State Ownership and Company Performance in Kazakhstan

BY

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THESIS

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Section 1. Introduction

State ownership and its effects on firm performance have been researched widely across many countries and time periods, however, the results of these research endeavours have been mixed. While in some cases the relationship between state ownership and firm efficiency has been negative, in others it could be positive or even non-linear, having a U-shape. State ownership can be negatively correlated with firm performance, possibly because their objectives can differ from solely operating on high profit, some of them can be less profitable, yet, still efficient in their main mission. For instance, several studies mention that state ownership can have a negative effect on firm performance as these firms do not prioritize maximization of profits (dodonov, china1, ru1, oecd2017), instead they carry policy burdens and provide communal services (china1). On the other hand, state owned enterprises can take advantage of their closer ties to the government and its resources, which would make state ownership positively related to firm performance. According to several studies government ownership's effect on firm effectiveness can be positive, because of their ability to access state owned capital (oecd, ru1) which would give them comparative advantage over privately held firms. Finally, there is an opinion which partially agrees with both sides and combines the two. A study titled "State ownership and firm performance: Empirical evidence from Chinese listed companies" by Mei Yu of the Birmingham City University, state

ownership and

firm performance have a U-shaped relationship (China2 84). RU1 also offers a similar opinion of the possibility of U-shaped and inverted U-shaped relationships between state ownership and firm performance. In summary, it is apparent that the question of state ownership's effect on firm efficiency has no consensus which motivates us to proceed with our investigation.

The question of state ownership's effect on firm efficiency is especially pertinent in the context of Kazakhstan, a country which began its history as a communist state with all of the businesses belonging to the state. Currently, the presence of state owned enterprises in the country is significant. As evidenced by (oecd) state owned enterprises, on par with large private conglomerates dominate the Kazakhstani economy with approximately 7000 registered state owned companies , and 20000 noncommercial government agencies (40). Moreover, there is statistical evidence in favour of state ownership inefficiency. According to the paper written by Vyacheslav Dodonov, Chief Researcher at the Kazakhstan Institute for Strategic Studies under the President of the Republic of Kazakhstan, as of 2017 book value of government owned assets made up 9.7 percent of the country's wealth, however, the government sector only contributed to 7.95 percent of gross production, which could hint at the state's inefficient use of assets (Dodonov 164). Therefore, the question is highly pertinent to the Republic of Kazakhstan and requires thorough investigation.

The following parts of the essay will be structured as following: Section 2 will describe the hypotheses and theories leading to them, Section 3 will focus on

the data and methodology. Findings of our analysis will be in the Section 4 and, finally, Section 5 will contain the results' discussion and the entire paper's summary.

Section 2. Hypothesis development and theoretical frameworks

This section will focus on the net effect of state ownership on firm productivity. As mentioned earlier, state control may facilitate preferential treatment of companies owned by the government and allow them to have comparative advantage through accessing resources out of reach for regular firms.

Comparative advantage of government owned firms may include not only capital and financial reserves, but also easier access to loans, certification, and markets (oecd 2017). On the other hand, there is a negative side to government ownership which includes inefficiencies due to the company's operating objectives and internal conflicts. China1 states that State Owned Enterprises tend to be operationally inefficient because they provide public goods and carry significant policy burdens, conflicts of interest between the state, the main shareholder, and the minority shareholders (2). Empirical discussion of how

these effects counteract and show themselves in a realm of statistical evidence will be expanded upon later.

Theory

Asdasd

Hypothesis

In its essence, this paper's research question boils down to whether the fact of government ownership makes Kazakhstani firms more or less efficient. Based on several studies, we construct several expectations regarding the relationship between state ownership and firm performance. According to (Ru2 197), evidence suggests that due to conflicts of interest between the main shareholder, the state and the minority shareholders' firm performance suffers tremendously. A similar idea is also supported by several papers which claim that state owned enterprises tend to follow objectives alternative to profit maximization such as provision of long term public goods and services which may appear to be inefficient, which makes the state owned enterprises less profitable due to the nature of their operating objectives (Dodonov, China2, RU1). Therefore, we can expect government ownership to be a factor negatively affecting the firm profitability. Which leads us to construct the following hypothesis.

H1: The fact of state ownership has a negative impact on performance of Kazakhstani firms.

Possibility of the alternative being true is also touched upon in several papers

and was mentioned in the past. It was mentioned that a firm can be positively affected by government ownership through better access to financial resources, clients, certification and others.

Section 3. Data and Methodology

Data

The dataset in use is a panel data collected from Bureau Van Dijk's "ORBIS", the sample consists of 574 Kazakhstan based firms between 2014 and 2019. Search results of firms with existing values for several variables such as total assets, revenues, net incomes, shareholder equity gave 663 firms each year. Each year's results were downloaded in separate Excel spreadsheets and later combined and sorted by firms identifier to create a new panel data for six years. Out of 663 firms available found in the dataset search 89 were dropped due to lack of information regarding industry classification, the remaining sample gave us 3444 firm-year observations. Both datasets with and without the deleted companies were confirmed to be strongly balanced panels. Variables were collected using several search criteria including key financials, information on ownership structure, industry descriptions and localities.

Methodology and variable description

Model description.

In order to study the effects of state ownership on firm performance we will estimate OLS (panel data) models for our performance metrics. The models will also include several control and dummy variables. The panel data is advantageous for several reasons, according to (China2) it offers higher variability and degrees of freedom and less collinearity, as well as allows to account for unobserved heterogeneity of individuals.

The model is constructed as follows:

$$\text{[illegible]}_{\text{[illegible]},\text{[illegible]}} = \text{[illegible]} + \text{[illegible]}_1 * \text{[illegible]}_{\text{[illegible]},\text{[illegible]}-1} + \text{[illegible]}_2\text{[illegible]}_{\text{[illegible]},\text{[illegible]}-1} + \text{[illegible]}_{\text{[illegible]}}$$

Where $\text{[illegible]}_{\text{[illegible]}}$represents a performance metric, which in this paper is either Return On Assets (ROA) or Return On Equity (ROE), *gov* is a state ownership variable and $\text{[illegible]}_{\text{[illegible]}}$is a vector containing control variables. Time and sector dummy variables will be applied as well. Since in our dataset time dimension is thinner than the cross section and because Fixed Effects least squares estimator cannot estimate the effect of variables that do not change with time (which in this case *gov* is) using FE in this model is not preferred (ru2). However, firm level clustering is controlled for, and dummies for individual years and

industries are present.

Variable description.

Measures for firm performance and efficiency are conducted through several proxies. Several studies in analogous topics suggest using *ROA* (return on

assets) and *ROE* (return on equity) as measures of firm profitability. ROA is calculated through dividing variable “Net Income” over “Total Assets”, while ROE is calculated by dividing “Net Income” by “Shareholder Equity”. A paper by Mei Yu of Birmingham University with similar research interest focused on China “State ownership and firm performance: Empirical evidence from Chinese listed companies” builds its model around Returns on Assets and Equity as performance measures for Chinese companies in their attempt to assess efficiency of State Owned Enterprises. Similarly, a study focusing on effects of state control on Russian firms by Dolgih and Potanin of The National Research University - Higher School of Economics use Return on Assets as a proxy for firm efficiency. Finally, our benchmark study Liljeblom et. al. which also focuses on Russian firms use ROA and ROE as a measure of firm performance and profitability. All of the above gives us enough evidence to include ROA and ROE as measures of Kazakhstani firms’ performance and productivity. It should also be noted that in order to reduce the presence of

extreme outliers and thus have more meaningful regressions, variables *roe* and *roa* have been winsorised using cuts at 2 and 98 percent.

State ownership variable in this model is denominated as *"gov"*. It is a dummy variable which equals 1 if a Kazakhstani government or an entity owned by the Republic of Kazakhstan is the main shareholder of a company and owns a stake in it exceeding 50 percent, in other cases such as if a firm is private, controlled by a foreign government, or a physical entity it equals to 0.

The state ownership variable does not try to measure the effect of a single percent of the company owned, instead it is intended to capture the effect of being under direct ownership of the Kazakhstani government or entities owned by the government of Republic of Kazakhstan. Thus, the paper focuses on whether the government owns the company, and there is no difference for us between a 51 or 100 percent stake. The fact of government ownership is confirmed through visiting each firm's main shareholder's internet homepage, if the shareholder is itself a subsidiary of another entity it is checked as well.

Control variables included in the model are common for similar research literature, however, they will still be specified upon. First, since taking more debt can boost a company's returns (as well as risk) a variable for financial leverage, *"leverage"* will be included in the model, in line with (Russia1), (Russia2), and (China2). The variable is calculated by dividing debt of a company (Total Assets minus Total Equity) over Total Assets. Study by Dolgih

and Potanin found that private companies tend to have on average higher values of financial leverage which could be interpreted as government companies having a smaller portion of borrowed capital (RU1 94). They also concluded that financial leverage has a negative impact on ROA, which they interpreted as firms with a higher potion of borrowed capital being less profitable and efficient. This model will similarly expect the variable *leverage* to have a negative coefficient.

The next control variable is a proxy for firm size, natural logarithm of a firm's total assets defined as *l_asset*. The variable is included in the models of (Russia1), and (China2) as a measure of firm size, however, conclusions regarding the variable are different. In the study by Dolgih and Potanin the variable has a negative coefficient which the authors interpreted as Russian firms being susceptible to diminishing returns from assets. On the other hand (China2) reports a positive coefficient for the log of assets with respect to both ROA and ROE (Ch2 83).

Age of a firm is also included in the model; it is defined as difference between the observation year and a firm's founding year. According to (RU1) age can have both positive and negative effects on firm performance. On the one hand, the effect can be positive due to the longer existing companies accumulating experience and, thus, becoming more efficient (RU1 97). On the other hand, firms can become less efficient over time by losing flexibility and

failing to adapt to changing external factors (RU1 97). The same study uses linear and quadratic forms of the age variable, while, (Russia2) uses logarithmic form which will be replicated in our model as well.

Finally, several dummy variables to control for different industries in the dataset (23 different industries) were included in the model. Those industries are in accordance with Bureau Van Dijk industry classification and include; agriculture, Business Services, utilities and others.

Section 4. Results

Descriptive statistics

Table 1. demonstrates the descriptive statistics of the dataset used in this paper. As evidenced by the mean value of the dummy variable for government ownership, around 86 percent of the firm-year observations in our sample are government owned companies. Assets row demonstrates an extremely high spread between minimum and maximum values which as mentioned earlier motivates using natural logarithmic transformation on the variable. The table also shows that mean age of the firms is approximately 14 years, which suggests that on average firms in Kazakhstan are relatively young.

Variable	Observations	Mean	Std. dev.	Min	Max
Assets*	3,444	58639.4	861545.1	0	2.67e+07
Net Income*	3,444	2344.88	28621.7	-164021.6	874332.

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Equity*	3,444	20079.83	146695.8	.3750488	3416772
Debt*	3,444	38559.57	746235	-1774.127	2.38e+07
Leverage	3,444	.2385995	.320508	-2.934454	.999463
Age	3,444	14.09408	8.654727	0	96
Gov	3,444	.8606272	.3463854	0	1
ROA	3,444	.0095485	.113102	-.3325221	.4151214
ROE	3,444	.0140283	.1824482	-.5850115	.6105109
Log_asset	3,444	7.49981	2.352678	.3164343	17.09843
Log_age	3,439	2.464366	.6574978	0	4.564348
Ind_dummy	3,444	3.067944	5.226724	0	22

Year_dummy	3,444	2016.5	1.708073	2014	2019

*Units are in thousands of US dollars. ROA is calculated using the following formula: Net Income divided over Assets. ROE is calculated using the following formula: Net Income divided over Equity.

Results from panel model regressions.

R-squared was equal 0.0931

ROE	Coefficient	Robust std. error	t value	P value	95% conf.	interval
Gov	-.0454754	.020877	-2.18	0.030	-.0864803	-.0044706
L_asset	.0161034	.0031406	5.13	0.000	.009935	.0222719
L_age	.0021053	.0073547	0.29	0.775	-.0123401	.0165508
Leverage	-.0458664	.0199848	-2.30	0.022	-.0851187	-.0066141
Ind_dummy	-	-	-	-	-	-
Year_dummy	-	-	-	-	-	-
Constant	-.0746949	.0410634	-1.82	0.069	-.1553481	.0059583

Table 2.

R-squared was equal 0.0948

ROA	Coefficient	Robust std. error	t value	P value	95% conf.	interval
Gov	-.026021	. .0123943	-2.10	0.036	-.0503649	-.0016774

	2					
L_asset	.0090126	.0019955	4.52	0.000	. 0050932	.012932
L_age	-.0006974	.0052924	-0.13	0.895	-.0110923	.0096975
Leverage	-.0418659	.0132062	-3.17	0.002	-.0678044	-.0159274
Ind_dummy	-	-	-	-	-	-
Year_dummy	-	-	-	-	-	-
Constant	-.0302706	.0262155	-1.15	0.249	-.0817607	.0212196

Table 3.