



Economic Freedom and Firm Performance: the Evidence from Russian Companies

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Motivation for the Study

Economic growth literature:

- the economic growth of any country depends on firm activities leading to the production of new goods and services (Friedman, 1992)

Institutional economics literature:

- the increasing endowment of firm's resources is not enough for sustainable growth; it is determined by a large set of factors, including the business environment and institutional development (Coase, 1937; Feldman, 1991)

Corporate finance literature:

- institutions can affect economic activity indirectly through an effect on investment or directly through an effect on total factor productivity (Dawson, 1998)

One of the crucial elements of the institutional environment is **the degree of economic freedom (EF)** under which companies form and operate
(Hall and Lawson, 2014)

Number of cross-countries studies using Economic Freedom Indexes (EFI): significant positive relationship with country growth, GDP, investments, etc. (Kostevc et al. 2007; Smimou and Karabegovic, 2010; Gwartney et al. 2013)

Several attempts to examine the regional level of EF: North America EFI (Ashebey et al., 2011; Do et al., 2013; Power and Weber, 2016), EFI for Chinese provinces (Feng and Xia, 2008), EFI for Russian regions (Coates et al., 2017)

Little research on EF impact on stock returns, mostly in particular industries or specific companies or developing the assets portfolio based on EFI (Roydhoudhury, 2008; Gropper et al., 2015; Chen et al., 2015; Azizi et al., 2016)

No papers about EF on regional level and firm performance in developing countries' contexts

Institutions and firm performance: the evidence from empirical studies

- Very well studied area both for developed and developing countries, including Russia
- Particular aspects of institutional development:
 - State involvement (Perotti and van Oijen, 2001; Chen et al., 2014)
 - Political connections (Li et al., 2008; Claessens et al., 2008; Do et al., 2013)
 - Monetary policy (Karim and Zaidi, 2015)
 - Trade openness (Meschi et al., 2008)
 - Corruption (Marinova et al., 2012)
 - Business climate (Blagojevic, Damijan, 2013)
 - Democracy (Bruno et al., 2013)
 - Investors' protection (La Porta et al., 2002)
- No consensus among scholars for Russian companies (Yakovlev and Zhuravskaya, 2007; Guriev and Zhuravskaya, 2010; Puffer and McCarthy, 2011; Ledyeva et al., 2013; Pyle and Solanko, 2013; Govorun et al., 2015; Sokolov and Solanko, 2016; Mironov and Zhuravskaya, 2016; Iwasaki et al., 2016; Golikova and Kuznetsov, 2017)
- Studies take into account one aspect of institutional development

The main hypothesis

*The greater the economic freedom, the higher is
company performance*

The possible particular mechanisms

- ✓ greater economic freedom reduces friction and enhances the firm's future investment in response to current profitability
- ✓ the regulation on product and labor markets, tax system and low tariff and non-tariff barriers to international trade influence firm behavior in maximizing profit
- ✓ firms' costs to invest in the capital are lower, the more secure property rights and the more competitive credit markets are

Economic Freedom Index for Russian Regions (Coates et al., 2017)

Regional index	All-government index
<p>1. Size of Government</p> <p>A. General government expenditure</p> <p>B. Transfers and subsidies</p> <p>D. Government enterprises and investment</p>	<p>1. Size of Government</p> <p>A. General government expenditure</p> <p>B. Transfers and subsidies</p> <p>C. Insurance and retirement payments</p> <p>D. Government enterprises and investment</p>
<p>2. Taxes</p> <p>A. Income tax revenue</p> <p>B. Property taxes revenue</p> <p>C. Marginal tax rates</p>	<p>2. Taxes</p> <p>A. Income tax revenue</p> <p>B. Property taxes revenue</p> <p>C. Marginal tax rates</p>
<p>3. Regulation</p> <p>A. Labor market freedom</p>	<p>3. Regulation</p> <p>A. Labor market freedom</p> <p>B. Overall labor market freedom</p> <p>C. Regulation of credit markets</p> <p>D. Business regulations</p>
	<p>4. Legal system and property rights</p>
	<p>5. Sound money</p>
	<p>6. Freedom to trade internationally</p>

The Dataset

Dataset on 1096
public Russian
companies from
2004 to 2016
(IDLab HSE)

EFI for all
Russian
Regions for
1990 to 2015
(Coates et al.,
2017)

Time span: 2004-2015

Nested structure of the data: 73 regions (nests) with
an average 109 observations

HLM Approach: Marginal effects of EF level in different regions

- **Random intercept & Random slope model: Do marginal effects of EFI vary across regions?**

$$\begin{aligned}
 Y_{ij} &= \beta_{0j} + \beta_{1j}EF_{ij} + \beta_{ij}Controls_{ij} + r_{ij} \\
 \beta_{0j} &= \gamma_{00} + u_{0j} \\
 \beta_{1j} &= \gamma_{10} + u_{1j}
 \end{aligned}
 \left. \vphantom{\begin{aligned} Y_{ij} \\ \beta_{0j} \\ \beta_{1j} \end{aligned}} \right\} \Rightarrow
 \begin{aligned}
 Y_{ij} &= \gamma_{00} + \gamma_{10}EF_{ij} \\
 &+ \beta_{ij}Controls_{ij} \\
 &+ u_{0j} + u_{1j}EF_{ij} + r_{ij}
 \end{aligned}$$

* *EFI is introduced in the model as 1-year lagged variable*

HLM Approach: Intraclass correlation coefficient

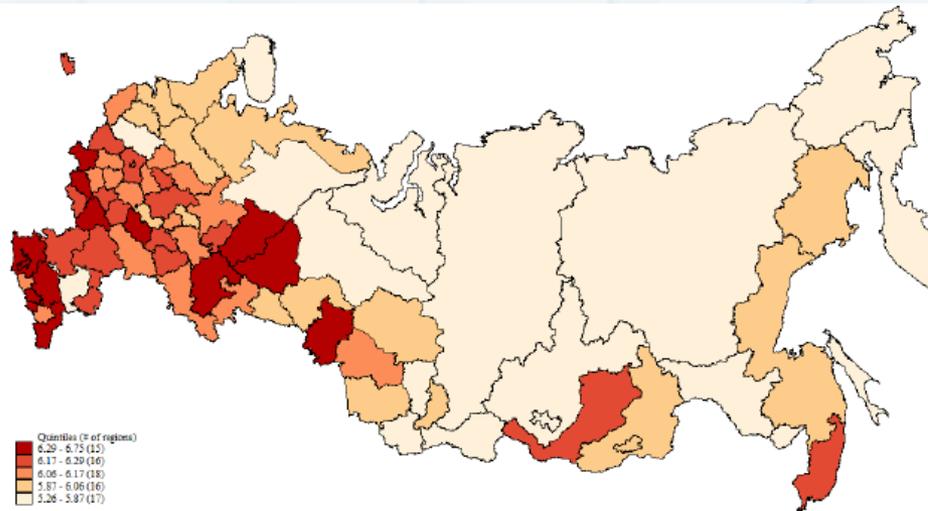
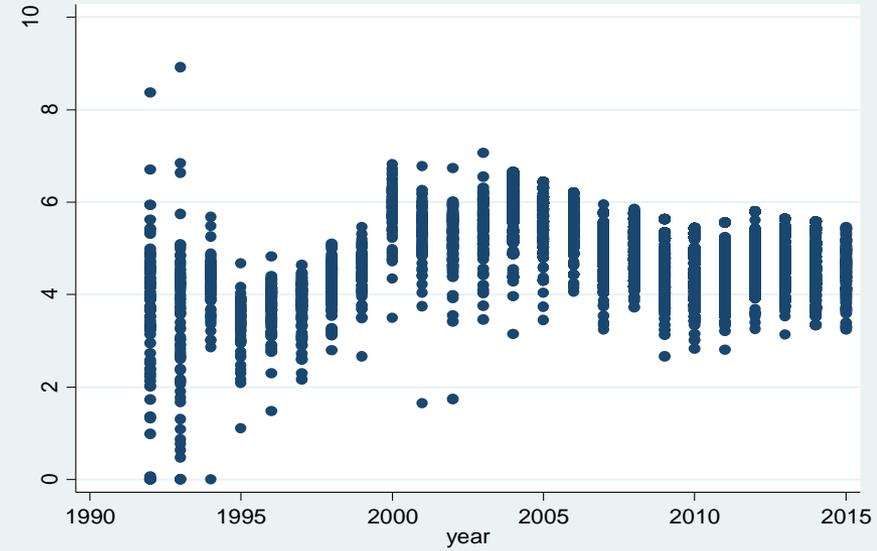
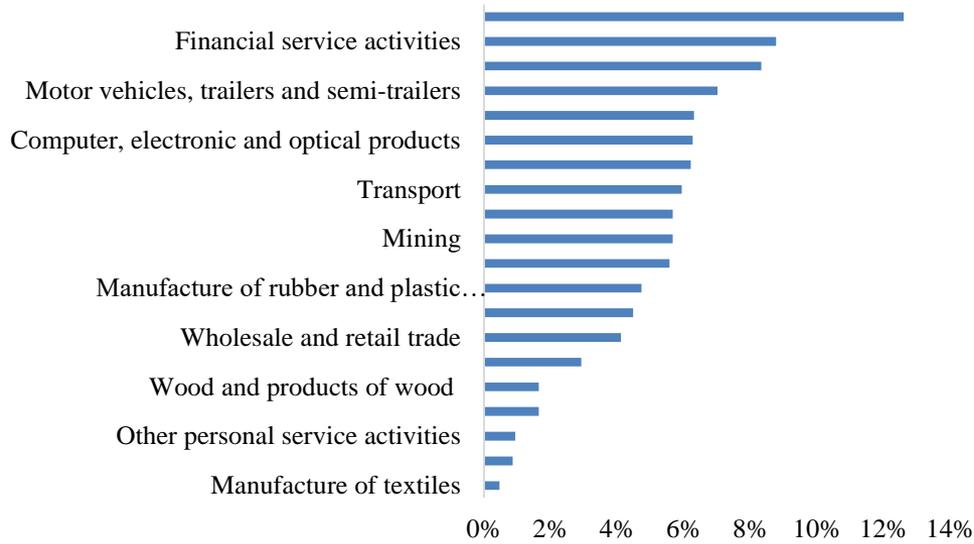
The size of the regional effect is measured as the percentage of observed variation in the performance attributable to regional-level characteristics

$$\rho = \frac{\tau_{00}}{\tau_{00} + \sigma^2}$$

τ_{00} is the variance of the regional-level residuals
 σ^2 is the firm-year-level residuals variation.

The existence of a significant variance component for τ_{00} calls for the incorporation of particular regional-level variables in an attempt to account for some of this variation.

Dataset



Descriptive Statistics

	No. of obs.	Mean	St. dev.	Min.	Max.
ROA	9,702	0.041	0.101	-0.418	0.447
ROIC	9,248	0.086	0.126	-0.849	0.992
TobinsQ	2,547	1.098	0.725	0.018	9.035
EFI	9,702	5.011	0.651	3.350	6.650
Number of employees	9,417	9.628	61.889	0.000	13.031
Book value, mln.euro	9,702	3.706	2.010	-7.437	12.615
Firm age	9,702	33.084	37.684	0.000	303.000
New companies	9,702	0.051	0.219	0.000	1.000
Number of branches	9,702	11.580	23.266	0.000	347.000
State ownership	9,702	0.030	0.171	0.000	1.000
Financial leverage	9,124	2.244	6.133	3.28e-08	93.528
Share of urban population	9,702	78.563	14.511	42.400	100.000
Gini-coefficient	9,702	0.420	0.053	0.316	0.575
GRP per capita	9,702	1048.364	1067.000	51.141	11763.610

- The mean value of the performance of each firm varies by regions (random intercept)
- The model assumes that the marginal impact of the EFI is the same for all firms across all regions

Empirical Results: random intercept model

Dependent variables	ROA	ROIC	Tobins'Q
Intercept (constant) γ_{00}	-0.033 (0.028)	-0.059 (0.042)	0.559 (0.439)
Firm level determinants			
Variation (residual) r_{ij}	0.008 (0.001)	0.017 (0.001)	0.025 (0.008)
Regional level determinants			
Variation (constant) u_{0j}	0.001 (0.001)	0.001 (0.000)	0.517 (0.016)
Lagged EFI γ_{10}	0.007*** (0.003)	0.013*** (0.004)	0.121*** (0.042)
Controls	Included	Included	Included
Variation Analysis			
Across firms, %	97,1	95,7	95,3
Across regions, %	3,9	4,3	4,7
Model statistics			
Observations	8,865	8,616	2,408
Number of groups	73	73	71
Chi-square	718.65***	674.62***	217.68***
LR test vs. previous eq. (chi-square)	80.57***	75.33***	75.72***

- Variation coefficient (constant) demonstrate statistically significant differences in the variance components of the intercept
- The regional economic freedom explains in average **4%** of firm variation in Russia
- The Economic Freedom Index has positive impact on firm performance: results from macro level are confirmed

- The model allows for the influence of economic freedom to be different from region to region
- The constant influence across firms from all regions (random intercept)
- The random component, affecting firms differently based on EFI of the region (random coefficient)

Empirical Results: random intercept & random slope model

Dependent variables	ROA	ROIC	Tobin'sQ
Intercept (constant) γ_{00}	-0.034 (0.030)	-0.057 (0.042)	0.412 (0.446)
Firm level determinants			
Variation (residual) r_{ij}	0.008 (0.001)	0.016 (0.001)	0.016 (0.001)
Regional level determinants			
Variation (constant) u_{0j}	3.26e-14 (1.83e-13)	1.97e-15 (2.64e-12)	4.99e-12 (3.19e-11)
Variation coefficient (lagged EFI) u_{1j}	0.001 (4.04e-06)	0.001 (7.12e-06)	0.001 (0.001)
Constant coefficient (lagged EFI) γ_{10}	0.007** (0.003)	0.014*** (0.004)	0.138*** (0.042)
Control variables	Included	Included	Included

- The significant average effect of Economic Freedom Index on all companies' performance metrics
- The constant level of economic freedom has the same effect for all firms (variance of constant is non significant)
- The influence (slope) of economic freedom varies by regions (variance of EFI is statistically significant)

Panel data fixed effect modelling:

Dependent variables	ROA	ROIC	Tobin'sQ
Lagged EFI	0.021*** (0.003)	0.030*** (0.004)	0.106** (0.049)
Intercept	-0.126*** (0.026)	-0.127*** (0.035)	1.217** (0.475)
Control variables	Included	Included	Included

- The regional economic freedom explains in average 4% of firm variation in Russia
- The strongest results are for market based performance metrics (Tobin's Q)
- Results are robust across specifications, performance metrics and methods of estimation

Performance heterogeneity is explained by the economic freedom, not because of its average effect of EFI which equal for all companies, but by the level of institutional development in particular region

- The focus on economic freedom and performance of individual companies is unusual despite the growing interest to regional context' studies
- Little understanding of how the overall institutional environment affects the company results in the frame of emerging economies
- EFI implementation for Russian environment
- The relationship between economic freedom and firm performance as multilevel phenomenon

- Break the Index into sub-components
- Moderation effect of EF (cross-level interaction term): different types of companies; different industries
- Three-level modelling using HLM approach: the whole chain with company-industry-region
- Taking into account the impact of EFI from one region to firms' performance in another: an implementation of spatial regression analysis