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POST-PRIVATIZATION CORPORATE PERFORMANCE: EVIDENCE FROM COMPANIES PRIVATIZED IN POLAND IN 2008–2011¹

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ABSTRACT

Our study concerns the effects of Polish privatization program conducted in the years 2008–2011. After drawing a broad picture of this process, we investigate the performance of 59 companies from the sample of 458 enterprises that completed the privatization process under this program. We hypothesize that privatization increases a company's profitability, labor productivity, capital investment, plow-back ratio and leverage. The findings of our study are partly ambiguous (with four hypotheses confirmed and four rejected). Profitability did not improve visibly, although a number of positive initiatives and improvements in performance occurred (such as cost reduction, improvement of operational efficiency, higher investments, improvement of plow-back ratio and changes in capital structure). Our findings suggest that privatization works, though its full effects need time to occur.

Keywords: privatization, companies' performance, state owned enterprises.

JEL Classification: G38, H27, L3

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INTRODUCTION

The aim of our research is to study the impact of privatization on the performance of companies privatized during 2008–2011. The goal of this government program was to complete the privatization process after many years of slowing down and almost fading away of the process. A relatively large group of 802 state owned enterprises was included into the plan and 458 of them completed² the process until the end of 2011.

The main part of the paper focuses on the quantitative analysis of outcomes of privatization, specifically on microeconomic objectives that were to be achieved through privatization. We decided to study the performance of 59 companies that completed privatization under the program, in their pre- and post-privatization period. The chosen time span for each enterprise was three consecutive years before and after privatization.

The performance of companies was measured via eight indicators in five areas: profitability, operating performance, CAPEX investments, reinvestment, and leverage. We hypothesized that privatized firms exhibited significant improvements in the profitability ratios relative to the period before privatization. We hypothesized that other ratios were also improved: operational efficiency was higher (measured as revenues versus payrolls), companies started investing into CAPEX, the plow-back ratio was improved, and capital structure was changed.

The rest of the paper is structured as follows: section one introduces the historical and political context for the investigated privatization program, section two provides the background for our research, section three describes sample selection methods, section four – methodology of our research, section five provides findings, and finally section six brings conclusions from the research and details references.

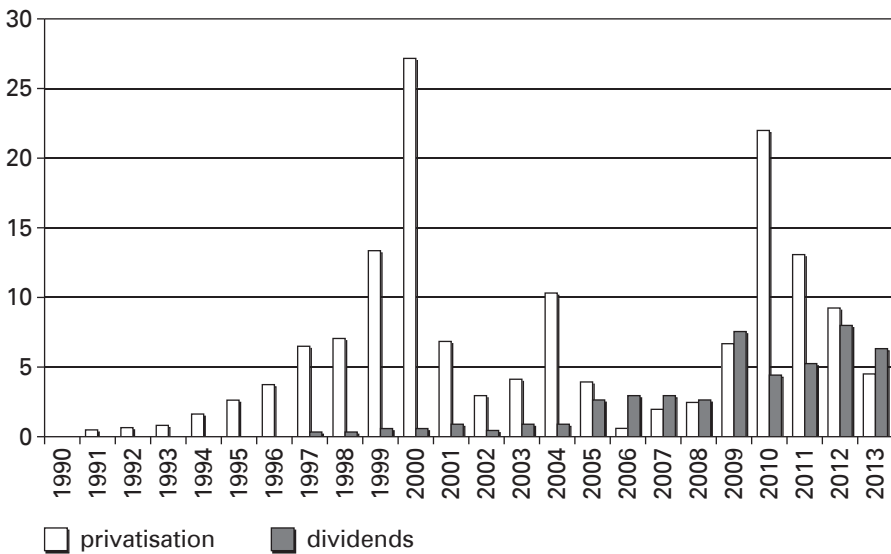
1. HISTORICAL AND POLITICAL CONTEXT

Decisions behind privatization in Poland were justified both politically and economically. Together with the stabilization and liberalization of the economy, privatization was one of the underpinning principles of the reform program launched by the first Polish government after the fall of communism at the end of 1989. This government made creating an economy based on private ownership one of its top priorities. Thus, privatization was seen as instrumental in increasing the efficiency of enterprises and, at the same time, bringing the ownership structure of the economy into line with market economy norms. There was a strong conviction among reformers that state-owned enterprises (SOE) were permanently ineffective and that it was quite impossible to create an effective corporate governance system for SOEs, to be carried out by the government, especially in such

² Completing privatization means here the transfer of more than 50 percent of shares to private hands.

a large state sector as then existed (Błaszczuk, 1993, p. 11). In accordance with such considerations, the privatization goals were seen first of all as systemic (change of the political and economic order) and economic (improvement of the economic efficiency at all levels). Additionally, the difficult budgetary and financial situation of the country at that time made another goal of privatization self-evident, i.e. the role of the immediate fiscal benefits from privatization for the state budget. With few years' time, the two prevailing (and sometimes competing) goals for privatization became dominant: economic improvement at the enterprise level and budgetary revenues. Thus, the assessment of privatization effects refers in most cases to the level of achievement of the two goals. Our study focuses mainly on the microeconomic effects of privatization at a chosen time but information on the dynamics of budgetary revenues³ from privatization given below may supplement this picture.

**Figure 1. Revenues from privatization in 1990–2013
(PLN bn – PLN/EUR 4.1573 on 31.12.2013)**



Source: own calculations based on the Ministry of Treasury reports.

The prevailing approach in Polish privatization was characterized by the following principles: to apply a multi-track approach (concerning privatization methods and “paths”), to try to find and choose the best possible private owners for the different types of enterprises being privatized and to seek to achieve the acceptance of employees and managers for privatization of their companies.

³ Since the late 1990s, budgetary revenues from privatization have been accompanied by dividends from state-owned companies. In chosen years the government preferred to “repair” the state budget through dividends than through selling state assets.

Such an approach meant adopting individualized, market-oriented and time-consuming methods of privatization rather than massive and quick privatization schemes⁴. Although this course yielded positive outcomes for many enterprises privatized in this way, it had negative implications for others that remained longer in the public domain.

On the other hand, many features of the Polish privatization experience were undisputedly positive. The country adopted mainly traditional methods of privatization, based on proper institutional rules and established legal regulations requiring relatively high quality disclosure standards for privatized companies. These made the country's capital market much more transparent than in other Central European countries and ensured a relatively healthy and largely privatized banking sector. While the process may have been somewhat slower and more difficult at the beginning, over time it accelerated and broadened with the growing experience of the participants.

Nevertheless, such a case-by-case tailored approach to privatization consumed more time and was much more demanding for the state apparatus and its capacities compared to the "mass privatization" methods. It also offered critics that did not favour privatization more time and opportunity to block the process, as the winds of popular opinion shifted (Błaszczyk, 1999). This resulted in repeated waves of slowing and accelerating the privatization process during the twenty years of transition and in uneven privatization levels among economic sectors. While most manufacturing companies and market services quickly became private, infrastructure, part of heavy industry and utilities lagged behind. From the beginning of the XXI century, the privatization process slowed down and after 2005 its pace completely faded away.

A new impetus for privatization came with the new government at the end of 2007 that called further privatization one of its priorities. In April 2008, a new, radical program of completing privatization of the remaining state sector was launched for the years 2008–2011 (Ministerstwo Skarbu Państwa, 2008).

The main idea was to reduce the ownership role of the state in all industries where exercising corporate governance by public administration was no longer deemed necessary. Thus, a political will was demonstrated to reduce the former exclusions from privatization to a necessary minimum. Soon the acceleration of privatization process was readily visible, not only in the fast growing number of enterprises put up for sale, but also in the new approach and comprehensive scope of privatization. 802⁵ fully state owned companies and 120 remaining minority packages of other companies were included in the plan, and the privatization track for each of them was determined. Among companies covered by the plan, for the first time, largest energy companies, coal mines, heavy chemistry plants, railroads, the air carrier (LOT) and the Warsaw Stock Exchange were

⁴ More on privatization approaches in different transition countries in: B. Błaszczyk, R. Woodward (eds) (1996) and B. Błaszczyk, I. Hoshi and R. Woodward (eds) (2003).

⁵ In the first version of the plan from April 2008 the number of companies was 740, but in the changed version from February 2009 the number rose to 802.

included. Only a small group of 23 large companies were excluded from privatization, such as network companies for electricity, gas and oil (without production and distribution or retail companies), public media (one TV channel and one press agency), one state bank, one armament company, the state lottery and minority packages of few major strategic state companies as so called “golden shares” (Orlen and Lotos –the largest petrol producers, KGHM – Polish Copper, PGNiG – Gas Company).

The pace of privatization increased very fast in 2008–2010 and we observed a strong determination of the government to complete privatization, despite the world economic crisis and other negative factors (such as strong protests of the labor unions from certain companies being privatized). After this we observed again some slowing down of the process and a changing approach among politicians to state sector conservation, which resulted in partial withdrawal from the program’s objectives in 2012. (Bałtowski, Kozarzewski, 2014, pp. 329–352).

In spite of this, the progress of privatization was significant during the lifespan of the program. Until the end of 2011, 458 companies (out of the planned 802) were entirely privatized, others were in the privatization process or in liquidation (285) (Ministerstwo Skarbu Państwa, 2013). The sale of the residual minority stocks from former privatizations in more than 100 companies was another success. We witnessed largest public offerings in our history – only in 2009–2010 ten large public offerings (amounting to between 215 million and 4 billion Polish zloty⁶) in energy, mining and other sectors, including, for instance, the largest insurance company in Poland and remaining few state banks. Very large amounts of privatization proceedings (45 billion Polish zloty during the four years of the program) were received by the state budget (Figure 1). Even in the difficult coal mining industry the first successful privatization (of Bogdanka Coal Company) was launched in 2009 through public offering and completed in the next year, followed by another coal mining company (JSW) entering the Stock Exchange two years later.

2. BACKGROUND OF THE RESEARCH

As mentioned above, the activities taken on by the Privatization Program 2008–2011 aimed to increase further the share of private ownership and reduce the role of the state in the economy (Ministerstwo Skarbu Państwa. Raport..., 2012). The main premise for doing this was the conviction, based on the experience of many countries, that it was very difficult, if not impossible, to create a rational and effective system of government supervision over SOEs (Nellis, 2002, Błaszczuk, Kozarzewski, 2007). It was taken for granted that privatization was to affect positively economic performance of privatized companies.

Since the very beginning of the transformation of the post-communist countries, it has been discussed whether and to what extent privatization of former SOEs will improve their performance. There is a vast body of research in the

⁶ PLN/EUR exchange rate was slightly above 4 at that time.

area of privatization and enterprise restructuring in Central and Eastern Europe (Carlin et al., 1995; Carlin, 1999; Havrylyshyn and McGettigan, 1999; Djankov and Murrell, 2002) linked to this topic. While some authors in the early stage of transition suggested that the regulatory framework (hard budget constraints, competitive market) had more influence on the restructuring and performance pattern of enterprises than ownership change (Carlin et al., 1995), others pointed out that even non-privatized enterprises in order to adjust to the changing economic environment tried to imitate the restructuring pattern of private businesses because of expectations of their privatization in near future (Pinto et al., 1993; Megginson and Netter, 2001). Together with the progress of transition in more advanced transition countries, there was growing evidence that ‘privatization matters’ because of the different scope and deepness of restructuring efforts in privatized enterprises versus SOEs (Pohl et al., 1997; Grosfeld and Roland, 1996; Grosfeld and Nivet, 1997; Błaszczuk et al., 1999). Similarly, because of the growing wave of privatization in the developed and the developing world at the end of the 20th century, researchers asked the same questions concerning the microeconomic results of privatization in other parts of the world (UK, USA, Latin America, Asia and Africa). A comprehensive overview of empirical research on the effects of privatization on the performance of privatized firms and the economy and society at large was prepared by Sergei Guriev and William Megginson, and presented at the ABCDE World Bank Conference in January 2006 in St. Petersburg (Guriev and Megginson, 2006). The authors analyzed and compared numerous studies published between 1994 and 2003, separately for developed and developing countries, Latin America, and transition economies, and showed special interest for empirical studies comparing pre-versus-post-privatization changes in privatized firms. An interesting conclusion from this study is that privatization is complementary to the institutional reforms that introduce rule of law, hard budget constraints, and investor protection (see also Zinnes, Eilat, and Sachs, 2001). If these institutions are not in place, privatization may fail to improve the performance at the firm level and for the economy at large. The study also discusses broadly other factors influencing more or less significant privatization effects for the firms, such as the type of investor, the role of ownership concentration and methods of privatization (La Porta et al., 1998; Grosfeld and Tressel, 2001).

The hypothesis that privatization improves the operational performance of companies was posed and empirically proven first by Megginson, Nash and van Randenborgh in 1994⁷, followed by D’Souza and Megginson (1999) and later on by the same and other authors (Boubakri and Cosset, 1998, 2003; Megginson, Netter, 2001; Torero, 2002; Omran, 2004; Mainoma, Tanko, 2005; Huang, Wang, 2010; Vo et al., 2013). However, this kind of empirical evidence is missing in Poland with regard to privatization process in the 21st century.

⁷ The method used in this research that compares three year pre-privatization and three year post-privatization financial and operating performance of companies is called after their names ‘MNR approach’

The question of how to best observe and measure the changes in performance of privatized firms is complex. First of all, one should take into account many external factors (for example period, privatization sequencing, type of industry, economic cycle, institutional and political economy characteristics) and internal factors, independent from the ownership change, that may affect this performance. Secondly, the selection of companies sample for research may lead to wrong results (for instance where better-performing companies were privatized first, their performance was better than of the remaining sample). Also, the question arises how to establish benchmarks for measuring this performance – should privatized companies be compared with non-privatized, private green field companies, or enterprises of the entire economy?⁸ That is why some authors question the correctness of comparing the performance of privatized firms – because of missing control of endogeneity bias. (Djankov and Murrell, 2002; Estrin et al., 2009; Hagemajer, Tyrowicz and Svejnar, 2014).

In our case, we do not intend to make general statements on the effects of privatization for the whole enterprise sector in Poland. The aim of our research is to investigate the results of the 2008–2011 privatization program through its effects on the performance of this specific group of companies privatized. We decided to check the performance of the same group of companies in the pre- and post-privatization period.

This is a classical approach that was first introduced in the seminal works by D'Souza and Megginson (1994, 1999). The same research model was then successfully applied in many papers that attempted to analyze post-privatization performance (e.g. Boubakri, 1998; Omran, 2004; Truong, 2006; Huang, 2010; Vo, 2013). The most important characteristic of the approach is that the same set of companies is approached twice within a certain period. Between the two measurements, one main change occurred – the ownership status of the company changed. Of course, some macroeconomic conditions may have changed as well, but this is unavoidable and unpredictable. However, we believe that this procedure provides the most unbiased method of privatization effects assessment. The principal benefit is that the procedure has become standard and the effects can be easily compared to similar research.

In our paper, we not only report the “end effect” of privatization on performance illustrated by profitability but also try to observe other measures explaining various activities of companies, such as changes in employment productivity, investment spending and leverage. In this way, we try to answer the questions of how the investigated companies' behavior and policies changed during the time under observation. Altogether, this makes up the full picture of privatized companies.

⁸ There are attempts to measure the performance of privatized companies differently. Often the metrics of performance of privatized companies are contrasted with the overall performance of the companies in the entire economy (Ministerstwo Skarbu Państwa, 2012). Due to the reasons exemplified above, attempts to compare entities that are incomparable and doing that at the wrong time may warp the effects of the research.

3. METHODS OF SAMPLE SELECTION AND SAMPLE DESCRIPTION

Ownership change in the period 2008–2011 covered 582 firms. Our analysis was limited to those companies that were fully privatized (with majority private ownership) in the years 2008–2011. This group included 458 companies. It is worth mentioning that in 2008–2011 the privatization process, because of its late stage, covered not very attractive companies. Due to some cherry picking practices, the best companies were privatized much earlier. The ones that remained to be privatized were typically small or medium sized, from unattractive industries and were modestly profitable. In many cases they experienced in the past a few privatization attempts.

Data availability was another issue. The majority of the companies were not listed on the stock exchange. Thus, data were obtained directly from financial statements of privatized companies; in some cases, they were solicited directly from the firms or received via secondary sources. This selection eventually yielded a sample of 59 firms – 10 percent of the initial set and 13 percent of the fully privatized ones. It is worth noting that identical samples are used for the analyses of both pre- and post-privatization periods in order to avoid any bias.

The privatization process was gradually phased out after 2010 (cf. Figure 1). The number of privatized enterprises got lower every year in the analyzed period (Table 1).

**Table 1. Sample description:
Number of privatized companies in 2008–2011**

Year	Number of privatized firms
2008	29
2009	20
2010	6
2011	4

Source: Ministry of Treasury data.

The companies in the sample represent almost all sectors. The largest number of firms come from the energy sector (13 companies), pharmaceuticals, construction, machinery, transportation, agriculture, food processing (5, 4, 4, 4, 3, 3 respectively), and the rest from 16 other sectors (where the number of privatized

companies varies from 1 to 2 firms). The sample is also representative in terms of the total pool of companies privatized in 2008–2011; steel plants are the only sector that is not represented in the sample. The firms in the sample represent all the regions (voivodships) in Poland (cf. Figure 2).

**Figure 2. Sample description:
Number of privatized companies
per voivodship**



Source: Ministry of Treasury data.

Privatization revenues in 2008–2011 from the analyzed sample amounted to over 3 billion PLN. In the first year under analysis, the revenues reached 1.3 billion PLN. The largest revenues were reached in 2009 – 1.9 billion PLN. Revenues in the year 2010 and 2011 were much lower, in line with a decreasing number of privatized companies. It is also worth noting that 41 companies in the sample (69.49 percent) generated revenues below 10 PLN million (Table 2).

Table 2. Number of privatized companies vs. privatization revenues

Privatization revenue (millions PLN)	Number of privatized companies
0–1	17
1–5	14
5–10	10
10–50	8
50–100	4
100–200	2
200–800	4

Source: Ministry of Treasury data.

The privatized companies differed in size enormously (see Table 3). The biggest privatized company in the sample had revenues exceeding 5 billion PLN, assets topping 13 billion PLN and employed over 1 000 employees. The smallest companies in the sample employed only a few dozens of employees. An average-size company (expressed as a median) had revenues of 37 million PLN and the assets worth 28 million PLN.

Table 3. Number of privatized companies and their size (assets and revenues)

Company revenues (in millions)	Number	Company assets (in millions)	Number
1 000–5 000	4	1 000–5 000	4
100–999	11	100–999	9
10–99	34	10–99	30
1–9	10	1–9	16
37	median	28	median
255	mean	434	mean

Source: Ministry of Treasury data.

4. METHODOLOGY AND HYPOTHESIS

The aim of the research was to compare the pre- and post-privatization performance of these 59 privatized Polish firms. It was measured via eight indices in 5 areas: profitability, operating performance, CAPEX (capital expenditures), reinvestment, and leverage. The year of completion of privatization was designated as year 0. Data for the tests came from the years -3 to -1 (before privatization), and +1 to +3 (after privatization). The analysis thus covered seven years but in many case went beyond the 2008–2011 period depending on the moment of privatization. Hence, the total length of the period covered by the analysis is actually 2005–2014. To test the predictions, first empirical proxies for every company for a seven year period were computed. Then, the median of each variable for each firm over the pre- and the post-privatization period was calculated. The year 0 was excluded from the analysis. The medians were the base for computing means (and medians) for each variable and the whole group of analyzed companies. All the variables are ratios, hence they are fully comparable, and there is no need for indexing, deflating or changing any nominal data into real ones. Having computed pre- and post-privatization means and medians, the paired T-test is used to test for significant changes in the variables. The procedure tests whether there are significant differences between the means. The procedure was preceded by checking normality of the data (skewness and kurtosis). In most cases, the distribution was assumed normal. For others, the Kruskal-Wallis test was used. It is a non-parametric test, which does not assume that the data come from a distribution that can be completely described by two parameters: mean and standard deviation.

The following eight hypotheses (within five areas) were posed. Privatization increases:

1. Firms' profitability in terms of ROS.
2. Firms' profitability in terms of ROE.
3. Employment productivity measured by SaPa.
4. Employment productivity measured by APa.
5. Capital investment spending.
6. Plow-back ratio.
7. Leverage measured by DA.
8. Leverage measured by DEB.

Within the five areas, eight variables to test the hypothesis were employed. Table 4 presents the testable predictions and the empirical variables.

In majority of similar studies, it is anticipated that profitability increases significantly after privatization, there is a large decline in employment level and leverage, cash dividends increase, and capital spending decreases (D'Souza, 1999, Vo, 2013). The hypotheses posed here were partially consistent with the results anticipated in the other studies. However, the hypothesis concerning indebtedness was different (cf. hypothesis in Table 1). It resulted from the observation that the SOE management was in the past very conservative when it comes to

**Table 4. Summary of testable hypotheses
(The A and B index stand for 3-year period
after and before privatization respectively)**

Area	Metric	Hypothesis
Profitability	(ROS) net profit vs. revenues	ROS(A) > ROS(B)
	(ROE) net profit vs. equity	ROE(A) > ROE(B)
Employment efficiency	(SaPa) revenues vs. payroll	SaPa(A) > SaPa(B)
	(APa) total assets vs. payroll	APa(A) > APa(B)
Capital investment	(FAS) Capex vs. revenues	FAS(A) > FAS(B)
Plow back ratio	(PR) retained earnings vs. net profit	PR(A) > PR(B)
Financial leverage	(DA) long term debt vs. total assets	DA(A) > DA(B)
	(DEB) long term debt vs. EBITDA	DEB(A) > DEB(B)

Source: own elaboration.

debt policy. Thus, it is hard to expect the indebtedness levels in the privatized companies to fall. Also, in other studies, it is typically assumed that cash dividends will increase. In the analyzed period, because SOEs assets are highly depreciated, we would expect the increase in the reinvestment levels. To sum up, an increase in all eight metrics in the post-privatization period was hypothesized. We tested the hypotheses that privatization: increased firm's profitability, employment efficiency, capital investment, plow-back ratio, and leverage.

5. RESULTS

Table 5 presents the results of the research. The outcomes are ambiguous: four hypotheses are confirmed, and the other four are rejected (cf. Patena, 2014). Therefore, one cannot state that privatization was worthwhile, or, following J. D'Souza (1999, p. 23), declare that 'privatization works, and it works in almost every institutional setting examined.' However, it must be emphasized that the tested hypotheses and the results of the research created a coherent narrative about privatization effects in the firms' behavior. It must also be kept in mind that the results were affected by the following circumstances:

1. The 2008–2011 period of the privatization program coincided with the so-called financial crisis (Lehman Brothers bankruptcy in 2008), which affected Poland as well. Due to the implemented methodology (–3, +3) comparing the data with e.g. performance of all companies in Poland at that time is problematic. However, it is worth mentioning that average ROS (return on sales) for medi-

um-sized companies in the 2006–2013 period was as follows: 4.3%, 4.7%, 3.2%, 3.7%, 3.5%, 2.9%, 3.0% and 4.3% (Mościbrodzka, 2013).

2. The 3-year period after privatization was relatively short and some activities of the new owners and management teams have not been reflected in financial results and statements of the analyzed companies yet. The same research repeated after another three years and based on the same sample may (and in our view, should) bring more meaningful results. The time needed for “full transition” from SOEs to private company lasts from 2 to 5 years, as some authors report (Bałtowski, 2007; Bałtowski and Kozarzewski, 2014). This statement may explain that in the early years of privatization, the origin of enterprises (post-privatized or green field) is important, whereas with the passage of time, differences between those two groups of private firms disappear.

Table 5. Summary of results from tests of predictions for A and B periods (pTt stands for paired T test, and KWT for Kruskal-Wallis test)

Metric	Mean B (median)	Mean A (median)	Mean change	P-value	Method	Significant results (at 5%)
ROS	0.0274 (0.0219)	0.0267 (0.0222)	-0.0007	0.9449	pTt	No
ROE	0.0489 (0.0559)	0.0355 (0.0650)	-0.0134	0.6932	pTt	No
SaPa	4.9178 (4.1059)	5.5823 (4.4457)	0.6645	0.0127	pTt	Yes
APa	3.9748 (3.0204)	5.6242 (3.5263)	1.6494	0.0039	pTt	Yes
FAS	0.03616 (0.0221)	0.06509 (0.0391)	0.0289	0.0034	pTt	Yes
PB	0.0318 (0.0000)	0.0787 (0.5952)	0.0469	0.0500	KWT	Yes
DA	0.0576 (0.0044)	0.0726 (0.0355)	0.0150	0.2320	KWT	No
DEB	0.4014 (0.0000)	0.6427 (0.0468)	0.2413	0.1401	pTt	No

Source: own elaboration.

Partially due to the above factors, the analyses showed that, contrary to the hypothesis, relative to the period before privatization, privatized firms did not exhibit visible improvement in profitability. However, it can be noted that new owners started with implementing cost reduction processes. Such inference can be drawn from the analysis of SaPa and APa ratios which increased, signaling employment reductions. Also, other indices were significantly improved: operating efficiency was higher (measured as revenues to payrolls), companies increased CAPEX, the plow-back ratio was improved (increases in 74 percent of companies). The investment dynamics was related to the growing external financing: capital structure changed and debt ratios grew (although the changes were not statistically significant). This showed that privatization might work, although the financial crisis that began in 2008 did not contribute to the companies' effort to increase profitability, and in these circumstances, more time might be needed for more improvement. The actions initiated by privatized companies seem to go in the right direction: employment reductions, increased investments, changed capital structure.

5.1. PROFITABILITY

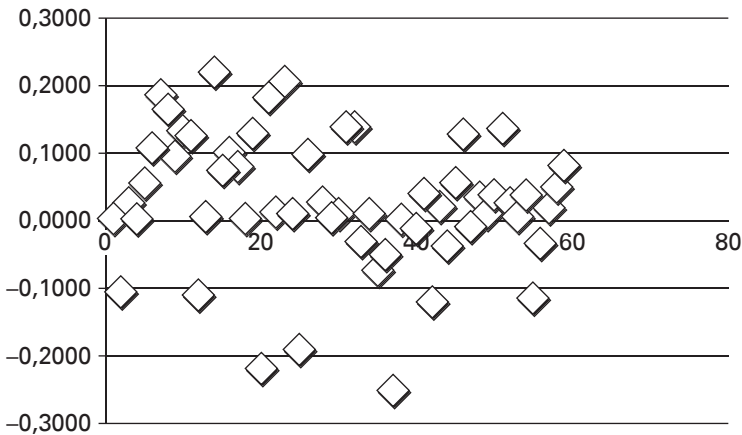
Profitability was measured by two ratios: ROS (return on sales) and ROE (return on equity). Numerous research papers show that profitability increases significantly after privatization (Omran, 2004). However, our findings presented in Table 6 are not consistent with the previous research. ROS decreased from 2.74 percent to 2.67 percent (median increased slightly), ROE also fell (from 4.89 percent to 3.55 percent). In both cases, the tested hypotheses (H1 and H2) were not positively verified. The results were not consistent with the research by J. D'Souza and Megginson (1999). Differences in means are statistically insignificant. Profitability ratios were similar and low in relation to the risk-free rate of return and the cost of capital, which in the light of EVA concept means that the profitability metrics were in fact negative.

Table 6. Comparison of pre- and post-privatization profitability – ROS and ROE

Metric	Mean B (median)	Mean A (median)	Mean difference	P-value	Method
ROS	0.0274 (0.0219)	0.0267 (0.0222)	-0.0007	0.9449	Tt-ps
ROE	0.0489 (0.0559)	0.0355 (0.0650)	-0.0134	0.6932	Tt-ps

Source: own elaboration.

Figure 3.
ROS values
at the post-privatization stage



Source: own elaboration.

5.2. EMPLOYMENT PRODUCTIVITY

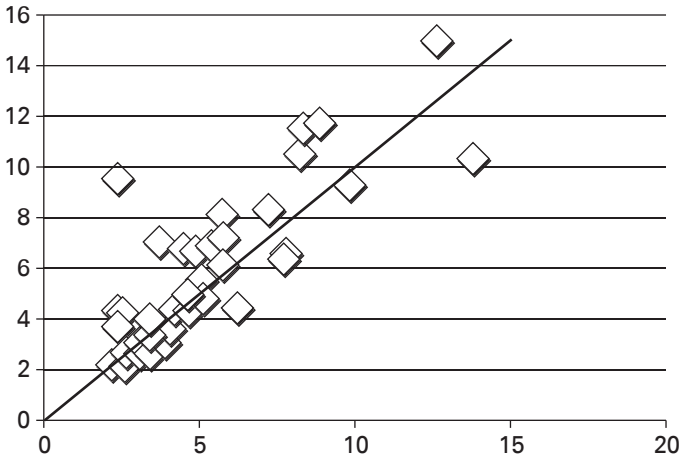
In most studies concerning post-privatization performance, it is hypothesized that a private owner assures better allocation of company resources than the state. It refers to human resources, capital, intangibles and tangible assets. To measure labor productivity, two indices were employed: SaPa (revenues to payroll) and Apa (assets to payroll). Sales per employee increased from an average 4.9178 during the -3 to -1 pre-privatization period to 5.5823 in the post-privatization period. SaPa increases for 61 percent of companies in the sample (cf. Figure 4a). APa also increased from a mean 3.9748 before privatization to 5.6242 afterwards. 68 percent of companies were subject to this positive change (cf. Figure 4b). Both changes are significant at the one percent level (0.0127 and 0.0039 respectively). Clearly, they represented dramatic post-privatization efficiency gains meaning that privatization resulted in significantly higher output per worker. Most probably, in the transition period the managements introduced massive layoffs programs (revenues and assets of the companies in the sample were typically stable or diminished). An additional factor that might have boosted the effect was higher remuneration in the public sector (cf. Antczak, 2007). The conclusions about employment reduction are consistent with observations by M. Antczak (2007), who points to low productivity of public sector – 40 percent compared to private sector and keeping employment on the economically unjustified level. To sum up, both tested hypothesis (H3 and H4) have been positively verified.

Table 7. Employment productivity in the pre- and post-privatization periods – SaPa and APa

Metric	Mean B (median)	Mean A (median)	Mean difference	P-value	Method
SaPa	4.9178 (4.1059)	5.5823 (4.4457)	0.6645	0.0127	Tt-ps
APa	3.9748 (3.0204)	5.6242 (3.5263)	1.6494	0.0039	Tt-ps

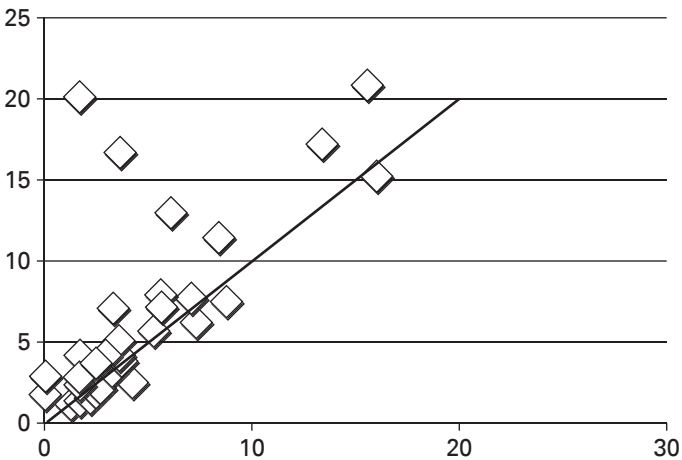
Source: own elaboration.

Figure 4a. Number of companies where SaPa(A) > SaPa(B) (upper left half)



Source: own elaboration.

Figure 4b. Number of companies where APa(A) > APa(B) (upper left half)



Source: own elaboration.

5.3. CAPEX

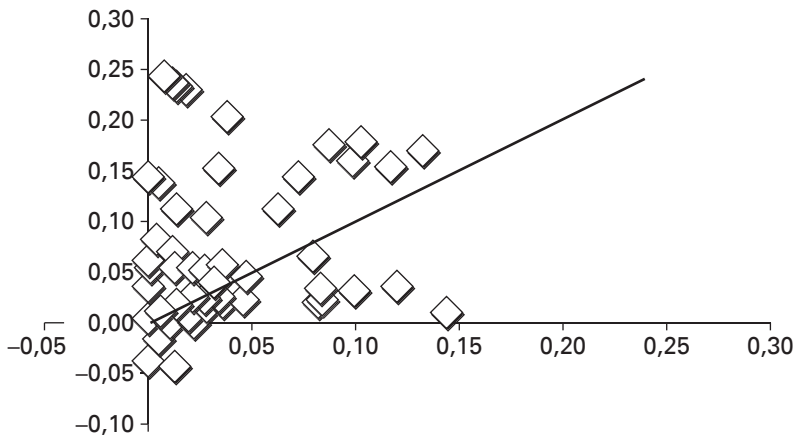
We computed investment intensity using one proxy: capital expenditures divided by sales (FAS). We could see a significant (at $p= 0.0034$ level) increase in capital investment after privatization. FAS increased from 3.62 percent to 6.51 percent. In 69 percent of analyzed companies, the investment (in relation to sales) in the post-privatization period were higher than before (cf. Figure 5). It is worth quoting M. Antczak’s research (2007, p. 114) and her observations concerning capital investments in SOEs: “the biggest gap is visible in investments per employee (...), which are on average only 20 percent of the private sector level”. In this context, the dynamic FAS growth is hardly surprising.

Table 8. Investment intensity in the pre- and post-privatization periods – FAS.

Metric	Mean B (median)	Mean A (median)	Mean difference	P-value	Method
FAS	0.03616 (0.221)	0.06509 (0.0391)	0.0289	0.0034	Tt-ps

Source: own elaboration.

Figure 5. Number of companies where FAS(A) > FAS(B) (upper left half)



Source: own elaboration.

5.4.REINVESTMENT

We examined whether reinvestment ratio measured as retained earnings divided by net income (PR) increased following privatization. The average PR increased from 3.18 percent to 7.87 percent and the change is statistically significant at the

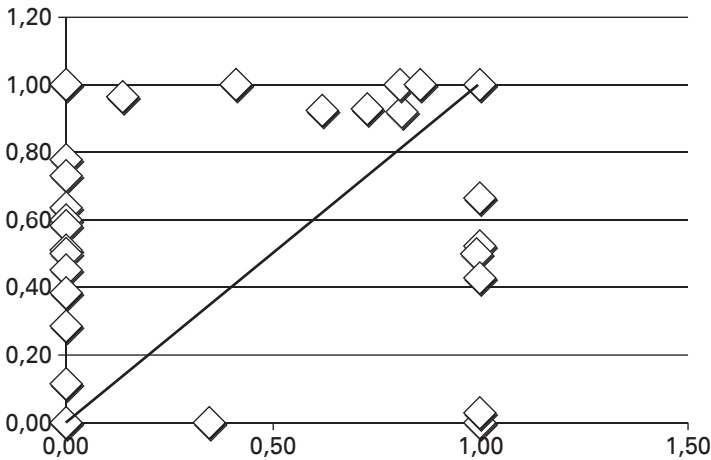
0,05 level (Kruskal-Wallis test). PR increased in 74 percent of cases (cf. Figure 6). The result may be slightly surprising. In the seminal J.D’Souza’s paper, an opposite hypothesis was tested. They assumed (and confirmed) that dividend payments (measured as cash dividends divided by sales revenues) would increase. Apparently, due to the difficult budgetary and financial situation of the state budget, the Ministry of Treasury collected dividends, but the new owners faced with heavily underinvested companies often changed the policy.

Table 9. Reinvestment ratios in the pre- and post-privatization periods – PB

Metric	Mean B (median)	Mean A (median)	Mean difference	P-value	Method
PB	0.0318	0.0787	0.0469	0.05	KWT
	(0.0000)	(0.5952)			

Source: own elaboration.

Figure 6. Number of companies where PB(A) > PB(B) (upper left half)



Source: own elaboration.

5.5. LEVERAGE

It is often claimed in the literature that the capital structure should change following changes in ownership. M.Omran (2004) argued that a privatized enterprise would lose access to cheap debt, and its cost of debt would increase, although it might be able to access a wider range of funding sources. As a consequence, the following hypothesis was typically proposed: leverage declined in line with progress in the privatization process. Such expectations were confirmed

in J.D'Souza's research (1999), according to which leverage decreased from 8 percent to 6 percent. In our experience as privatization advisor for the Ministry of Treasury, SOEs managements were typically very conservative regarding the capital structure and using debt. Hence, we expected higher leverage in privatized companies and tested H5 and H6 hypotheses. We examined changes in leverage by observing dynamics of long-term debt to assets (DA) and long-term debt to EBITDA ratios. As predicted, we documented a significant increase in leverage for the whole sample of privatized companies. The average increase in DA was 1.5 percentage points (from 5.76 percent to 7.26 percent). The average increase in DEB was 24.13 p.p. (from 40.14 percent to 64.27 percent), but unfortunately, the differences were not statistically significant. The reason could be the high volatility of indebtedness ratios, most probably caused by the 2008–2011 financial crisis that limited many companies' access to debt.

Table 10. Leverage in the pre- and post-privatization periods – DA and DEB

Metric	Mean B (median)	Mean A (median)	Mean difference	P-value	METHOD
DA	0.0576	0.0726	0.0150	0.2320	KWT
	(0.0044)	(0.0355)			
DEB	0.4014	0.6427	0.2413	0.1401	Tt-ps
	(0.0000)	(0.0468)			

Source: own elaboration.

6. CONCLUSIONS

Our assessment of the effects of 2008–011 privatization program is relatively positive. On March 31, 2008, the Ministry of Treasury controlled 1237 enterprises from various industries. The number included 350 enterprises in liquidation, close to bankruptcy or inactive and 887 active firms. The 2008–2011 privatization plan assumed that 802 enterprises would be privatized. It was accomplished in 78.64 percent. The Polish government assumed privatization revenue to reach 54 billion PLN. Global financial situation and some privatization problems allowed reaching 44.02 billion PLN, or 81 percent of the plan (Ministerstwo Skarbu Państwa, 2012). As mentioned before, privatization was not fully completed during the lifespan of the program, especially with respect to large state-owned companies privatized through IPO, in which the state retained majority or minority shares and exercised corporate control. This is an effect of slowing down of the process in its last stage and consecutive years, and partial withdrawal by the governing party from ambitious objectives of the program, under different political circumstances. Essentially, plenty of work has been done but a significant effort is still needed to com-

plete this work if such decision would be taken. Hence, the question whether 'privatization matters' is crucial for the future policies.

Following such considerations, the primary objective of this research was to determine whether companies that were subjected to privatization in 2008–2011 and were successfully privatized, improved their operating performance after privatization. The outcomes of the research (concerning the sample of 59 companies) are ambiguous: four hypotheses were confirmed, but the other four were rejected. The analyzes show that, contrary to the hypothesis, privatized firms do not show improvement in the performance with regard to profitability relative to the period before privatization. Yet, taking into account how mediocre the companies in the sample were in terms of their size, profitability and sector attractiveness, profitability does not seem to be that relevant. However, there is strong evidence in the research findings that the actions initiated by privatized companies take the right direction: employment adjustments, increased investment, changes of the capital structure. Besides, it is worth noting that the analyses were performed roughly three years after the privatization. As Bałtowski (2007) and Bałtowski, Kozarzewski (2014) argue, for public companies, the period in which they adjust to the new market environment or reject the burden of the past ownership lasts, at least, three years. It should be also noted that the process of their adjustment coincided with the world economic crisis that had some impact on the Polish economy.

It should be emphasized that, in a wide context not limited to measuring profitability, we have confirmed that companies in the post-privatization period perform better, which is important from the point of view of their competitiveness and the performance of the entire economy. The research conveys the fundamental message to policy makers that privatization not only generates revenues for the state budget but 'privatization works' in microeconomic sense – majority of companies perform better than before, hence the process is worth continuing.

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PRYWATYZACYJNA EFEKTYWNOŚĆ
PRZEDSIĘBIORSTW W POLSCE.
WYNIKI PRZEDSIĘBIORSTW
SPRYWATYZOWANYCH W LATACH 2008–2011

STRESZCZENIE

W pracy dokonano porównania efektywności operacyjnej 59 przedsiębiorstw sprywatyzowanych w Polsce w okresie 2008–2011. Dane do testów pochodzą z okresu trzech lat przed prywatyzacją i trzech lat po prywatyzacji. Analiza dotyczy tej samej grupy przedsiębiorstw. W badaniach weryfikowano 8 hipotez w pięciu obszarach: rentowność, produktywność zatrudnienia, inwestycje kapitałowe, stopa reinwestycji, poziom zadłużenia.

Wyniki nie są jednoznaczne: 4 hipotezy zostały zweryfikowane pozytywnie, a pozostałe 4 – negatywnie. Należy jednak podkreślić, że testowane hipotezy i otrzymane wyniki tworzą spójną narrację na temat prywatyzacji w Polsce. Rentowności badanych przedsiębiorstw mierzone w okresie trzech lat przed prywatyzacją i trzech lat po prywatyzacji nie zmieniły się istotnie. Natomiast zauważalne są działania nowych właścicieli polegające na stopniowej redukcji kosztów. Działania te rozpoczęły się od redukcji zatrudnienia – znacznie wzrosły wskaźniki SaPa i APa. Zarządy powstrzymują procesy dezinwestycyjne – istotnie rośnie wskaźnik FAS. Przedsiębiorstwa zwiększyły także stopy reinwestycji – w 74% spółek rośnie wskaźnik PB. Inwestycje odbywają się dzięki rosnącemu finansowaniu zewnętrznemu – zmienia się struktura kapitałowa spółek, rosną średnie stopy zadłużenia.

Słowa kluczowe: prywatyzacja, wyniki finansowe spółek, efektywność operacyjna.
JEL Classification: G38, H27, L3