Institutional investors and company market value – the case of Poland*

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Abstract

Institutional investors have contributed to the development of capital markets in transition economies, including Poland's. Since they leverage detailed fundamental analysis and actively seek the highest possible returns on investments, their decisions are expected to be accurate and are observed carefully, often treated as signals for other investors to follow. As a result, the market valuations of target companies are expected to increase. The objective of this paper is to determine whether the presence of institutional investors in the ownership structure coexists with a higher market valuation of a listed company. The estimation of a panel model with fixed effects (681 companies listed on the Warsaw Stock Exchange, WSE, between 2014 and 2018) indicates that a higher share of institutional investors in the ownership structure coexists with a higher Price to Book Value (PB).

Keywords: institutional investors, Poland, corporate governance, company market value
JEL Codes: G32, G23

1. Introduction

Institutional investors, defined as investment funds, pension funds, banks and insurance companies (Mallin 2010), which collect the savings of individuals and enterprises, have been operating on capital markets since the 19th century. At first, they operated in Anglo-Saxon countries, then in continental Europe, and in the 1990s entered Central and Eastern European (CEE) markets as part of the region's economic and political transformations.

Poland clearly was the economic and political transition leader in the CEE in the 1990s. According to estimates by Forum Obywatelskiego Rozwoju (Civic Development Forum), Polish GDP per capita (PPP) grew more than 2.5 times between 1989 and 2019[1]. A strong capital market was part of the strategy. Poland introduced pension reform, a detailed investment fund legal framework, as well as a set of corporate governance guidelines and rules for listed companies, aimed at accelerating the development of the country's capital market. It was believed that a stock exchange with high capitalisation and a good reputation would drive economic growth in the country, providing listed companies with equity funding that enabled them to grow and, as a result, driving up their market value. Institutional investors both domestic and foreign, bringing in

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1 https://businessinsider.com.pl/finanse/makroekonomia/9-mitow-o-polskiej-transformacji-for/7dz20qm.

professionalism, funds, and liquidity, were an important part of this plan (Dębski 2006).

The importance of such investors increased in Poland significantly after the pension reform introduced in 1999. Open Pension Funds became one of the key institutional investors on the WSE as most employees in Poland were obligated to pay their contributions to the pension plans on a monthly basis. As Open Pension Funds were allowed to invest only in shares issued and traded on the domestic capital markets, they became essential for the development of the WSE. In 2015, shares owned by these funds constituted 19 % of the stock market's total capitalisation. The development of investment funds was very dynamic too, with compound annual growth rate of assets under management of 27 % between 2000 and 2018[2]. In 2017, domestic investment funds owned almost 8 % of the market capitalisation of companies from the three main indices on the WSE, while pension funds had 41 %. Foreign investors owned 37 % of the total market capitalisation of Polish stocks, mostly as strategic owners. Foreign institutional investors are focused on blue chip stocks, being very minor holders typically with a stake around or below 1 %, whereas domestic ones often exceed 5 %, which must be reported[3].

The objective of this research paper is to determine whether the presence of institutional investors in the ownership structure coexists with a higher market valuation of the listed company.

For all investors (also institutional), the market value of a company is the most tangible measure of success because it is the basis of the calculation of their (and their clients') return on investment and profits. Market valuation is driven by supply and demand and reflected in market capitalisation (Patena 2011).

According to the efficient market hypothesis (EMH) (Fama 1965), share prices fully reflect all available information about a given company. Institutional investors support the efficiency of the markets through professional fundamental analyses of companies in their portfolio and by making conscious decisions about buying and selling shares to achieve the highest possible profits and to try to outperform the market (see Scheme 1), something that has proven to be a relatively difficult task, according to the EMH. Valuation of shares is based on past and expected financial results (profit) of a company, thus return on equity is crucial to estimate the fundamental value (Damodaran 2002). The capital asset pricing model (Sharpe 1964) assumes that pricing also depends on the risk associated with these shares and introduces "beta"[4] as a measure of this risk. However, to achieve a high return on investments, apart from leveraging

2 Own calculations based on NBP reports, *Rozwój systemu finansowego w Polsce.*

3 Own calculations based on data provided by the Warsaw Stock Exchange.

4 A measure of the price volatility of securities in relation to the stock index.

purely technical and fundamental analytical skills, institutional investors can also exercise their ownership rights (Celik/Isaksson 2013). It all depends on their investment strategy, as well as on the quality of the corporate governance system and the standards in a company (Black 1998; La Porta et al. 2002). On the other hand, after reaching the desired return on investment, seeing no potential for further growth, institutional investors as professional stock market participants take the profit and exit their investments, which drives the price down (Bushee 2001). If they have followers, it often causes underpricing of these shares, which again after some time attracts professional investors (including institutional investors) who may see an investment opportunity and potential for future growth of share price after a careful fundamental analysis (Scheme 1).

The professionalism of portfolio managers and institutional investors in executing supervisory obligations improves corporate governance in the companies (KNF 2016) and, therefore, should make them value creators for the companies in which they hold shares (Aluchna 2015). This is what their clients, who deposit their savings, expect them to do—institutional investors' economies of scale enable them to be more efficient than individual investors (David/Levitas/Kochhar 1998). As professionals investing in stock markets, institutional investors monitor company performance, create forecast models, and can engage in a dialogue with the management board regarding the strategic and operational aspects of the company management (Bainbridge 2005). However, the fragmentation of Poland's market, as well as the relatively low protection of minority shareholders' rights and ongoing transformation, could mitigate this theoretically positive impact.

Since institutional investors are perceived as professional entities on capital markets, they are often followed by individuals who do not have enough tools or resources to perform similar analysis and monitoring. In Poland, the portfolio structure of the pension funds must be reported biannually. Additionally, KNF (the financial supervisory authority in Poland) publishes an annual aggregated report on the portfolio structure of institutional investors in Poland, which is publicly available information that can be a source for non-institutional investors, especially individuals. Both foreign and domestic institutional investors are carefully observed by other market participants, which may lead to herd behaviour that can drive up the price and market value (Maug/Naik 1996).

The analysis of the importance of institutional investors in the ownership structure, along with their leading role among investors on the stock market, their supervisory functions, and their impact on the value of listed companies, has been researched since the 1980s. The literature review does not explicitly indicate the method and power of institutional investors' impact on the companies in which they own shares. However, there is no comprehensive analysis in stable market conditions for the Polish market, hence the subject of this research paper

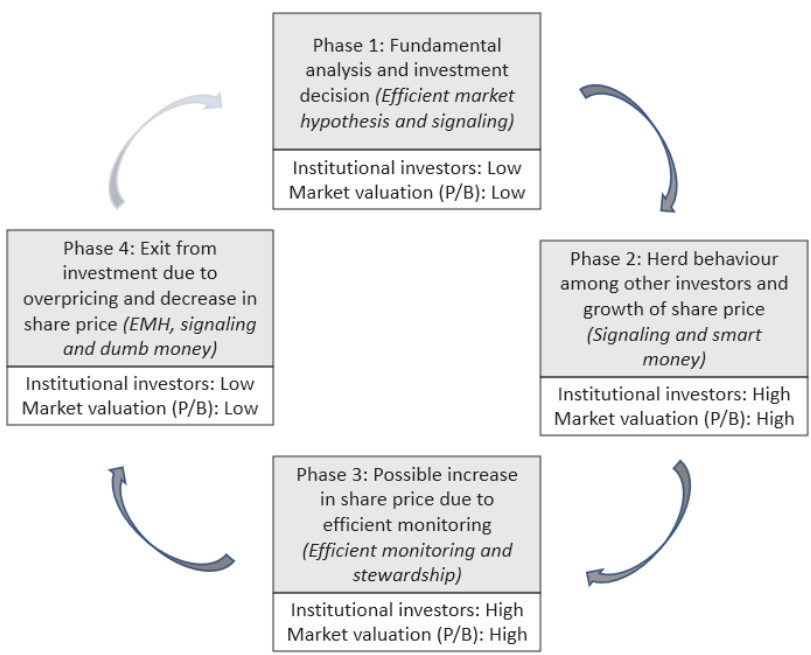
seems to be significant for the development of understanding of the institutional investors' role on the stock market in Poland.

2. Theoretical background and empirical evidence

2.1. Theoretical background

Among the many theories developed in this space, signalling theory as well as the smart- and dumb-money hypotheses seem to describe the relation between the presence of institutional investors in the ownership structure and the company market value in the best way, as presented in Scheme 1. Additionally, the efficient monitoring hypothesis and stewardship theory help explain it, but they impose strong causality, which will not be formally proved in this paper.

Scheme 1. Institutional investors and company market value—theoretical framework



Investors must make their decisions while dealing with strong information asymmetry. This is especially true for markets with concentrated ownership structures (like Poland). The dominant shareholder has typically more information about the company than the minority shareholders and other market participants (Aluchna 2007). Signalling theory explains the behaviour of the parties in these circumstances—information asymmetry makes all signals coming from the market meaningful (Connelly et al. 2011). This theory can explain the

relationship between the presence of institutional investors and a company's market value because, while making investment decisions, institutional investors show the market that they believe and expect that the share price will grow, which can be a signal to other investors (with limited access to information and resources to interpret it) to become more interested in this investment target as well (Gillan/Starks 2002). Significant presence of institutional investors in an ownership structure might attract other investors and drive up the share price, increasing the market value of the company (Almazan et al. 2005). This is known as herd behaviour and is common among investors in Poland; it was observed and mentioned by eight carefully selected representatives of institutional investors in Poland (both Polish and foreign entities, big and small in terms of total assets under management) during in-depth interviews (Bosek-Rak 2019).

Also, the smart- and dumb-money effects can explain the relationship of the presence of institutional investors in an ownership structure and a company's market value. Institutional investors, especially investment funds that achieve high returns on investment, attract new inflows of money, which makes the process iterative. They can invest these funds further according to their investment strategy, which is relatively stable: in Poland, pension funds and investment funds must comply with strict regulations in this matter. As a result of growing demand, the market value of mutual funds' portfolio of companies will grow (Gruber 1996). This smart-money hypothesis was proved rather in the short run, though. In the long run, the company becomes overpriced, which makes it vulnerable to future shocks and crises, which, if they occur, will result in a decrease in prices. If there is a high demand for shares, a company increases the number of shares outstanding and their market value goes down. Moreover, management that can see the strong increase in demand for shares may put in less effort (Frazzini/Lamont 2008). Institutional investors exit investments that do not bring a sufficient return (Duggal/Millar 1999). This mechanism indicates that the relationship between the presence of institutional investors in the ownership structure and the market value of a company can fluctuate in the long run, especially if there are strong inflows of capital or significant outflows. This is especially true for foreign institutional investors (Milesi-Ferretti/Tille 2010). From this perspective, the increase in market value is temporary and vulnerable to the business cycles, especially in emerging economies with a high share of foreign institutional investors and investors who do not engage.

A more sustainable increase in market value can be achieved if institutional investors engage in the monitoring activities. Derived from agency theory, the efficient monitoring hypothesis states that monitoring by institutional ownership can be an important governance mechanism (Kazemian/Sanusi 2015). Typically, the agency conflict is between the owner of the capital—the shareholder—and the managers; however, in the case of concentrated ownership, this conflict occurs between the dominant shareholder and minority shareholders (La Por-

ta/Lopes de Silanes/Shleifer/Vishny 2000; La Porta/Lopes de Silanes/Shleifer/Vishny 2002). According to this theory, institutional investors are always involved in agency conflict, either with managers or dominant shareholders. On the other hand, professional portfolio managers are expected to mitigate the agency conflict and costs and help the company create more value in the long run and shareholders achieve a higher return on investment. This is in line with stewardship theory (Davis/Schrooman/Donaldson 1997): institutional investors should play an advisory role to managers and dominant shareholders, leveraging their professionalism and knowledge of the business environment and specific industry, as well as their economies of scale. The level of appropriateness of both theories in relation to the role of institutional investors as shareholders depends on the corporate governance system, as well as historical, social, cultural, and psychological factors (Wiseman/Gomez-Mejia/Cuevas-Rodriguez 2012). Implementing the assumptions of stewardship theory is more efficient but requires a high level of social capital (Davis et al. 1997). If the significant presence of institutional investors in the shareholder structure coexists with an increase in the value of a company, stewardship theory seems to be more appropriate to explain their role and especially their positive effect of engagement on supervisory processes. However, these corporate governance theories impose causality, which will not be formally proved in this research paper.

2.2. Literature Review

There are several research papers that discuss the relationship between the presence of institutional investors in the ownership structure of listed companies and their market value. The results are ambiguous. For both global studies and those covering only developed or developing countries the results indicate either a positive or negative relationship between the presence of institutional investors in the ownership structure of companies and their market valuation. It is measured typically by either Q Tobin or Price (Market) to Book value.

In the 1980s, the results of the research suggested that companies with a high share of institutional investors in the ownership structure did not achieve higher profits and market valuation—the positive impact of professional approach is mitigated by the common interests of institutional investors and managers and thus weaker control (Pound 1988)—institutional investors did not perform efficient monitoring. However, another study showed that in the USA, a higher share of institutional investors in the ownership structure coexisted with a higher Q Tobin ratio (McConnell/Servaes 1990). More detailed research was conducted in 2008, which found that foreign and independent institutional investors had a positive impact on the Q Tobin ratio (Ferreira/Matos 2008). Another analysis was conducted on 100 European companies in which the biggest shareholder was an institutional investor and had achieved the highest Market (Price) to

Book Value (Thomsen/Pedersen 2000). In Denmark, there was no relationship between the presence of institutional investors in the ownership structure and the Q Tobin ratio. The presence of the two biggest institutional investors in the ownership structure coexisted with the lower Q Tobin ratio because of the concentrated ownership structure, according to the authors (Rose 2007). In France, the presence of institutional investors as minority shareholders coexisted with weaker financial results. This could be explained by the passiveness of most of the institutional investors since the French market was too small for big global investment and pension funds to engage in supervision (Sahut/Gharbi 2010). There are plenty of other research papers (Wahal 1996; Wiberg 2008) that examine this topic in the developed countries and the results vary.

Similar studies were conducted in emerging markets. In India (Nashier/Gupta 2016) and in Jordan (Al.-Najjar 2010), there was a positive relationship between the presence of institutional investors in the ownership structure and Q Tobin ratio and Market (Price) to Book Value, respectively. In Romania (Vintila/Gherghina 2015), it was positive until the share in the ownership structure reached 48.16 %, then it was negative. For South Korea (Na 2002), Taiwan (Shin-Ping/Chuang 2009), Kenya (Gitundu/Kiprop/Kibet/Kisaka 2016), and Iran (Alipour 2013), the relationship was not significant. Additionally, in Kenya and in Iran, the presence of institutional investors in the ownership structure coexisted with better financial results. In Jordan, this relationship was negative. To sum up, there is no clear trend in the research conducted so far.

In Poland, we have already conducted a pilot analysis (Aluchna/Bosek 2016) of the period 2005–2014 for 88 companies listed on the WSE. It turned out that the higher share of institutional investors in the ownership structure coexisted with lower market value, measured by Price to Book Value. Careful analysis noted the strong impact of the 2008 financial crisis. The period before the crisis (with a relatively low share of institutional investors in the ownership structures) and the crisis itself (with a strong drop in the share prices) were characterised by a negative relationship between the presence of institutional investors in the ownership structure and the market valuation of a company. There are specific market conditions that could impact these results. Just before the crisis, there was a strong inflow of capital to emerging markets due to skyrocketing stock indices and significantly improving corporate governance standards (Suchanek/Vasishtha 2009–2010). When the crisis started, the panic on stock markets caused an outflow of foreign capital and a strong drop in share prices (Milesi-Ferretti/Tille 2010). Also, during the crisis years (2008–2011), with the still relatively high share of institutional investors in the ownership structure and low valuations of the companies, the presence of institutional investors in the ownership structure coexisted with lower market valuations. Post-crisis and the return to a stable stock market resulted in a positive relationship between the two variables—a higher share of institutional investors in the ownership structure

coexisted with higher company market value. Therefore, the author decided to use a bigger data sample—681 non-financial companies—and a relatively stable market period (sideways trend; 2014–2018) to test the hypothesis.

3. Empirical specification and data

According to numerous theories (e.g., signalling theory, smart/dumb-money hypotheses, agency theory, stewardship theory), institutional investors should play a crucial role as shareholders. Being professional investors operating with economies of scale, a usually long-term horizon, as well as a focus on profitability, they are expected to be present in the ownership structure of companies with high growth potential. They may support an increase of value of the company through, e.g., signalling, monitoring activities, and advisory services. Their presence should drive herd behaviour to attract other investors to drive the market value of the company up even further.

Having been inspired by the research carried out in many developed and developing countries, the author checked this coexistence in Poland.

The main hypothesis is the following:

H1: A higher share of institutional investors in the ownership structure of a listed company coexists with its higher market value.

Moreover, it is worth verifying two additional hypotheses that can be derived from the theoretical considerations regarding factors that typically impact a company's market value according to the above-mentioned EMH and Sharpe model:

H2: A higher return on equity reported by a listed company coexists with its higher market value.

H3: A higher "beta" measuring risk associated with given shares of a listed company coexists with its higher market value.

3.1. Data sample

Based on the theories, well-established models, literature review, and current research on the relationship between the presence of institutional investors in the ownership structure and the value of a listed company, the following variables were selected for the model:

Market valuation:

- Price to Book Value ("PriceToBook") – a dependent variable that is a measure of the company's market valuation in relation to the book value of its equity; can be used instead of Q Tobin (Damodaran 2002).

- Financial results:
- Return on equity ("ROE") – an independent variable that reflects the company's profitability and theoretically significantly affects the perception of its potential by investors; calculated as the quotient of net profit in a given year and the average equity (in %);
- Beta ("Beta") – an independent variable that is a measure of the price volatility of securities in relation to the stock index in the model calculated for one year.

Control variables:

- Debt to Equity ("DebtToEquity") – an independent variable that may affect the agency's conflict level (Jensen 1989); it is also perceived as characteristic for a given industry, usually included in previous studies (Thomsen/Pedersen 2000; Nashier/Gupta 2016), calculated as the quotient of total debt and equity;
- Total assets ("TotalAssets") – an independent variable that is a measure of the size of the company; smaller companies have higher growth potential and can be managed more efficiently (Nashier/Gupta 2016); on the other hand, they are less liquid.

Ownership structure:

- Percentage of institutional investors in the ownership structure ("Institutions") – an independent variable (in %) that reflects the total holding of minority shareholders—traditional investment managers, banks, government pension plan sponsors, hedge fund manager (up to 5 %), family office, insurance company, corporate pension plan sponsor, sovereign wealth fund (up to 5 %), charitable foundation, union pension plan sponsor, endowment, PE/VC (up to 5 %), REITs.

There are no industry-specific control variables since the financial sector was excluded and the panel model with individual effects can deal with this problem.

Regarding endogeneity[5], some researchers claim that it is difficult to find proper instruments to assess it (Himmelberg/Hubbard/Palia 1999). Thomsen and Pedersen (2000) assumed that the ownership structure is exogenous since it is relatively stable and does not adjust flexibly to dynamic market conditions. This was proved by Sahut and Gharbi (2010) in their study of the French market. Other studies (Nashier/Gupta 2016) suggest, though, that it *is* endogenous. The years 2014–2018 were relatively stable, but due to significant inflows and outflows of capital in the past, it is safer to assume that endogeneity may occur. In general, endogeneity means that the relationship in the model may be two-way, for example, a higher market valuation may be the reason for institutional investors'

5 It means that the independent variable in the model is correlated with the random component.

interest in a given company while the higher presence of institutional investors in the ownership structure may result in higher valuations of the company by other players. As discussed earlier, this may be an iterative process. According to the theory of econometrics, no causal interpretation is necessary; it is also acceptable to find a correlation relationship (coexistence) (Osińska 2008), which the author focuses on in this research paper.

Descriptive statistics and correlation matrix for the data sample are presented below (see Tables 1 and 2).

Table 1. Descriptive statistics

Descriptive statistics 1:1 – 681:5

Variable	Mean	Median	S.D.	Min	Max
Institutions	14,2	4,89	19,1	0,000	94,5
ROE	1,04	5,25	37,6	-250,	244,0
PricetoBook	2,72	1,19	5,96	0,000	116,0
Beta	0,187	0,177	0,800	-9,86	14,2
DebtToEquity	0,709	0,290	2,93	0,000	95,7
TotalAssets	1,36e+003	78,7	6,99e+003	0,0355	1,18e+005

Table 2. Correlation matrix

Institutions	ROE	Priceto-Book	Beta	DebtToEquity	TotalAssets	
1,0000	0,0663	-0,0657	0,0932	-0,0058	0,1237	Institutions
	1,0000	0,0794	-0,0179	-0,1752	0,0306	ROE
		1,0000	-0,0502	0,0411	-0,0491	PricetoBook
			1,0000	-0,0215	0,0858	Beta
				1,0000	-0,0016	DebtToEquity
					1,0000	TotalAssets

Correlation coefficient 1:1–681:5
Critical value (5 %) = 0,0336 for n = 3405

Analysing the descriptive statistics, it is worth mentioning that the average share of institutional investors in the ownership structure is quite low in this data sample. This is due to the pension reform and the establishment of the New Connect market (an alternative stock market) in 2007 where companies with much lower market capitalisation are listed. Typically, institutional investors in Poland are not interested in these companies due to their limited liquidity (Bosek-Rak 2019) (see Table 3.), which is in line with other European results (Thomsen/Pedersen 2000).

It is worth mentioning that the strong inflow of money to institutional investors in Poland, facilitated by legal requirements for pension funds and partially for investment funds to invest only in domestic shares, slowed down significantly in 2014 due to new pension system reform, and it brought some balance to the stock market. The pension system reform limited the share of pension contributions going to open pension funds, which resulted in a gradual reduction of the pension funds' total assets. Therefore, the average share of institutional investors in the ownership structure amounted to 13 % to 14 %[6] in the years 2014–2018 for the entire data sample. That is why this time series seems to be reasonable to analyse as the market was stable during this period.

3.2. The empirical model

The data sample is classified as panel data, which means they contain information about the same units, in this case listed companies, in several periods. Panel data allows more observations to be included, especially when the time series is not long enough. In addition, models based on panel data include additional information about the population, in this case, for example, differences in the average Price to Book Value ratio for various industries or companies. The possibility to consider this individual effect, characteristic of each unit (company), avoids the correlation of the residual component with the independent variable, which would occur if the data were classified as cross-sectional (Witkowski 2012). The data sample, used in the estimation, constitutes an unbalanced panel. Due to the lack of data or extreme observations, not all units are analysed for all periods.

The proposed model is static, as it is not an autoregressive model and is a one-way model. It contains an individual effect, i.e., all time-constant characteristics of a given unit that affect the dependent variable.

For empirical analysis, the author used the panel models, namely pooled OLS, fixed effects, and random effects to determine the relationship between the ownership structure and market valuation of the companies. The author carried out the Breusch-Pagan test to examine if there was a random effect in the data, i.e., a difference among the entities of the panel. The author also used the Hausman test to decide between a fixed effect and random effects in the panel data.

The estimation of the model and the diagnostic analysis suggest that the panel model with fixed effects is the most appropriate one.

LM = 909,281; p = prob(chi-square(1) > 909,281) = 9,42254e-200 (Low p means that OLS model should be rejected)

6 Own calculations.

H = 23,9364; p = prob(chi-square(5) > 23,9364) = 0,000223308

(Low p means that the H0 – model with random effects should be rejected – model with fixed effects is more appropriate)

In the case of the analysed data panel, this seems to be a true assumption since each company has a specific characteristic (e.g., industry, managerial skills), which is unique and relatively stable over time.

The overall model design has the form:

$y_{it} = x'_{it}\beta + \alpha_i + \varepsilon_{it}$

where:

y_{it}– dependent variable,

x_{it}– vector of independent variables,

ε_{it}– a random component,

β– vector of parameters,

α_i– individual effects (fixed effects).

The heterogeneity of the random component in the model has been corrected by using robust standard errors (robust HAC).

Additionally, the author introduced a threshold of a 25 % share of institutional investors in the ownership structure to check whether the concentration of institutional investors makes a difference, as well as thresholds for total assets to exclude the smallest companies (see below), and estimated the model with lags (single delay of the ROE variable as well as single delay of the Institutions variable). In the case of ROE, the impact on market valuation and perception of the company by investors may be influenced by ROE reported in previous years, and not necessarily the current year's, which is not known at the time of making investment decisions. Regarding the activity and presence of institutional investors in the ownership structure, it is both long-term and a signal for other shareholders to buy or sell the shares. Hence, it is worth adding a lag (even stronger signal) and checking their relationship with the company's market valuation.

Results of the estimations are presented in Table 3.

Table 3. Estimation of the models for data sample 2014–2018

	Basic model	Basic model with Institutions threshold 25 %	Basic model with Total Assets above PLN 100 million	Basic model with Total Assets above PLN 250 million	Model with Lags with Total Assets above PLN 250 million
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Const	2,24320 (***)	2,62866 (***)	1,13614 (***)	0,995901 (***)	0,937534 (***)
Beta	-0,221187	-0,214961	0,00456870	0,101670	0,119721
ROE	0,0140796 (**)	0,0138314 (**)	0,0141980 (***)	0,0120776 (**)	0,0108590 (**)
ROE_1					0,00393514 (**)
TotalAssets	1,02403e-05	1,74895e-05	1,49668e-05	1,07015e-05	8,29877e-06
Institutions	0,0328031 (**)		0,0125787 (**)	0,0144207 (***)	
Institutions_1					0,0138661 (***)
Insti_25		0,280800			
DebtToEquity	0,0337868	0,0352364	–0,0158740	0,00317496	0,0210987 (**)
R2	0,603680	0,602168	0,798809	0,885687	0,928508
Akaike	18530,56	18542,47	4718,978	2681,024	1650,987
Joint test on named regressors	F(5, 680) = 2,8315 p=0,0153388	F(5, 680) = 1,98147 p=0,0793738	F(5, 329) = 4,01069 p= 0,00151475	F(5, 222) = 3,18619 p=0,00846727	F(6, 209) = 3,0863 p=0,0064587
Average Institutions	14	14	24,89	27,56	27,56
Average Total Assets	1363	1363	2932	4258	4258

The correctness of the models is confirmed by the tests (above) and the R2 determination coefficient of between 60.2 % and 92.9 % (i.e., the basic model explains 60.2 % of the variability of the explained variable). Based on the estimation, the research hypothesis (H1) can be verified in the following dimensions:

- The higher share of institutional investors in ownership structure coexists with the higher Price to Book Value at the 5 % significance level.
- The higher share of institutional investors in the ownership structure of companies with total assets above PLN 100 million coexists with a higher Price to Book Value at the 5 % significance level.

- The higher share of institutional investors in the ownership structure of companies with total assets above PLN 250 million coexists with a higher Price to Book Value at the 1 % significance level.
- The higher share of institutional investors in the ownership structure of companies with total assets above PLN 250 million in the previous year coexists with a higher Price to Book Value in the current year at the 1 % significance level.

The significance and direction of the relationship between the other independent variables and the dependent variable are consistent with the expectations, theories, and research papers discussed in the literature review. Two additional hypotheses have been verified, too. Return on equity is the key factor influencing Price to Book Value. Higher ROE coexists with a higher market valuation, also over a year (H2). On the other hand, "beta" is not significant in any model (H3)—more market risk (volatility) does not mean higher valuation. Regarding risk, however, in the case of the biggest companies, the higher level of financial leverage measured by the Debt to Equity ratio in the model with lags coexists with higher market valuations, which is in line with the theory since more risk (measured by external financing) should bring more returns in future and a higher valuation. It is a bit surprising that the size of the company measured by the sum of assets does not matter—smaller companies have theoretically greater growth potential and are easier to manage (Thomsen/Pedersen 2000; Vintila/Gherghina 2015). It seems that the lack of liquidity of the shares of smaller companies (mentioned earlier) rather does not discourage investments.

4. Results and interpretation

The analysis above confirms that a higher share of institutional investors in the ownership structure coexists with a higher market valuation of listed companies in Poland (H1). This has been concluded based on analysis of 681 companies listed continuously on the WSE between 2014 and 2018.

The fact that higher market value coexists with higher return on equity (H2) means that the market valuations of the companies listed on the WSE reflect their fundamental value, according to the model developed by Damoradan (2002). This contributes to the development and efficiency of the market, attracts investors, and proves that they make professional and rational decisions.

Institutional investors are professional, and they strive to achieve a high return on their investments. They choose companies with high growth potential and they try to contribute to create even more value in these companies as shareholders. The presence of institutional investors in the ownership structure gives a strong signal to other investors that professional fund managers believe in the growth of the value of this company in future. This leads to herd behaviour and makes it a self-fulfilling prophecy. All investors, especially open pension funds,

which are assessed against the benchmark, tend to follow the biggest entities in the market. Small funds following the investment decisions of the largest funds may lead to a temporary increase in the market valuation of shares for which there is the highest demand. This mechanism was facilitated in Poland by the legal framework imposed by the pension reform as well as investment funds' market structure and legal requirements. Domestic entities were supposed to invest in Polish stocks, looking for the best targets and ensuring a high return on investments, and were assessed against the benchmark.

Signalling theory also can be applicable to foreign institutional investors. Although they might be perceived as anonymous capital (Maug 1997), they give a signal to the market that the given company was approved by their investment committee to be included in the portfolio. This is again a positive signal for the market that the group of professionals expects the share price to grow. This was proved in research conducted by, e.g., Ferreira and Matos (2008).

In the short run, this can be also explained by additional inflows of capital to the well-performing institutional investors as suggested by the smart-money hypothesis.

The level of development of the financial market and corporate governance system in Poland also can be important to understand the results. According to stewardship theory, the managers could be a group of reliable advisors for a company and thus contribute to the growth of its value. In Poland, institutional investors tend to manage by delegating a representative to the supervisory board (Bosek-Rak 2019), where possible. The conducted analysis seems to confirm that institutional investors' rights as minority shareholders are relatively well-protected and as shareholders, they can influence the management of the company, monitoring them efficiently. This should result in higher value for a company with professional institutional shareholders.

5. Limitations and further research

First, there are limitations in the presented model: the lack of a larger number of variables characterising the ownership structure, for example, information about the largest shareholder and its share; detailed information about dispersion of the institutional ownership structure; distinction between domestic and foreign institutional investors. Adding these variables would allow for more precise results, however their availability for all companies is very limited.

Second, that the level of market risk associated with the shares is not relevant for their market value (H3) may suggest that there are some hidden valuation factors or an imbalance. Further investigation may uncover such issues.

It would be interesting to conduct more detailed qualitative research on the level of engagement of institutional investors in Poland into supervision to find

explanation for these results and confirm causality. Additional qualitative study could be done among non-institutional investors to verify the herd behaviour. It also would be interesting to repeat the estimation of this model in a few years to check whether these results can be confirmed during the COVID-19 crisis.

6. Summary

This research paper confirms the hypothesis (H1) that the higher presence of institutional investors in the ownership structure coexists with the higher market valuation of the listed company. Institutional investors' professionalism in choosing investment targets, herd behaviour among investors, as well as improving the corporate governance system, enabling protection of the rights of minority shareholders and active engagement of institutional investors, are among the probable reasons for this result in Poland.

Apart from a theoretical contribution, the results might be useful for regulators in other CEE countries while encouraging institutional investors (through, e.g., pension reforms) to become more significant players on local stock markets. They bring not only capital and liquidity but also knowledge and professionalism and tend to improve corporate governance standards. They leverage their professionalism to carefully select best investment targets with growth potential. Institutional investors also can be treated as a signal for other investors in Poland—it has paid off to invest in companies where institutional investors held shares, especially during the stable time of prosperity, although it might be just temporary overpricing due to herd behaviour. Finally, the presence of institutional investors' representatives might reflect whether they are satisfied with the impact they have on the companies in their portfolio and how they can shape their investment portfolio and engagement to achieve a higher return on investment in future, as it seems that their choices and engagement make a difference.

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