

Does Nationalization Work? Evidence from Russian State Takeovers

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Introduction (1)

- During the financial crisis many governments have resorted to nationalization of banks and, in some cases, non-financial companies.
- In Russia, companies in various sectors have been taken over directly or indirectly via existing state-owned enterprises (SOEs) during the last decade.
- This provides us with a good sample to study the **effect of nationalization on various outcomes:** employment, size, performance and leverage

Introduction (2)

- There is no proclaimed program of nationalization of the Russian government.
- However, several **objectives** have been mentioned, such as
 - modernization of infrastructure
 - diversification of the economy by attracting investments in high-technology sectors
 - Innovation
 - creation of large vertically integrated structures that can survive the international competition.

Sectors with increased government role

- **Natural resource extraction**: Sibneft became Gazpromneft, Rosneft acquired Yukos subsidiaries and, recently TNK-BP; consolidation of the federal government stake of diamond producer Alrosa
- **Manufacturing** (including military-industrial firms): Rosoboronexport, now part of the State Corporation Rostec, acquired majority stakes in AvtoVaz, VSMPO Avisma (titanium), created the holding Vertolety Rossii
- **Nuclear energy**: Consolidation of state assets in Rosatom
- **Banking**: Gutabank and Promstroibank acquired by VTB, Kitfinans by Russian Railways

This paper...

- studies the effects of nationalization using a **comprehensive dataset of government takeovers in Russia from 2004-2008**, on several outcome variables,
- uses propensity score matching to control for selection of to-be-nationalized firms,
- provides evidence on simultaneous changes in funding and corporate governance.
- To our knowledge, this is the first econometric study of performance effects of nationalization at the firm level.

Literature (1)

- Literature on nationalization is mostly descriptive and very scarce.
- Guriev et al. (2011) analyze nationalization episodes in the oil industry around the world from 1960 to 2002.
- Chernykh (2011) studies the selection criteria for nationalization of the largest companies in Russia, 2004-2008.
- Sprenger (2010) provides a description of scale and scope of the Russian public sector.

Literature (2)

- Literature on the comparative performance of private and state-owned companies
 - **Performance effects of privatization**: Surveys of Djankov and Murrell (2002), Megginson (2005), and Estrin et al. (2009)
 - **Cross-sectional comparisons of private and state-owned companies**, starting from Boardman and Vining (1989). Recent studies on China show that SOEs do not always underperform private companies (Tian and Estrin, 2009, Chen et al., 2009).

Database (1)

- Acquisitions by the Russian government (at all levels) and state-owned enterprises between 2004 and 2008 extracted from M&A databases Zephyr (Bureau van Dijk) and ThomsonOne Deals
- Cases of nationalization mentioned in Pappe (2008), Thomson (2006), Chernykh (2009), IET annual reports, business press.
- Confirmed state ownership of acquirer, previous private ownership of the target as well as time and actual occurrence of the transaction

Database (2)

- **Definition of nationalization: a significant increase in government control over the company**
– as a result of the transaction the government's ownership stake passed the 25% or the 50% threshold.
- Financial information from Ruslana and Interfax Spark
- We excluded 10 nationalizations of banks since performance indicators are hardly comparable to non-financial companies.
- **Result: 66 nationalization transactions.**

Sample Description: Number of Acquisitions

Nat25: Government stake passed the 25% threshold,
Nat50: Government stake passed the 50% threshold
as a result of the transaction

Year	Nat25=1 AND Nat50=0	Nat25=0 AND Nat50=1	Nat25=1 AND Nat50=1	Nat25=1 OR Nat50=1
2004	1	1	3	5
2005	5	2	6	13
2006	0	4	7	11
2007	3	4	13	20
2008	4	4	9	17
Total	13	15	38	66

Sample description: Government stakes

Number of firms

Stake (%)	Acquired Stake	Final Stake
[0,25)	6	0
[25,50)	21	14
[50,75)	22	25
[75,100)	9	16
100	8	11
Total	66	66

Average government stake before and after nationalization

Year before	Quarter before	Quarter after	Year after
9.97	15.98	62.89	65.71

Sample description (3): Industry breakdown of target companies

Industry	# firms	Per cent
Manufacturing	32	48.5
Services, including geological exploration, engineering, research	12	18.2
Extraction of minerals	12	18.2
Transport and communication	3	4.5
Construction	3	4.5
Others	4	6.0
Total	66	100.0

Methodology of the comparison of outcomes (1)

- **Outcome indicators** three years before and after nationalization
 - Number of employees (log)
 - Sales revenues from the main activity (log)
 - Total assets (log)
 - Return on assets (operating profit / total assets)
 - Return on sales (operating profit / total assets)
 - Leverage ratio (long and short-term debt / total assets)

Methodology of the comparison of outcomes (2)

- Simple performance differences before and after nationalization (3-year-averages)
- Differences in industry-adjusted performance
- Difference in difference combined with propensity score matching

– Average treatment effect on the treated:

$$E\left[\Delta y_{i,t+s}^1 - \Delta y_{i,t+s}^0 \mid A_{it} = 1\right]$$

– If all variables that affect nationalization and outcomes can be collected in a vector of covariates X then this can be substituted by the observable quantity

$$E\left[\Delta y_{i,t+s}^1 \mid X, A_{it} = 1\right] - E\left[\Delta y_{i,t+s}^0 \mid X, A_{it} = 0\right]$$

Results (1): Simple Differences

Indicator	Difference (post minus pre)		t-stat	z-stat
	Mean	Median		
log (Employees)	0.15*	0.08	1.68	1.54
log (Revenue)	0.24	-0.10	1.19	1.30
log (Total assets)	0.4***	0.32**	2.83	2.57
Return on assets	-0.0190	-0.0213	-0.47	-0.90
Return on sales	-0.1143**	0.0348**	-2.03	-2.09
Leverage	0.0811*	0.0386***	1.94	2.69

Not tabulated: Significant increase in total assets and leverage 2 and 3 years after nationalization, compared to the year before.

Results (2): Industry-adjusted Differences

Indicator	Difference (post minus pre)		t-stat	z-stat
	Mean	Median		
log (Employees)	0.06	-0.26	0.42	-0.80
log (Revenue)	0.09	0.12	0.45	-0.231
log (Total assets)	-0.10	-0.36*	-0.70	-1.814
Return on assets	0.0014	-0.0049	0.06	-0.083
Return on sales	-0.1135**	-0.0328**	-2.03	-2.19
Leverage	0.0370	-0.0670	0.97	1.06

Not tabulated: Significant decrease in industry-adjusted number of employees and return on sales 2 and 3 years after nationalization, compared to the year before.

Results: Selection for Nationalization

- Probit model of the likelihood of nationalization
- Matching is based on the score (predicted likelihood of nationalization from this model)

Variable	coefficient	z-stat
Log (Total assets), t-1	0.2008***	5.75
Log (Revenues) , t-1	0.0544	1.56
ROA, t-1	-0.4831	-1.42
Industry ROA, t-1	1.5713**	2.27
Leverage, t-1	-0.1506	-1.00
constant	-5.8675***	-20.56
Number of observations	36115	
Pseudo-R ² (%)	22.72	

Results: Diff in diff with propensity score matching (1)

- Propensity matching combined with exact matching on industry.
- Average treatment effects on the treated (**ATT**) for 3-year averages are **negative for total assets and sales revenues**.
- No significant effects on the number of employees, profitability and leverage ratios.
- This is true for two treatment definitions: any nationalization or both 25% and 50% thresholds surpassed in the same transaction.

Results: Diff in diff with propensity score matching (2)

- Next, we **exclude financially distressed firms** (in the year before nationalization), i.e. government bailouts.
- Such firms constitute about 12% of the sample, both for treated and control firms.
- The negative effects of nationalization on total assets and revenues disappear.

Intermediating variables: Sources of funding and corporate governance (1)

- More state control goes along with more funding from state-affiliated companies, in particular state-owned banks, less (!) subsidies and changes of CEO and board composition
- Comparison of three-year averages before and after nationalization:
 - Debt funding has increased by 12% (by 6% if weighted by maturity)
 - Subsidies have decreased by 9%
 - Share of debt funding from state affiliated banks and companies increased from 29% to 49%

Intermediating variables: Sources of funding and corporate governance (2)

- **Comparison of Board characteristics and CEO**
 - Board size goes down by 5% from average 8.3 one year before nationalization to 8 members one year after.
 - Share of internal board members goes down from 32% to 23%.
 - Share of state-affiliated board members goes up from 23% to 42%.
 - 66% of board members are replaced.
 - CEO is replaced in 53% of the companies between t-1 and t+1, and in 41% of the companies between t and t+1

Multivariate analysis

- How are changes in sources of funding and corporate governance related to outcome variables?
- Multivariate regressions with match-adjusted changes in outcome as dependent variables
- Similar to event study methodology where CARs above a counterfactual are regressed on several explanatory variables
- As control variables, we include indicator variables for transactions where both 25% and 50% thresholds in state ownership were surpassed and for financial distress, as well as year dummies.

Multivariate analysis: Number of employees

	(1)		(2)		(3)	
25 and 50% threshold	0.033	(0.09)	-0.143	(-0.48)	0.488	(1.53)
Financial distress	1.209	(1.56)	1.020*	(1.81)	0.106	(0.15)
Growth of funds (weighted)	-0.134	(-0.51)	-0.118	(-0.49)		
Increase in share of funds from state-affiliates	-0.589*	(-1.85)	-0.635**	(-2.10)		
Growth of board size	-1.622	(-0.93)			-0.490	(-0.32)
Increase in share of state-affiliated board members	-0.003	(-0.00)			-0.885	(-1.22)
CEO change (t, t+1)	-0.282	(-0.67)			0.233	(0.69)
Growth subsidies	-0.514	(-1.38)	-0.587**	(-2.19)		
Constant	0.137	(0.40)	0.238	(0.95)	-0.090	(-0.24)
<i>N</i>	27		29		35	
adj. R^2	-0.144		0.103		0.016	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Multivariate analysis: Leverage ratio

	(1)		(2)		(3)	
25 and 50% threshold	0.035	(0.28)	-0.069	(-0.56)	0.069	(0.76)
Financial distress	0.677**	(2.53)	1.114***	(4.81)	0.990***	(4.67)
Growth of funds (weighted)	0.046	(0.51)	0.030	(0.31)		
Increase in share of funds from state-affiliates	0.131	(1.19)	0.075	(0.61)		
Growth of board size	1.753**	(2.93)			0.323	(0.84)
Increase in share of state-affiliated board members	-0.428	(-1.49)			-0.187	(-0.88)
CEO change (t, t+1)	0.340**	(2.36)			0.127	(1.34)
Growth subsidies	0.177	(1.38)	-0.047	(-0.43)		
Constant	0.064	(0.55)	0.188*	(1.82)	0.095	(0.86)
<i>N</i>	27		29		38	
adj. R^2	0.631		0.476		0.437	

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Conclusion (1)

- We have assembled a comprehensive database of nationalization transactions in Russia and investigated the effects of nationalization on employment, size, revenues, profitability and leverage in target companies.
- Nationalized companies perform no better or worse than their closest matches in terms of the propensity score.
- Multivariate analysis shows some intermediating effects of changes in sources of funding and corporate governance on number of employees and leverage.

Conclusion (2)

- Continuation of this research:
 - Compare to treatment effects in a fixed-effects model with post-nationalization dummies
 - Combine it with propensity score matching
 - Look at other outcome variables: Interest payments (implicit state guarantee?), taxes, cash holdings.
 - Disentangle the effects of nationalization and inclusion into a business group.