the capital invested by the principal, i.e., the balance that needs to be achieved between result-generating activities and cost-generating activities. The principal-agent problem negatively affects not only the business efficiency and effectiveness of a particular firm but also the entire economic system of a country. Numerous previous studies have supported the view that the presence of institutional investors in the ownership structure of joint-stock firms positively affects firm value, as it hinders management from exploiting their power for their own benefit exclusively (Gilian and Starks 2000; Chung et al. 2002; Jiambalvo and Venkatachalam 2002; Jiang and Anandarajan 2009). Better control of a firm's management leads to an improvement of the corporate governance process, which results in an enhancement of business performance manifested in increased indicators of business performance and financial position. As indicated by Mizuno (2010), corporate governance can be regarded as an instrument for achieving better business performance or a device used to increase firm value.

The dominant role in the financial markets in the Republic of Croatia is still held by credit institutions. In terms of nonbank institutions, the most important participants are institutional investors, especially in regard to pension funds, investment funds and insurance firms. Although the system is still bank-centric, nonbank financial institutions are increasingly emerging, which contributes to the transformation of the financial system from a relatively small and undifferentiated system into a robust and flexible one. In the last 15 years, the proportion of assets owned by nonbank financial institutions has grown from just 2 % to a significant 33 % of the total assets in the financial system of the Republic of Croatia, which accounts for one-third of the entire financial market today (HANFA, HNB 2016), thanks to the rapid growth and development of pension and investment funds and a relatively stable insurance market (Olgić Draženović 2012).

Therefore, the research problem of the current study is focused on examining the impact of institutional investors on the corporate governance of companies in the Republic of Croatia. Previous research has confirmed the thesis that the presence of institutional investors in the ownership structure of joint stock companies positively affects the value of companies by limiting the actions of company management to act solely for their benefit, thus reducing the gap between ownership intentions and business

operations, which results in increased performance and financial position (Gillan and Starks 2003; Tipurić 2008; Orsag and Sabol, 2014). However, the specific domain of this study is concerned with relatively uncharted territory in terms of investigating the impact of institutional investors on corporate governance in the Republic of Croatia. No study of this type has been conducted thus far in the Republic of Croatia, whereas they have been published in the international financial community over the past couple of years, most extensively in common law countries. The available studies have either analysed certain aspects of the impact of institutional investor ownership on corporate governance, examined the two domains independently (corporate performance, financial position), or only studied their individual impact on the performance and financial position of firms. The current study empirically tests the significance of institutional investor ownership impact on both corporate performance and financial position. Additionally, institutional investors are analysed as both homogeneous and heterogeneous groups (investment funds, pension funds, insurance companies), which has eliminated the problem of inclusivity regarding the results of the analyses made thus far, in which investors have been viewed exclusively as homogeneous groups. Therefore, the problem was approached comprehensively herein, which resulted in a fuller insight into the impact of institutional investors on the corporate governance of companies in their portfolio.

2. LITERATURE REVIEW

The available literature suggests that shareholders have a significant impact on business performance by way of reducing agency costs, while previous empirical research has confirmed the existence of a positive linear correlation between institutional investor ownership and firm performance (Morck, Shleifer and Vishny 1988; Leech and Leahy 1991 cited in Weir, Laing, and McKnight 2002). Li et al. (2006) indicate that even when institutional investor ownership is low, the dispersal of ownership alone allows institutional investors to perform their monitoring role. In countries such as Croatia, where ownership concentration is prevalent in joint-stock firms, institutional investors cannot easily impose a dominant monitoring role. Li et al. (2006) and Elahee, Sadrieh, and Wilman (2016) indicate that institutional investors may in these conditions choose to either perform their monitoring role by reducing agency costs or side with large investors and act in their own interest at the expense of minority shareholders (Li et al. 2006; Elahee, Sadrieh, and

Wilman 2016). A couple of decades ago, institutional investors became the main actors in the capital market, since their importance lies in establishing an efficient financial system in general (Vittas 1988; Davis, Steal, and Bolster 2002; Krišto, Stojanović and Pavković 2014; Ćurković and Krišto 2017; Klačmer Čalopa and Đunđek Kokotec 2017) and their particular role in the domain of corporate governance, where they perform a monitoring role by disciplining management not to act solely for their own benefit, is essential (Mehrani, Moradi, and Eskandar 2017).

The main activity of institutional investors includes the monitoring of management, which consequently increases business performance and simultaneously reduces agency costs (Admati, Pfleiderer, and Zechner 1994 cited in Jensen and Meckling 1976; Morck, Shleifer and Vishny 1988; Fung and Tsai 2012). This thesis is supported by studies conducted by Hartzell and Starks (2003), Chen, Harford, and Li (2007) and Cornett et al. (2007), who state that institutional investors directly influence firm performance, whereas the studies by Gompers and Metrick (2001) and Smith (1996) add that the percentage of institutional investor ownership in the ownership structure influences the market value of a firm, all of which generates costs, as indicated by the authors. On the other hand, there are also studies that support the thesis that institutional investors can avoid monitoring costs and generate positive effects thanks to information asymmetry. In their study, Kahn and Winton (1998) indicate that institutional investors can use the information available to them for two purposes, namely, speculation, i.e., trading, or participation in the decision-making process in a firm. Velury and Jenkins (2006) assert that the presence of institutional investors in the ownership structure of firms and their monitoring role change management's behaviour. However, the question of the efficiency of their monitoring role, if it even exists, remains understudied.

Moreover, one of the reasons explaining the inclusiveness of previous research findings is the fact that institutional investors have previously been regarded as a homogenous group with common goals and characteristics (Sherman, Beldona, and Joshi 1998;

Ashrafi and Muhammad 2014 cited in Fung and Tsai 2012). Involvement in decision-making processes varies according to the different types of institutional investors (Duggal and Millar 1994; Almazan, Hartzell and Starks 2005; Chen, Harford, and Li 2007) that each have different investment goals and styles and may thus evaluate differently the state of the market, the level of competitive pressure and the corresponding legislative frameworks, all of which consequently determine the investment time horizon and approach to corporate governance (Cornett et al. 2007).

3. RESEARCH METHODOLOGY

The specific objective of this empirical research was to describe, identify and examine the domain of institutional investors in corporate governance and the nature of its impact on the performance and financial position of analysed firms. In accordance with the defined objective, one main hypothesis and two auxiliary hypotheses were formulated as follows:

H1: The ownership of institutional investors has a significant positive impact on the performance and financial position of firms in the Republic of Croatia.

H1.1: The ownership of institutional investors that are observed as both homogenous and heterogeneous groups has a significant positive impact on the performance and financial position of firms in the Republic of Croatia.

H1.2: There is a linear influence of the ownership share of institutional investors observed as both homogenous and heterogeneous groups on the performance and financial position of firms in the Republic of Croatia.

The analysis was conducted using a static and dynamic (GMM) panel data analysis to test the impact of institutional investors' ownership on the performance and financial position of analysed firms. Based on the defined objectives and hypotheses, econometric models were formulated as follows:

$$ROA_{i,t} = \alpha + \beta_1 IO_{i,t} + \sum_{k=2}^{4} \beta_k * control\ variables_{i,t} + \varepsilon_{i,t} \qquad (1)$$

$$ROA_{i,t} = \alpha + \beta_1 IO_{i,t} + \beta_2 IO_{i,t}^2 + \sum_{k=3}^{4} \beta_k * control\ variables_{i,t} + \varepsilon_{i,t} \qquad (2)$$

$$ROE_{i,t} = \alpha + \beta_1 IO_{i,t} + \sum_{k=2}^{4} \beta_k * control\ variables_{i,t} + \varepsilon_{i,t} \qquad (3)$$

$$ROE_{i,t} = \alpha + \beta_1 IO_{i,t} + \beta_2 IO_{i,t}^2 + \sum_{k=3}^{4} \beta_k * control\ variables_{i,t} + \varepsilon_{i,t} \qquad (4)$$

$$SDROA_{i,t} = \alpha + \beta_1 IO_{i,t} + \sum_{k=2}^{4} \beta_k * control\ variables_{i,t} + \varepsilon_{i,t} \quad\quad (5)$$

$$SDROA_{i,t} = \alpha + \beta_1 IO_{i,t} + \beta_2 IO_{i,t}^2 + \sum_{k=3}^{4} \beta_k * control\ variables_{i,t} + \varepsilon_{i,t} \quad\quad (6)$$

$$\sum_{k=3}^{4} \beta_k * control\ variables_{i,t} = \beta_3 LEV_{i,t} + \beta_4 RIIB_{i,t} + \beta_5 SGR_{i,t} + \beta_6 DP_{i,t}$$

$ROA_{i,t}$ – return on assets of a firm i in period t

$ROE_{i,t}$ – return on equity of a firm i in period t

$SDROA_{i,t}$ – standard deviation of return on assets of firm i in period t

$IO_{i,t}$ – measure of institutional investor ownership of firm i in period t

    $\%II_{i,t}$ – fraction of shares owned by all institutional investors in firm i in period t

    $\%PF_{i,t}$ – fraction of shares owned by pension funds in firm i in period t

    $\%IC_{i,t}$ – fraction of shares owned by insurance companies in firm i in period t

    $\%IF_{i,t}$ – fraction of shares owned by investment funds in firm i in period t

$LEV_{i,t}$ – financial leverage of firm i in period t

$RIIB_{i,t}$ – 1 if the representatives of institutional investors are included on the supervisory board of firm i in period t, 0 otherwise

$SGR_{i,t}$ – sales growth rate of firm i in period t

$DP_{i,t}$ – 1 if firm i in period t is paying dividends, 0 otherwise

i = 1,…,55; t = 1,…,14

where N represents the number of observations; T represents the number of time periods, α_i – represents the intercept of the model, $\varepsilon_{i,t}$ represents the residual error, and $\beta_1 ... \beta_k$ represent the regression coefficients.

3.1 Sample selection

The sample of the current research was taken from joint-stock firms with registered offices in the Republic of Croatia that have their stocks listed on the Zagreb Stock Exchange and institutional investors (investment funds, pension funds, insurance companies) present in their ownership structures. The secondary data were obtained from the databases of the Central Depository and Clearing Company (Eng. CDCC; Cro. SKDD), Zagreb Stock Exchange (Eng. ZSE), Croatian Financial Services Supervisory Agency (Cro. HANFA), as well as by individually contacting institutional investors, i.e., their management firms. The sample selection criteria for observed firms included the following: (1) the issuers were nonfinancial firms, (2) the issued stocks were common stocks, (3) the firms operated continuously in the analysed time period of 2010–2016, (4) the issued stocks were the most liquid stocks on the Croatian capital market, and (5) institutional investors (investment funds, pension funds, insurance companies) were present in the ownership structure of the firms during the study period. Stock liquidity is measured in terms of average monthly turnover ratios in the observed period January 2010– December 2016. Out of the 149 firms that met the listed criteria, 55 were included in the further analysis, namely, the firms where institutional investors were present in the ownership structure and were among the ten largest shareholders.

For the analysis of investment and pension funds, publicly accessible official annual reports for the observed period 2010–2016 were examined semi-annually to determine the value of the capital held by institutional investors. The value of the top 10 holdings of individual funds was analysed according to their net asset value (NAV) each year in the period 2010–2016 on both June 30 and December 31. The data used for the analysis of the ownership of insurance firms were obtained from the Insurance Division of the Croatian Financial Services Supervisory Agency (HANFA). Due to the obligation of professional confidentiality, the names of the firms and their identification numbers were replaced with arbitrary codes. Altogether, among these 55 firms, pension funds were present in the ownership structure of 14 firms, insurance firms were present in 44 firms, and investment funds were present in 48 firms. It was possible for there to be more than one type of institutional investor in the ownership structure of a particular firm.

4. RESEARCH RESULTS

The first panel model analyses the impact of the ownership of institutional investors observed as both homogenous and heterogeneous groups on firm performance as measured by return on assets (ROA) and return on equity (ROE), and the results are provided in Table 1 and Table 2, respectively. The results show that the ownership of investment funds and insurance companies significantly impacts return on assets, whereas the impact of pension funds or all institutional investors observed as a homogenous group was not identified. Moreover, investment fund ownership in the analysed firms has a positive statistically significant impact on firm performance, whereas insurance companies have a negative impact. Such an effect is a result of the portfolio management style; insurance companies adopt a passive approach, which means that their focus is not on short-term success, as is the case for investment funds, which are more aggressive in managing their assets. Furthermore, other studies have shown that institutional investors prefer firms that pay dividends (Del Guercio 1996; Grinstein and Michaely 2005; Wahab, How, and Verhoeven 2008; Ferreira and Matos 2008; Chung and Zhang 2011) because they identify a positive statistically significant impact of institutional investors on firm performance. A positive impact of this type of investor on firm performance is in line with the theoretical assumptions that they aim to create investment portfolios that can guarantee steady returns and annual dividend payments over a long-term horizon, i.e., maximization of shareholder wealth.

From the point of view of analysing the impact of institutional investors as both homogenous and heterogeneous groups on firm performance as measured by return on equity (ROE), the results provided

Table 1. Results of the static panel analysis of the impact of institutional investors as both homogenous and heterogeneous groups on firm performance as measured by return on assets (ROA)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROA_{i,t}$	Dependent variable		-	-	-	-
α_i	Intercept	Coefficient	-0.0142	-0.0141	-0.0143	-0.0134
		p-value	0.3128	0.3159	0.3084	0.3386
% II	Independent variable	Coefficient (ß)	-0.0001	-	-	-
		p-value	0.9272	-	-	-
% PF	Independent variable	Coefficient (ß)	-	-0.0009	-	-
		p-value	-	0.6793	-	-
% IF	Independent variable	Coefficient (ß)	-	-	0.0014	-
		p-value	-	-	0.0016*	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.0559
		p-value	-	-	-	0.0000*
LEV	Independent variable	Coefficient (ß)	0.0761	0.0761	0.0761	0.0761
		p-value	0.0042*	0.0042*	0.0041*	0.0042*
SGR	Independent variable	Coefficient (ß)	8.00E-06	5.60E-06	1.38E-05	7.84E-06
		p-value	0.9845	0.9892	0.9732	0.9848
DP	Independent variable	Coefficient (ß)	0.0096	0.0099	0.0094	0.0097
		p-value	0.0039*	0.0034*	0.0045*	0.0008*
F-test		p-value	0.0000	0.0000	0.0000	0.0000
LM test		p-value	0.0000	0.0000	0.0000	0.0000
Hausman test		p-value	0.0013	0.0009	0.0009	0.003
Selected model			FE	FE	FE	FE
Number of observations			770	770	770	770

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

in Table 2 show a statistically significant and positive impact of pension funds and a statistically significant and negative impact of insurance companies on return on equity. The impact of institutional investors as a whole and the impact of investment funds alone were not identified. Even though the theory predicts that ownership will have a positive impact, the results are a logical consequence of the choice of a portfolio management style. A passive management style and a more conservative investment approach are characteristic of insurance companies; therefore, short-term success is not of much importance to them.

Both analysed models were estimated by White's corrections (White 1980 cited in Bahovec and Erjavec 2009), which are used in the presence of heteroskedasticity of unknown origin with the assumption of no autocorrection in the residuals. Furthermore,

performance measures in a given time period are influenced by business results from the previous period; thus, the previous fiscal year will have a great positive or negative impact on performance. Consequently, new variables were included in the analysis: return on assets and return on equity of a firm from the previous time period t-1 ($ROA_{i,t-1}$) and $ROE_{i,t-1}$. In this context, the analysis found endogeneity between the variables of the model. Consequently, dynamic panel models were also included in the analysis to complement the static panel model.

Tables 3 and 4 provide the estimation results of the impact of institutional investors as a homogenous group on firm performance as measured by return on assets (ROA) and return on equity (ROE), which were obtained by using the Arellano–Bond (AR) estimator. In Eviews 8, the software package used for this

Table 2. Results of the static panel analysis of the impact of the ownership of institutional investors as both homogenous and heterogeneous groups on firm performance as measured by return on equity (ROE)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROE_{i,t}$	Dependent variable		-	-	-	-
α	Intercept	Coefficient	0.0450	-0.9748	0.0451	0.0472
		p-value	0.0171*	0.0000*	0.0161*	0.0139*
% II	Independent variable	Coefficient (ß)	0.0012	-	-	-
		p-value	0.6420	-	-	-
% PF	Independent variable	Coefficient (ß)	-	0.0366	-	-
		p-value	-	0.0306**	-	-
% IF	Independent variable	Coefficient (ß)	-	-	0.0007	-
		p-value	-	-	0.5136	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.1147
		p-value	-	-	-	0.1840***
LEV	Independent variable	Coefficient (ß)	0.0291	0.0061	0.0291	0.0287
		p-value	0.3600	0.9239	0.3608	0.3653
SGR	Independent variable	Coefficient (ß)	-0.0013	0.2006	-0.0013	-0.0013
		p-value	0.0907**	0.2952****	0.0895**	0.0889**
DP	Independent variable	Coefficient (ß)	0.0099	-0.2199	0.0106	0.0106
		p-value	0.4732	0.0117*	0.4653	0.4642
F-test		p-value	0.0000	0.0000	0.0000	0.0000
LM test		p-value	0.0000	0.0000	0.0000	0.0000
Hausman test		p-value	0.9246	0.5115	0.9448	0.9211
Selected model			RE	RE	RE	RE
Number of observations			770	770	770	770

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

analysis, this test represents the J-statistic noted in the same manner as the Hansen test. The empirical level of significance, i.e., the p-value, is higher than the theoretical level of significance α = 0.05 (5 %) in all tested models; therefore, the null hypothesis cannot be rejected, the instrumental variables used are valid, and there is no overidentification problem in the model (Labra and Torrecillas 2018). The values obtained by the AR (1) test, in the case of the first panel model (ROA), are lower than the theoretical level of significance α = 0.05 (5 %), thus leading to the conclusion that there is a first-order autocorrelation. However, Arellano and Bond (1991) and Labra and Torrecillas (2018) argue that the presence of such autocorrelation is normal in this type of research and that it is more important that there is no second-order autocorrelation. It is precisely the results of the AR (2) test that led to

the conclusion that there is no autocorrelation in the differenced residuals, given that the test value is higher than the theoretical level of significance α = 0.05 (5 %) in all tested models; therefore, the estimates of the coefficients may be considered consistent. Based on the performed diagnostic tests, it follows that the model is properly specified; furthermore, seeing that the intercept of the model is statistically significant, it is justified to choose the dynamic panel model as the appropriate model for the analysis of the impact of institutional investor ownership on firm performance.

According to the results provided in Tables 3 and 4, institutional investors, both as homogenous and heterogeneous groups and individual types, have a statistically significant impact on firm performance as measured by return on assets (ROA) and by return on equity (ROE) at the significance level of 1 %. However,

Table 3. Results of the dynamic panel analysis of the impact of institutional investors as both homogenous and heterogeneous groups on firm performance as measured by return on assets (ROA)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROA_{i,t}$	Dependent variable		-	-	-	-
$ROA_{i,t-1}$	Intercept	Coefficient	-0.0637	-0.6430	-0.0615	-0.0627
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
% II	Independent variable	Coefficient (ß)	-0.0083	-	-	-
		p-value	0.0000*	-	-	-
% PF	Independent variable	Coefficient (ß)	-	-0.0119	-	-
		p-value	-	0.0000*	-	-
% IF	Independent variable	Coefficient (ß)	-	-	-0.0040	-
		p-value	-	-	0.0008*	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.1253
		p-value	-	-	-	0.0000*
LEV	Independent variable	Coefficient (ß)	0.1137	0.1143	0.1135	0.1136
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
SGR	Independent variable	Coefficient (ß)	6.46E-05	-0.0001	0.0007	0.0006
		p-value	0.9422	0.8906	0.3064	0.3820
DP	Independent variable	Coefficient (ß)	-0.0036	-0.0006	-0.0004	-0.0046
		p-value	0.0001*	0.5538	0.0180***	0.0001*
Number of observations			660	660	660	660
Number of firms			55	55	55	55
J-statistic		p-value	0.4121	0.4289	0.3563	0,3362
AR (1)		p-value	0.0033	0.0030	0.0033	0.0033
AR (2)		p-value	0.8591	0.8705	0.8487	0.8602

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

the coefficients suggest that they have a negative impact, which may again be accounted for by the fundamental characteristics of these investors.

Specifically, institutional investors maintain long-term investment horizons with the aim of earning safe returns and allowing for a constant and slow increase in share prices; therefore, it is not surprising that the analysis results indicate that a short-term focus on profitability is not the primary objective of these investors. This is indicative of the passive portfolio management style adopted by the fund managers of institutional investors management firms (Nix and Chen 2013), which is aimed at choosing investments that can guarantee steady returns and annual dividend payments over a long-term horizon, i.e., maximization of shareholder wealth (McCahery, Sautner, and Starks 2016). Moreover, financial leverage has a

significant and positive impact on firm performance, and dividend payments are also a crucial factor for the analysed investors. The analysed investors prefer firms that pay dividends. Although the impact of this activity is negative, it suggests an increasing rate of business growth, which will in turn result in a long-term increase in shareholder wealth.

The third set of panel models was used to analyse the impact of institutional investors as both homogenous and heterogeneous groups on firm performance as measured by the standard deviation of return on assets (SDROA).

The results provided in Table 5 indicate that the ownership of institutional investors both as a whole and by individual type (investment funds, pension funds, insurance companies) has a statistically significant impact on the financial position of firms at the

Table 4. Results of the dynamic analysis of the impact of the ownership of institutional investors as both homogenous and heterogeneous groups on firm performance as measured by return on equity (ROE).

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROE_{i,t}$	Dependent variable		-	-	-	-
ROE(-1)	Intercept	Coefficient	0.0133	0.0108	0.0108	0.0105
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
% II	Independent variable	Coefficient (ß)	-0.0042	-	-	-
		p-value	0.0000*	-	-	-
% PF	Independent variable	Coefficient (ß)	-	-0.0072	-	-
		p-value	-	0.0000*	-	-
% IF	Independent variable	Coefficient (ß)	-	-	0.0023	-
		p-value	-	-	0.0000*	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.3716
		p-value	-	-	-	0.0000*
LEV	Independent variable	Coefficient (ß)	0.0313	0.0050	0.0050	0.0050
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
SGR	Independent variable	Coefficient (ß)	-0.0015	-0.0020	-0.0021	-0.0026
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
DP	Independent variable	Coefficient (ß)	0.0485	0.0546	0.0530	0.0428
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
Number of observations			660	660	660	660
Number of firms			55	55	55	55
J-statistic		p-value	0.4259	0.4853	0.4716	0.4011
AR (1)		p-value	0.1834	0.1277	0.1839	0.1831
AR (2)		p-value	0.4034	0.5910	0.4900	0.4850

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.150,4034

i = 1,…55; t = 1,…,14

Source: Created by the author

significance level of 1 %. The variable used in the model is an alternative measure of risk since it involves both the direct impact on corporate performance and the indirect impact on firm management.

Furthermore, the theoretical assumption that institutional investors observed as both homogenous and heterogeneous groups prefer firms that pay dividends is confirmed, since the results indicate that this control variable has a positive statistically significant impact at the significance level of 1 %. The analysis found an indicative relationship between financial leverage and a firm's financial position and a positive significant correlation between the sales growth rate and financial position, which is an investment opportunity for the analysed investors and influences their decisions regarding whether to invest in a particular firm. The analysed investors invest in firms with dividend policies,

clearly defined development strategies and elaborate business plans, which they regard as important indicators of future returns, and they particularly emphasize the importance of continual strategic assessments as well (Low and Arumugam 2001). Accordingly, their goal is to create an investment portfolio that can guarantee steady returns and annual dividend payments over a long-term investment horizon, i.e., shareholder wealth maximization.

The fourth set of panel models analyses the linear impact of the ownership of institutional investors observed as both homogenous and heterogeneous groups on firm performance as measured by return on assets (ROA) and return on equity (ROE), and the results are provided in Tables 6 and 7. The results of the static panel model with fixed effects indicate a linear impact of the ownership of institutional investors as a

Table 5. Results of the static panel analysis of the impact of institutional investors as both homogenous and heterogeneous groups on the financial position of firms (SDROA)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$SDROA_{i,t}$	Dependent variable		-	-	-	-
α	Intercept	Coefficient	0.1039	0.1039	0.1039	0.1039
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
% II	Independent variable	Coefficient (ß)	1.20E-16	-	-	-
		p-value	0.0000*	-	-	-
% PF	Independent variable	Coefficient (ß)	-	-4.60E-17	-	-
		p-value	-	0.0011**	-	-
% IF	Independent variable	Coefficient (ß)	-	-	5.83E-17	-
		p-value	-	-	0.0008*	-
% IC	Independent variable	Coefficient (ß)	-	-	-	3.13E-17
		p-value	-	-	-	0.0000*
LEV	Independent variable	Coefficient (ß)	5.50E-16	5.51E-16	5.51E-17	5.51E-17
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
SGR	Independent variable	Coefficient (ß)	1.14E-17	1.30E-17	1.03E-17	1.03E-17
		p-value	0.0208**	0.0257**	0.0253**	0.0526**
DP	Independent variable	Coefficient (ß)	0.0000	8.05E-17	7.83E-17	7.82E-17
		p-value	1.0000	0.0122*	0.0134*	0.0320**
F-test		p-value	0.0000	0.0000	0.0000	0.0000
LM test		p-value	0.0000	0.0000	0.0000	0.0000
Hausman test		p-value	0.0000	0.0000	0.0000	0.0000
Selected model			FE	FE	FE	FE
Number of observations			770	770	770	770

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

homogenous group, as well as a linear impact of pension fund ownership on firm performance.

The results suggest that long-term investment horizons are maintained by institutional investors in general and by pension funds in particular, whose goal is to enhance corporate governance by performing their monitoring role, which is manifested in disciplining managers to act in the interest of shareholders (Attig et al. 2012) rather than in their own interest and by reducing the information asymmetry and agency costs (Elyasiani and Jia 2008). According to Štimac, Orsag, and Dedi (2015) and Mehrani, Moradi, and Eskandar (2017), pension funds and insurance companies are classified as active or long-term investors, which have an impact on firm performance while following stability and efficiency principles for investing. These

Table 6. Results of the static panel analysis of the impact of the ownership of institutional investors observed as both homogenous and heterogeneous groups on firm performance as measured by return on assets (ROA)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROA_{i,t}$	Dependent variable		-	-	-	-
α	Intercept	Coefficient	-0.0147	-0.0146	-0.0144	-0.0133
		p-value	0.5108	0.5143	0.5239	0.5595
% II	Independent variable	Coefficient (ß)	0.0036	-	-	-
		p-value	0.2277****	-	-	-
% II^2	Independent variable	Coefficient (ß)	-0.0005	-	-	-
		p-value	0.2466****	-	-	-
% PF	Independent variable	Coefficient (ß)	-	0.0042	-	-
		p-value	-	0.1594***	-	-
% PF^2	Independent variable	Coefficient (ß)	-	-0.0009	-	-
		p-value	-	0.1121***	-	-
% IF	Independent variable	Coefficient (ß)	-	-	0.0063	-
		p-value	-	-	0.8287	-
% IF^2	Independent variable	Coefficient (ß)	-	-	-0.0006	-
		p-value	-	-	0.8636	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.0837
		p-value	-	-	-	0.2554****
% IC^2	Independent variable	Coefficient (ß)	-	-	-	0.0627
		p-value	-	-	-	0.6146
LEV	Independent variable	Coefficient (ß)	0.0760	0.0760	0.0761	0.0761
		p-value	0.0949**	0.0950**	0.0945**	0.0948**
SGR	Independent variable	Coefficient (ß)	1.95E-05	1.14E-05	2.45E-05	6.91E-06
		p-value	0.9605	0.9768	0.9507	0.9860
DP	Independent variable	Coefficient (ß)	0.0093	0.0095	0.0094	0.0099
		p-value	0.0235**	0.0178*	0.0268**	0.0088**
F-test		p-value	0.0000	0.0000	0.0000	0.0000
LM test		p-value	0.0000	0.0000	0.0000	0.0000
Hausman test		p-value	0.0046	0.0032	0.0014	0.0007
Selected model			FE	FE	FE	FE
Number of observations			770	770	770	770

$p < 0.01$; **$p < 0.05$; ***$p < 0.10$; ****$P < 0.15$

$i = 1,…55; t = 1,…,14$

Source: Created by the author

institutional investors are subject to rigid legal restrictions that define firm establishment, business operations and the investment structure, since their primary goal is not only to maximize the profitability of an investment but also to safeguard the social security of fund members (Davis, Steal, and Bolster 2002; Orsag 2015).

As already mentioned above, the dependent variable is determined by its previous values; therefore, the dynamic models were used precisely due to the endogeneity of the variable. The results of the dynamic panel analysis of the linear impact of the ownership of institutional investors considered a homogenous and heterogeneous group on firm performance as measured by return on assets (ROA) and return on equity (ROE) are provided in Tables 8 and 9,

Table 7. Results of the static panel analysis of the linear impact of the ownership of institutional investors observed as both homogenous and heterogeneous groups on firm performance as measured by return on equity (ROE)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROE_{i,t}$	Dependent variable		-	-	-	-
α	Intercept	Coefficient	0.0444	0.0444	-0.0144	-0.0133
		p-value	0.0017*	0.0014*	0.3060****	0.3425
% II	Independent variable	Coefficient (ß)	0.0082	-	-	-
		p-value	0.2576****	-	-	-
% II^2	Independent variable	Coefficient (ß)	-0.0011	-	-	-
		p-value	0.1993***	-	-	-
% PF	Independent variable	Coefficient (ß)	-	0.0113	-	-
		p-value	-	0.1237***	-	-
% PF^2	Independent variable	Coefficient (ß)	-	-0.0018	-	-
		p-value	-	0.0923**	-	-
% IF	Independent variable	Coefficient (ß)	-	-	0.0063	-
		p-value	-	-	0.8652	-
% IF^2	Independent variable	Coefficient (ß)	-	-	-0.0006	-
		p-value	-	-	0.8940	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.0837
		p-value	-	-	-	0.2069***
% IC^2	Independent variable	Coefficient (ß)	-	-	-	0.0627
		p-value	-	-	-	0.6143
LEV	Independent variable	Coefficient (ß)	0.0291	0.0291	0.0761	0.0761
		p-value	0.0843	0.0848**	0.0041*	0.0042*
SGR	Independent variable	Coefficient (ß)	-0.0013	-0.0013	2.45E-05	6.91E-06
		p-value	0.0384**	0.0351**	0.9535	0.9866
DP	Independent variable	Coefficient (ß)	0.0087	0.0082	0.0094	0.0099
		p-value	0.3501	0.3883	0.0048*	0.0017*
F-test		p-value	0.0000	0.0000	0.0000	0.0000
LM test		p-value	0.0000	0.0000	0.0000	0.0000
Hausman test		p-value	0.9432	0.9415	0.0014	0.0007
Selected model			RE	RE	FE	FE
Number of observations			770	770	770	770

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

respectively.

Based on the test results, it may be concluded that the instruments are valid, given that the empirical level of significance is higher than the theoretical level of significance α = 0.05 (5 %) in all models. According to the results obtained by the AR (1) and AR (2) tests, it can be concluded that the problem of first-order autocorrelation exists only in the first four models

regarding return on assets, but there is no second-order autocorrelation in any of the observed models; therefore, the estimates of the coefficients may be considered consistent.

The final set of panel models analyses the linear impact of the ownership of institutional investors observed as both homogenous and heterogeneous groups on the financial position of a firm, and the

Table 8. Results of the dynamic panel analysis of the impact of the ownership of institutional investors observed as both homogenous and heterogeneous groups on firm performance as measured by return on assets (ROA)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROA_{i,t}$	Dependent variable		-	-	-	-
ROA(-1)	Intercept	Coefficient	-0.0634	-0.0653	-0.0633	-0.0629
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
% II	Independent variable	Coefficient (ß)	0.0027	-	-	-
		p-value	0.0520**	-	-	-
% II^2	Independent variable	Coefficient (ß)	-0.0015	-	-	-
		p-value	0.0000*	-	-	-
% PF	Independent variable	Coefficient (ß)	-	0.0119	-	-
		p-value	-	0.0000*	-	-
% PF^2	Independent variable	Coefficient (ß)	-	-0.0038	-	-
		p-value	-	0.0000*	-	-
% IF	Independent variable	Coefficient (ß)	-	-	-0.1027	-
		p-value	-	-	0.0000*	-
% IF^2	Independent variable	Coefficient (ß)	-	-	0.0125	-
		p-value	-	-	0.0000*	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.3155
		p-value	-	-	-	0.0000*
% IC^2	Independent variable	Coefficient (ß)	-	-	-	0.3721
		p-value	-	-	-	0.0000*
LEV	Independent variable	Coefficient (ß)	0.1137	0.1141	0.1134	0.1133
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
SGR	Independent variable	Coefficient (ß)	2.63E-05	-0.0002	-0.0002	-0.0004
		p-value	0.9770	0.8560	0.8099	0.6874
DP	Independent variable	Coefficient (ß)	-0.0067	-0.0063	-0.0032	-0.0057
		p-value	0.0000*	0.0000*	0.0036*	0.0006*
Number of observations			660	660	660	660
Number of firms			55	55	55	55
J-statistic		p-value	0.3949	0.4229	0.3554	0.3994
AR (1)		p-value	0.0031	0.0031	0.0032	0.0030
AR (2)		p-value	0.8644	0.8749	0.8412	0.8575

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

results are provided in Table 10.

The results of the static panel model with fixed effects indicate a linear impact of the ownership of institutional investors as a homogenous group, as well as a linear impact of pension fund ownership on firm performance. The results suggest that long-term investment horizons are maintained by institutional investors in general and especially by pension funds, whose goal is to enhance corporate governance by performing their monitoring role, which is manifested in disciplining managers to act in the interest of shareholders (Attig et al. 2012) rather than in their own and by reducing the information asymmetry and agency costs (Elyasiani and Jia 2008).

Table 9. Results of the dynamic panel analysis of the linear impact of the ownership of institutional investors observed as both homogenous and heterogeneous groups on firm performance as measured by return on equity (ROE)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$ROE_{i,t}$	Dependent variable		-	-	-	-
ROE(-1)	Intercept	Coefficient	0.0147	0.0124	0.0137	0.0106
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
% II	Independent variable	Coefficient (ß)	0.0476	-	-	-
		p-value	0.0000*	-	-	-
% II^2	Independent variable	Coefficient (ß)	-0.0075	-	-	-
		p-value	0.0000*	-	-	-
% PF	Independent variable	Coefficient (ß)	-	0.0625	-	-
		p-value	-	0.0000*	-	-
% PF^2	Independent variable	Coefficient (ß)	-	-0.0118	-	-
		p-value	-	0.0000*	-	-
% IF	Independent variable	Coefficient (ß)	-	-	0.1332	-
		p-value	-	-	0.0000*	-
% IF^2	Independent variable	Coefficient (ß)	-	-	-0.0164	-
		p-value	-	-	0.0000*	-
% IC	Independent variable	Coefficient (ß)	-	-	-	-0.3895
		p-value	-	-	-	0.0000*
% IC^2	Independent variable	Coefficient (ß)	-	-	-	0.1203
		p-value	-	-	-	0.0489**
LEV	Independent variable	Coefficient (ß)	0.0312	0.0035	0.0320	00045
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
SGR	Independent variable	Coefficient (ß)	-0.0020	-0.0025	-0.0017	-0.0023
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
DP	Independent variable	Coefficient (ß)	0.0184	0.0371	0.0222	0.0406
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
Number of observations			660	660	660	660
Number of firms			55	55	55	55
J-statistic		p-value	0.4968	0.4257	0.4017	0.3781
AR (1)		p-value	0.3708	0.2067	0.1853	0.0610
AR (2)		p-value	0.7061	0.5215	0.5244	0.5809

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

Table 10. Results of the static panel analysis of the linear impact of institutional investors observed as both homogenous and homogenous groups on the financial position of firms (SDROA)

Variable/Description			Model 1	Model 2	Model 3	Model 4
$SDROA_{i,t}$	Dependent variable		-	-	-	-
α	Intercept	Coefficient	0.1039	0.1039	0.1039	0.1039
		p-value	0.0000*	0.0000*	0.0000*	0.0000*
% II	Independent variable	Coefficient (ß)	9.80E-16	-	-	-
		p-value	0.0000*	-	-	-
% II^2	Independent variable	Coefficient (ß)	-1.24E-16	-	-	-
		p-value	0.0000*	-	-	-
% PF	Independent variable	Coefficient (ß)	-	-8.17E-16	-	-
		p-value	-	0.0182*	-	-
% PF^2	Independent variable	Coefficient (ß)	-	1.37E-16	-	-
		p-value	-	0.0233**	-	-
% IF	Independent variable	Coefficient (ß)	-	-	4.93E-15	-
		p-value	-	-	0.0000*	-
% IF^2	Independent variable	Coefficient (ß)	-	-	-6.16E-16	-
		p-value	-	-	0.0000*	-
% IC	Independent variable	Coefficient (ß)	-	-	-	1.95E-14
		p-value	-	-	-	0.0000*
% IC^2	Independent variable	Coefficient (ß)	-	-	-	-3.70E-14
		p-value	-	-	-	0.0000*
LEV	Independent variable	Coefficient (ß)	5.48E-16	5.52E-16	5.51E-16	5.48E-16
		p-value	0.0000*	0.0050*	0.0000*	0.0000*
SGR	Independent variable	Coefficient (ß)	1.41E-17	9.17E-18	2.13E-17	1.08E-17
		p-value	0.0359**	0.3060****	0.0009*	0.1700**
DP	Independent variable	Coefficient (ß)	-8.09E-17	1.62E-16	7.84E-17	-7.98E-17
		p-value	0.0854**	0.0011**	0.0715**	0.1424**
F-test		p-value	0.0000	0.0000	0.0000	0.0000
LM test		p-value	0.0000	0.0000	0.0000	0.0000
Hausman test		p-value	0.0000	0.0000	0.0000	0.0000
Selected model			FE	FE	FE	FE
Number of observations			770	770	770	770

p < 0.01; **p < 0.05; ***p < 0.10; ****P < 0.15

i = 1,…55; t = 1,…,14

Source: Created by the author

5. DISCUSSION AND CONCLUSION

Based on the empirical research conducted to test the main hypothesis, there is a statistically significant impact of institutional investors considered not only as a homogenous group but also as individual types (investment funds, pension funds, insurance companies) on firm performance as measured by return on assets (ROA) and return on equity (ROE) and on the financial position of firms as measured by the standard deviation of return on assets (SDROA). Moreover, the empirical results of this research are consistent with previous studies, which support the premise that a linear increase in the fraction of shares owned by institutional investors observed as both homogenous and heterogeneous groups results in an increase in the performance and financial position of the analysed firms in their portfolios. Regarding the direction

of their impact, the results do not confirm a positive impact since all estimates of the coefficients are preceded by a negative sign.

Such an outcome of the analysis may be explained in terms of the fundamental characteristics of these investors. Institutional investors, especially pension funds and insurance companies, maintain long-term horizons with the goal of creating an investment portfolio consisting of investments that guarantee steady returns and annual dividend payments, i.e., shareholder wealth maximization. Therefore, it is not surprising that the results of the analysis indicate that these investors do not foreground short-term focus on profitability. This is indicative of institutional investors' tendency to prioritize conservative investments that guarantee steady returns at low risk, which is achieved by the adoption of the passive portfolio management style by the fund managers of institutional investors' management firms. In accordance with this theory, investors strive to gain returns on invested capital; therefore, they choose to invest in transparent firms whose value is expected to increase in the long term. As it is in their interest, institutional investors are expected to continuously assess the performance of firms to oversee their own invested capital. By doing so, not only do institutional investors fulfil their own interests as the principals to the firm but also the fiduciary interests they have in their relationship with shareholders, i.e., stakeholders. It is in their interest to engage in the firm management process through corporate governance mechanisms to ensure higher returns for their investors and attract new investors in this manner; consequently, the entire management firm will generate more profits. Previous studies have distinguished three mechanisms used by institutional investors to control management: (1) the exercise of voting rights at the general assembly of shareholders, which grants explicit power in management control to investors, (2) direct communication with management to discuss strategies for the future development of the company and (3) cooperation with other institutional investors in the ownership structure of a company to create a representative group safeguarding their interests (Nix and Chen 2013). This illustrates the underlying principle of investors' practices—long-term investing—which protects both their investment and the interests of their shareholders.

The results of the analysis single out investment funds in one respect. Their investment horizon is somewhat shorter than that of all analysed types of institutional investors, though, theoretically, it is still considered long; however, their liquidity is considerably higher because shareholders or stakeholders may exit the firm at any point in time. It is precisely this requirement for higher or lower business liquidity that may be an obstacle to engagement in corporate governance. On the other hand, the results show a positive impact, which is an indication of an aggressive asset management style resulting from a highly competitive market, and naturally investment funds seek to fulfil the obligations they have towards their own shareholders, i.e., stakeholders. Their goal is to generate profits for their own firm that manages the assets, and the profits come from the investors who make deposits into funds. The more attractive a fund is and the more income it earns, the higher its profit will be. Therefore, it can be concluded that institutional investors coexist with good practices of corporate governance implemented by joint-stock firms.

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