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Bridging the gap in competitiveness of Russian companies with intangible bricks

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Summary

Purpose – The paper aims to explore factors of the low competitiveness of Russian companies assuming that the gap in the endowment of intangible resources is responsible for the gap in competitiveness.

Design/methodology/approach – The framework of resources-based view is used to examine causality between the resources used and competitiveness measured by economic value added (EVA). Controlling for the most relevant factors, the authors place an emphasis on those intangible resources that are considered in the literature as being the most critical for Russian companies when contending for global competitiveness: productivity, strategic long-term orientation of companies, quality of human capital, innovative behavior of companies, foreign investments and corporate networks. The data set of more than 1,000 Russian companies benchmarked to the data set of more than 1,600 European companies during a period of 10 years: 2004-2013 is analyzed to test the hypothesis put forward.

Findings – Causal effect of the gap in intangible endowment and competitiveness of Russian companies compared with European rivals is revealed. According to our analysis, gaps in productivity, strategy implementation, qualifications of the board of directors and company location play critical roles in the global competitiveness of Russian companies. Meanwhile, underinvestment in structural resources, such as enterprise resource planning (ERP) systems and other intangible assets, are considered positive factors that reduce gaps in EVA.

Originality/value – The paper introduces original approach for studying the gap in performance caused by the gap in used resources.

Keywords Competitiveness, Intangible resources, European companies, Russian companies

Paper type Research paper

Introduction

Recent years have seen the expanding gap in competitiveness of Russian companies compared to their international rivals. The underdevelopment of Russian domestic production led to a significant share of imports in the Russian economy. The import share in different sectors ranges from 25 to 70 per cent and has been growing every year starting from the early 2000s (UNCTAD, 2015; World Economic Forum, 2015). Notably, approximately, 43 per cent of the average consumer baskets in 2014 in Russia contain import products (UNCTAD, 2015; World Economic Forum, 2015). The recent economic and political challenges that were faced by the Russian economy have demonstrated the substantial harm of the existing structure of our trade balance. A high level of imports of highly technological products, along with the predominance of the raw materials in exports, led to the considerable dependency of the Russian economy on the value of the rouble and world prices of commodities, mainly hydrocarbons (Ahrend, 2006). The problem of an insufficient competitiveness of Russian companies was considerably exacerbated by the knowledge-based economy, as stated by Sapir (2001). Most Russian sectors lag behind their main global competitors, both in quality and in costs of the products, caused by obsolete technologies, depreciated assets and an insufficient level of investment in human resources and marketing (Ahrend, 2006).

Scholars who undertake comparative studies often address the productivity issue to emphasize that the Russian economy is far behind in productivity and intensifies mainly low value-added production (Ahrend, 2006; Beck *et al.*, 2007; Connolly, 2011; Michailova *et al.*, 2013; McCarthy *et al.*, 2014). Although the total factor productivity in Russia has been growing over the past two decades, outrunning the European trends, these achievements have not yet been sufficient to achieve global competitiveness. Considering European companies as the key rivals in both local and international markets, these competitors have to be taken as benchmarks for the micro policies of Russian enterprises (Beck *et al.*, 2007). In line with the above-mentioned studies, our study focuses on the comparison of resource endowments of Russian and European companies, highlighting intangibles as the main drivers of competitiveness.

To be more precise, this paper seeks to discover a gap in the most important intangible resources of Russian companies with respect to their European rivals and to look for the causality between these disadvantages and the dearth of competitiveness in Russian companies. The study is based on empirical examination of listed Russian and European companies observed over 10 years, starting from 2004. Using the methodology to investigate intangibles introduced in a paper by Molodchik *et al.*, (2014), we draw a statistical dynamic of intangible endowments of Russian companies benchmarking them to European rivals. Moreover, we set causality between a gap in this endowment and a corporate performance that reflects competitiveness – measures by economic value added (EVA).

The remainder of this paper is organized as follows. The next section gives an overview and critical analysis of the relevant empirical studies about Russian and other emerging economies, with respect to their global competitiveness because of intangible resources. The second section introduces the research design, suggests and validates the hypotheses, as well as demonstrates data description. The third section discusses results and findings, taking into account the limitations of this study.

Factors of the low competitiveness of Russian companies: the academic discussion

The scholars who deal with the phenomenon of the transition of the Russian economy diverge into two main streams. Sapir (2001) affirms that in the early 1990s, Russia took a very unique fast track in terms of economic and political reforms. This transformation has borne the fruit of an abnormal level of economic growth in the beginning of the twenty-first century. This high growth was driven mainly by internal forces and was only enhanced by external conditions. By “internal forces”, Sapir (2001) and Ahrend (2006), mean growth in productivity mostly derived from competitive advantages in costs. Other studies, such as those by McCarthy *et al.* (2014), Connolly (2011) and Gaddy (2007), see the origin of Russian economic growth only within the very positive conjuncture of the world market for commodities. However, both groups of authors identify the problem of weak institutions, which were not rebuilt in the post-Soviet period, the dearth of global competitiveness of Russian products and the unbalanced development of sectors. As stated by Ahrend (2006), the Russian economy has demonstrated strong competitive advantages in resource-based and energy-intensive sectors. However, it has clear disadvantages in machinery, all kinds of consumer durables and medicinal and pharmaceutical goods. In other words, all branches demand large intangible endowments: innovations, human capital, knowledge transformation, networking and marketing.

This research implies the concept of intangibles developed by Edvinsson and Malone (1997), Marr and Schiuma (2001) and Lev (2005). Intangibles are determined as all kinds of resources used by companies, apart from their fixed assets and working capital with a tangible nature (Lev, 2005).

In considering Russian companies as examples of firms from emerging markets (Michailova *et al.*, 2013), several particular characteristics of intangible resources should be noted. The study of McCarthy *et al.* (2008) has revealed that the avoidance of uncertainty, resistance to change and a short-term orientation are particular behavioral traits of managers and employees. The dearth of entrepreneurship in the Russian people is determined historically by McCarthy *et al.* (2014) and until now has been one the reasons for the lack of innovative activity. The endowment of innovation and process capital is heterogeneous (Andreeva *et al.*, 2016). Taking the position of R&D expenditures according to the Global Competitiveness Index, Russia scores only 3.2 points out of 10 and only 3.8 points for its innovative capabilities. At the same time, the indicator of patent usage is relatively high: 7.1 points out of 10. Despite the fact that almost all Russian companies use computers (the proportion of businesses using computers was 92.6 per cent in 2013), only 40 per cent of them demonstrate a web presence (UNCTAD, 2015). Considering the particular traits of networking capabilities, Michailova and Nechayeva (2014) and Bengoa and Kaufmann (2016) have found that the relationships between group members in Russian companies are much closer than those found in the Western companies. This fact might lead to the mistrust of outsiders in Russian companies and create barriers to communication. Notwithstanding this finding, the study of Michailova and Nechayeva (2014) also discovered that personal networking is a critical resource for Russian multinational enterprises.

A survey of large Russian enterprises from the manufacturing industry conducted by the Institute for Industrial and Market Studies of National Research University (NRU) Higher School of Economics (HSE) shows that the pre-crisis decade made Russian companies more market-oriented while still “employing conventional technologies, more efficiently using existing resource base and relying on existing markets” (Kuznetsov *et al.*, 2011). These authors emphasized that Russian companies used to be in the position of catching up with their international competitors but that the more recent ones were always racing significantly ahead. In times when the rouble is not more appreciated because of the bubble created by oil prices, should they take advantage and win both a domestic market that was substantially conquered by imports and even start entering foreign markets? That is a key challenge faced by Russian companies. For that to occur, as asserted by Beck *et al.* (2007), Connolly (2011), Sapir (2001) and McCarthy *et al.* (2014), Russian sectors and institutions require pivotal transformation. Summarizing the most frequently raised issues about sustainable development for the Russian economy that might help to close the competitiveness gap, we highlight the following factors:

- long-term strategic orientation of companies provided by an auspicious investment climate, such as a stable institutional environment, low interest rates, incentive taxation, etc. (Beck *et al.*, 2007; Kuznetsov *et al.*, 2011);
- development of human capital, settled not only by a strong educational system but also by conditions under which highly qualified employees can be retained by the Russian economy (Fan *et al.*, 1999; Rose, 2000; Clark, 2003);
- governmental support of innovative activities for high-value added sectors and new products (Krammer, 2009; Savitskaya and Torkkeli, 2011);
- institution of corporate government to protect the rights of foreign investors and minority investors (Ahrens *et al.*, 2011; Kuznetsov *et al.*, 2011; Enikolopov and Stepanov, 2013); and
- regional trade infrastructure: transportation, networking with neighboring countries for remote regions of Russia (Sapir, 2001).

The abovementioned factors are discussed in depth in the academic field. Still, there is a lack of solid evidence based on quantitative analysis that reveals the factors that are responsible for the gap in competitiveness. Before claiming that the factors of intangible

resources might virtually create competitiveness for Russian enterprises, it seems to be very important to investigate them. Our study attempts to close this gap. We put forward the hypothesis that the five abovementioned conditions are critical if Russian companies are to outperform their European rivals.

For the purpose of our study, and in line with Porter (2011), we state that the competitiveness of companies is expressed in their ability to create abnormally large profits over the benchmarks of their industry rivals. The concept of competitiveness is multidimensional (Sanchez-Gutierrez *et al.*, 2016); consequently, it involves different issues such as company resource endowment, dynamic capabilities, competitive advantages, business strategies and other aspects. In present paper, we follow resource-based view (Barney *et al.*, 2001) and investigate the influence of endowment of intangible resources on company competitiveness. Resource-based view claims that companies can outperform their rivals if they use unique resources (Barney *et al.*, 2001). Unsurprisingly, intangibles are considered the most important idiosyncratic resources of companies that enable them to outperform their rivals. Unlike other seminal theories of firm strategic behavior, the resource-based view puts an emphasis on specific traits of resources employed by a company. There is also empirical evidence of strong positive influence of intangibles on company competitiveness in developing countries (Sanchez-Gutierrez *et al.*, 2016). Our study advances the notion that the resource endowment of Russian companies may be related to the endowment of their European rivals. Meanwhile, we highlight the particular importance of intangibles when looking for evidence of sustainable competitiveness. If a gap of intangible endowments in Russian companies is revealed, that might explain why they are not able to outperform European competitors in local and international markets. It has been observed by Molodchik *et al.* (2012) and Naidenova and Parshakov (2013) that European companies present a clear link between the use of intangibles and competitiveness.

The research framework of the comparative study

Research design and methodology

The framework of resource-based theory suggests using “input-output” specification to examine causality between the resources used and corporate performance. As we seek to explore the gap in the competitiveness between Russian and European companies because of intangibles, we analyzed the relative indicators of the approximate performance of Russian companies, benchmarking them to the average performance of European rivals. We used the EVA concept (Stewart, 1999) to measure the competitiveness of companies. It reflects how much a company can outperform its rivals. Considering that EVA is a part of corporate net operating profit above opportunity costs, we estimate opportunity costs through weighted average costs of capital. Cost of debts and equity were calculated on the base of US capital market parameters. That was applied both for Russian and European companies. Formula (1) represents the measurement approach used:

$$EVA_t = IC_{t-1} \times (ROIC_t - WACC_t) \quad (1)$$

Where

- IC_{t-1} = $D_t + E_t$: book value of equity and debts;
- $ROIC_t$ = $NOPAT_t / IC_{t-1}$: return on invested capital;
- $NOPAT_t$ = $EBIT_t (1 - t)$: net operation profit after taxes;
- $WACC_t$ = $D_t / (D_t + E_t) \times kd (1 - t) + E_t / (D_t + E_t) \times ke$: weighted average cost of capital;
- D_t = book value of debt;
- E_t = book value of equity;
- kd = $krf + \text{default spread of the company} + \text{default spread of the country}$: cost of debt;
- ke = $krf + \beta \times (km - krf)$: cost of equity;

krf = risk free rate – return on the treasury bonds of US government;
 β = bottom-up build beta (adjusted by Hamada's equation);
 km = Historical return on the market portfolio (market index); and
 T = effective tax rate.

EVA refers to a residual income brought about by the competitive advantages of companies. Even if they possess a positive operational profit, companies might underperform in relation to their competitors if their opportunity costs are not covered. In this case, companies introduce negative EVA. Only under a condition in which a company appears to be a relatively more competitive market player is its EVA positive. For the purposes of our study, we reinforced this condition in looking for the gap in the EVAs of Russian companies as compared to the industrial average EVA of European firms. Thus, for the measurement of competitiveness, we assumed the following conditions:

- if $EVA_{gap} = (EVA_i^R - \overline{EVA}^{EU})|_{ind\ year} > 0$, then Russian companies outperform their European rivals; and
- if $EVA_{gap} = (EVA_i^R - \overline{EVA}^{EU})|_{ind\ year} < 0$, then Russian companies underperform their European rivals.

Where:

EVA_{gap} = is the gap of EVA for Russian companies;

EVA_i^R = is the EVA of Russian companies; and

\overline{EVA}^{EU} = is the average EVA of European companies, for a particular industry and year.

Taking the above-described conditions to measure the relative competitiveness of both Russian companies and their European rivals, we looked for the factors that cause this gap to expand or to shrink. Controlling for all possible factors, we discovered intangibles that are underinvested in Russian companies, with the benchmark being the average European endowment. To estimate the gap in intangible endowments, we evaluated the difference in each particular intangible resource and the average in Europe for the same industry and year. Having different ways to measure intangible resources, we expressed a gap in intangible endowments in two ways. In the case of a continuous variable, we found the difference between values. In the case of a binary variable, we assumed that if the company has this resource, it was assigned with 1 – it does not have a gap in the endowment. Otherwise, it was assigned with 0:

$$gap\ in\ intangible\ reasources = \begin{cases} x_{ij}^R - \bar{x}_j^{EU} & \text{if } x_{ij} - \text{continuous,} \\ y_{ij}^R & \text{if } y_{ij} - \text{binary,} \end{cases} |_{ind\ year} \quad (2)$$

Where x_{ij}^R, y_{ij}^R is a particular intangible resource j for a particular Russian company i (measured by continuous or binary variables, respectively); and

\bar{x}_j^{EU} is an average endowment of an intangible resource j in each industry and year.

Thus, the specification of testing whether gaps in the intangible endowments of Russian companies lead to a gap in competitiveness is as follows:

$$EVA_i^R - \overline{EVA}^{EU}|_{ind\ year} = f((x_{ij}^R - \bar{x}_j^{EU})|_{ind\ year}, y_{ij}^R; CV), \quad (3)$$

Where CV is a vector of control variables.

We built our hypothesis on resource-based theory and expected that a lower endowment of intangible resources deprives a company of competitive advantages and is responsible for the gap in EVA.

This study does not tend to examine all the intangibles used by companies. Controlling for the most relevant factors, we placed an emphasis on those intangible resources that are considered in the literature as being the most critical for Russian companies when contending for global competitiveness (Table I):

Table 1 Intangibles as factors of competitiveness of Russian companies and metrics for them

<i>Factor of intangible resources</i>	<i>Metrics</i>	<i>Estimation</i>	<i>Source of information</i>
Productivity	Productivity by output	Value added divided by the number of employees	Company's annual report, section: Financial data
	Cost of employee	Total cost of employee	Company's annual report, section: Financial data
	ERP	1, if a company implements ERP; 0 – otherwise	Search for the following words: "ERP", "SAP", "Oracle", "NAVISION", "NAV", "SQL", "C1" on company website
Strategic long-term orientation of companies	Strategy implementation	1, if a company implements a strategy; 0 – otherwise	Search for the following words: "strategy", "strategy implementation" on company website
Quality of human capital	Qualifications of top management	If more than one third of directors have postgraduate-level qualifications and more than five years' experience – 2 points If more than one third of directors have postgraduate-level qualifications or more than five years' experience – 1 point; Otherwise – 0	Company's annual report, section: Directors' information
Innovative behavior of companies	Intangible assets	Value of intangible assets at the end of the period	Company's annual report, section: Financial data
	R&D investments	Expenditure for research and development for the period	Company's annual report, section: Financial data
Global orientation of companies	Foreign capital	1, if a company has foreign capital; 0 – otherwise	Company's annual report, section: Shareholder name, vertical vector country
	Import of resources	1, if a company has import contracts; 0 – otherwise	Annual corporate report
	Export of the product	1, if a company has export contracts; 0 – otherwise	Annual corporate report
Corporate networks	Participation in professional associations	1, if a company is a member of any professional association; 0 – otherwise	Company's annual report, section: Common information and corporate website
	Corporate site quality	Search the company website and evaluate the site's quality according to the following criteria: availability of information for investors (special section or page); multi-lingual information (using the English language); amount of information (more than ten pages); and design (using flash animation) For each criterion, the company gains 1 point. The Integral Index is the sum of the points	Corporate website
	Site citations on the internet	Number of citations	Search for the company's name and its score in the website: www.prchecker.info/check_page_rank.php
	Company location	1, if a company headquarter is located in a city with more than one million inhabitants; 0 – otherwise	Search for the company's location on their website, search for the status of the city's location in Wikipedia
	Number of subsidiaries	If the company has fewer than 100 subsidiaries, put the total number. Otherwise, use the following vector "First 100 out of Y subsidiaries"	Company's Annual Report, section: "Subsidiary name"
<p>Note: ERP = enterprise resource planning Source: self-elaboration</p>			

- productivity;
- strategic long-term orientation of companies;
- quality of human capital;
- innovative behavior of companies;
- foreign investments; and
- corporate networks.

Data and descriptive statistics

To test our hypothesis, we used the data of listed Russian and European companies. The database accounts for more than 1,000 Russian enterprises and about 1,600 companies from 5 European countries [UK (44 per cent), Germany (24 per cent), France (25 per cent), Spain (5 per cent) and Italy (2 per cent)]. The entire gross domestic product (GDP) of these countries covers more than 70 per cent of the European GDP. As such, it represents the European market according to individual country criterion.

The companies were observed during a period of 10 years: 2004-2013. The information was derived from publicly available sources: corporate annual reports, websites and the reports of different rating and analytical agencies, namely, Bureau Van Dijk (Amadeus) and Bloomberg. We downloaded the information for the database collection of the companies that have data for the whole period.

Panel data's structure enables use of the fixed-effect technique to deal with the endogeneity problem engendered by the individual effects of companies. We also took advantage of the panel data in analyzing gaps in performance and resource endowments' dynamics. That provided us with an understanding of whether the gaps, both in intangible endowments and in competitiveness, were expanding over time. Moreover, we could see the impact of the crisis on Russian companies as compared to European ones. Our data set covers the information about companies from all industries, clustered according to the NACE into six sectors: construction, manufacturing, energy and chemical, services, trade and finance. This clustering enables analysis of sectorial differences in competitiveness and resource endowments.

We divided the statistical analysis into the following steps. First, we estimated the gaps in competitiveness (using EVA as a proxy, normalized by the size of the company according to its total assets) and the gap in the different intangible resources of Russian companies and the average for their industry for each year. We had to check that there was a significant difference between the means of Russian and European firms. The results of estimations and the descriptive statistical characteristics are shown in Table II. As can be seen from Table II, the mean values of the normalized EVA during the 10-year period are negative but close to zero. Russian companies had on average more negative value and a gap in the EVA, in other words. The hypothesis that Russian companies would have a gap in the EVA was tested, and, with 99 per cent probability, we reject the null hypothesis that the difference between the EVAs of Russian companies and European companies is positive or equal to zero. Interpreting these results, we assert that Russian companies during the 2004-2013 period were demonstrating a gap in competitiveness, as reflected in the EVA, when compared to their European rivals.

In the second step of our analysis, we estimated the intangible resource endowment of Russian and European companies. Based on the indicators presented in Table I, we carried out the descriptive analysis and tested significance of intergroup values. Results of

Table II Descriptive analysis and *t*-test of the EVAs of Russian and European companies

Group	No. of observations	Mean	SE	SD
Russian companies	8,072	-0.062	0.0038	0.349
European companies	14,441	-0.029	0.0007	0.089
Combined	22,513	-0.041	0.0015	0.221
Difference		-0.033	0.0031	
	Diff = mean (RC) – mean (EC)	t	-10.7667	
	Ho: Diff = 0	Degrees of freedom	22,511	
	Ha: Diff < 0	Ha: Diff = 0	Ha: Diff > 0	
	Pr (T < t) = 0.0000	Pr (T > t) = 0.0000	Pr (T > t) = 1.0000	

Source: Self-elaboration

the *t*-test introduced in Table III demonstrate that 10 out of 12 indicators of intangible resources have significantly higher mean values for European companies (with the probability of 99 per cent). That fact justifies our guess about the existence of a gap in the endowment of intangible resources in Russian companies that are benchmarked to Europe. Meanwhile, we discovered the advantage of Russian companies participating in professional associations, as well as locating their headquarters in cities with a population of more than one million. The first phenomenon might be explained by the Soviet heritage: to wit, the existing tradition of large companies becoming members of professional associations. This tradition still has an impact on Russian firms. The second phenomenon regarding the advantages of location can be explained by reference to the scale of Russian cities as compared to European ones. Moreover, more than 40 per cent of Russian enterprises in our sample locate their headquarters in Moscow, with more than 20 per cent in Saint Petersburg. That means that a major proportion of companies are concentrated in the largest Russian megalopolises, taking advantage of the logistical, financial and marketing infrastructures of these cities.

On the third step, we have investigated gaps in the EVA and intangible resources in dynamic taking into account industry belonging. The final step has been dedicated to the analysis of the causality between gaps revealed in the intangibles' endowment and the competitiveness of Russian companies. The findings of these two steps are represented in the next section.

Causes of the competitiveness gap of Russian companies: the empirical evidence

This section demonstrates the findings of the analysis of low competitiveness of Russian companies according to the European benchmark.

Descriptive analysis of the competitiveness and intangible endowments of Russian companies. We introduce here the dynamic and structural analysis of the competitiveness of Russian companies over a recent 10-year period, accounting for sectorial differences. Figure 1 depicts the EVA dynamics for Russian companies from our sample and the gap between the EVA and the average industry level in Europe.

As can be seen from Figure 1, over a 10-year period, Russian companies could outperform European companies only in 2004 and 2007. These years are considered by experts such as Gaddy (2007), Roland (2006) as being the best, most prosperous periods of the Russian economy during its transition. In 2004, we can observe the results of the sharp appreciation of the rouble after the first financial crisis in Russia in 1998. Moreover, a number of anti-crisis measures were undertaken between 2000 and 2003: flat taxation of income and the facilitation of regulation for small- and medium-sized enterprises. Beck *et al.* (2007) highlighted that during these years, very significant shifts in the Russian economy enabled

Table III Descriptive analysis and *t*-tests of intangible resource endowment for Russian and European companies

<i>Intangible resources</i>	<i>Mean for Russian companies</i>	<i>Mean for European companies</i>	<i>Difference</i>	<i>Ha: Diff > 0 Pr (T > t)</i>
Productivity by output	0.029	0.191	−0.162	0.997
Cost of employees (normalized by size)	0.206	0.286	−0.080	1.000
ERP implementation	0.130	0.322	−0.192	1.000
Strategy implementation	0.190	0.659	−0.468	1.000
Qualification of board of directors	0.920	1.124	−0.204	1.000
Intangible assets (normalized by size)	0.007	0.171	−0.163	1.000
R&D investments (normalized by size)	0.000	0.021	−0.020	1.000
Foreign capital	0.256	0.861	−0.605	1.000
Participation in professional associations	0.434	0.365	0.069	0.000
Corporate site quality	2.105	2.689	−0.583	1.000
Site citations in the Internet	2.963	4.102	−1.139	1.000
Company location	0.469	0.432	0.037	0.000
Number of subsidiaries	12.394	72.084	−59.690	1.000

Source: Self-elaboration

Figure 1 Gap in competitiveness of Russian companies in dynamics (measured by EVA and sized by the book value of assets)



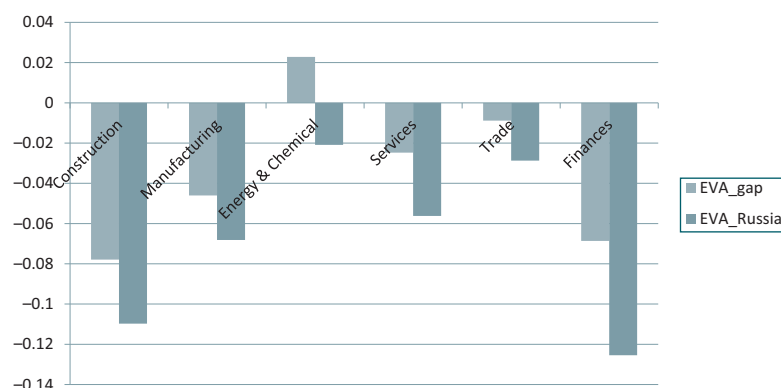
Source: Self-elaboration

import substitution, growth in productivity and the competitiveness of Russian companies. The highest rates of GDP growth – 8.5 per cent (<http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG/countries> - Retrieved 14.03.2016) – occurred in 2007. This pre-crisis year introduced the boost of the Russian economy as a result of eight years of stable abnormal growth of prices for commodities (Åslund, 2008).

Still, even during the period of prosperity, Russian companies were generally underperforming in relation to European enterprises. Despite the somewhat shrinking gap after 2009, this relative advantage has been maintained not by the improvement in the performance of Russian companies but rather by the prolonged aftermath to the crisis in Europe. As stated by Gaddy and Ickes (2010), the global crisis' effect on the Russian economy was sharp but did not last for more than two years, unlike in the European scene.

A misbalanced growth by industries did not allow for equal investment opportunities in them all. Thus, as can be seen from Figure 2, the only sector that has demonstrated competitive advantages against the European market has been that of energy and

Figure 2 Gap in competitiveness of Russian companies by industries (measured by EVA and sized by the book value of assets)



Source: Self-elaboration

chemistry. The most significant gaps in competitiveness have been observed in construction and finance. Meanwhile, manufacturing, services and trade have had moderate but significant dearth in the EVAs of Russian companies.

Looking to the causes of the EVA gaps in dynamics (Figure 3), four relevant intangibles demonstrated an expanding gap over 10 years. Russian companies were abridging the gap in years of economic prosperity, only in productivity. However, starting from 2008, this gap has been gradually expanding again. Notably, the R&D investment gap (demonstrated from 2011 until 2013) saw a very significant increase, even though a nominal growth of R&D in Russian companies had been observed. The same phenomenon was evident for the value of intangible assets and investment in human capital measured by employee costs.

Figure 4 introduces the gaps in the intangible endowment of Russian companies by industries. Generally, most of the intangible resources in Russian companies are underinvested in all industries when compared to European sectors. However, the values of gaps in intangible endowments vary by industries and the type of resources.

We can see that the highest productivity has been demonstrated by Russian companies in the energy and chemical sector. This industry, meanwhile, provided the lowest gap in productivity. This finding set for our sample is representative for the entire industry, as asserted by Kuznetsov *et al.* (2011). As was expected, the largest gap in productivity has been demonstrated by financial institutions. This disadvantage of the Russian financial sector was mentioned in studies by Anzoategui *et al.* (2010). The highest employee cost was revealed for the most productive sector in Russia – that of energy and chemical. Services are in second place, still having a significant gap in the investment in human capital benchmarked to European enterprises. The most substantial dearth in investment in human capital was discovered for manufacturing and trade. Manufacturing, moreover, shows the least amount of investment in R&D, having a very significant gap in the intangible attribute of innovativeness. Notably, the analysis of the qualifications of the top management of companies in our sample shows that the highest educational level belonged, again, to the energy and chemical sector. That is consistent with the highest investment in human capital in this industry in Russia. At the same time, the average

Figure 3 Gap in intangible endowment of Russian companies in dynamics

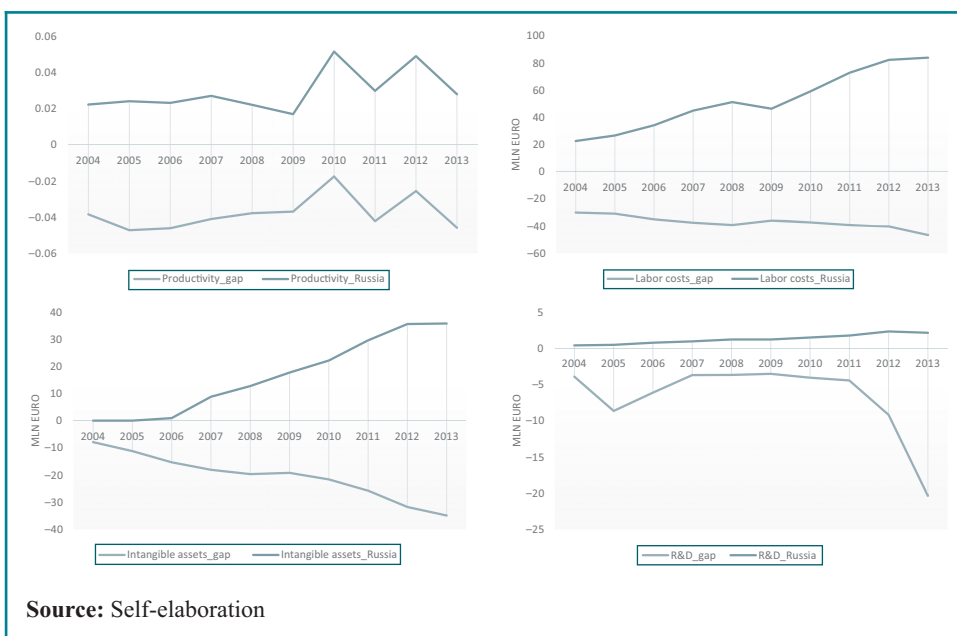
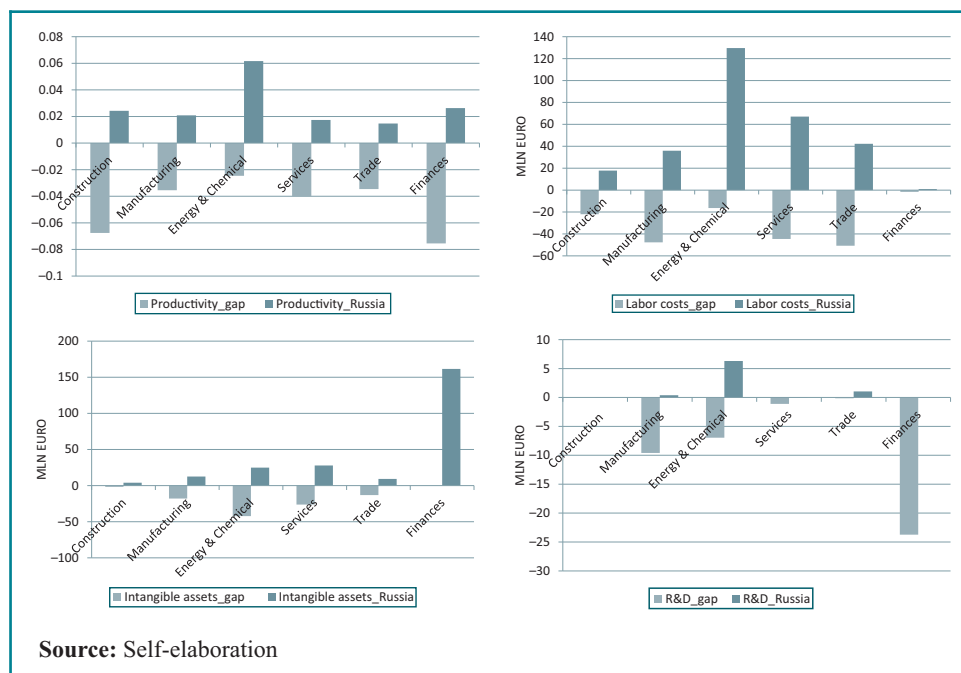


Figure 4 Gap in intangible endowment of Russian companies by industries

educational level in the energy sector in Europe is substantially higher. That has led to the large gap in the endowment of that intangible resource. The only sector where Russian companies have an advantage in the educational level of top management is, unsurprisingly, finance. Turning to the professional experience of top management in Russian enterprises, we can see a very significant gap in all sectors. That might be explained by the tendency in Russia in recent years to rotate top management, replacing old staff by newly graduated young managers. Indicators of intangible endowments responsible for internet penetration and usage tell us that Russian companies are behind their European rivals, both in site quality in all sectors as well as in citations of their official web pages. The networking resources in Russian sectors are relatively poor in virtual environments and there exists a gap in the number of subsidiaries in all industries. The most significant disadvantages are in construction, services and trade.

Looking at the whole picture, we can observe that on average, Russian companies are behind their competitors in practically all sectors, both in performance and in resource endowment. The intermediate results tell us that the correlation between gaps in intangible resources and competitiveness remains. To answer the research question stated in our study, the cause of this phenomenon still has to be investigated. For that, in the last stage of our analysis, we estimated the specification [Formula (3)], applying the panel data fixed-effect technique.

Causal effect of the gap in intangible endowment and competitiveness of Russian companies

The results of the estimation of the fixed-effect regression are introduced in Table IV.

The results demonstrate that gaps in intangible endowment explain more than 26 per cent of the variation in the explained variable – the gap in the EVAs of Russian companies. A number of significant causal relationships are set. According to our analysis, gaps in productivity, strategy implementation, qualifications of the board of directors and company location play critical roles in the global competitiveness of Russian companies. Meanwhile,

Table IV Results of the estimation of causality between the gap of EVA and gaps of intangible endowments of Russian companies (panel data fixed-effect technique)

<i>Gaps in intangible endowment</i>	<i>Variables</i>	<i>(1)</i>
Productivity by output	gap_prod	0.170*** (0.0214)
Cost of employees	gap_c_emp	0.000853 (0.000528)
ERP implementation	is_erp	-0.0142** (0.00582)
Strategy implementation	is_strategy	0.0117*** (0.00451)
Qualification of board of directors	ih_board_qf	0.0400*** (0.0137)
Intangible assets	gap_ia	-0.000787*** (0.000175)
R&D investments	gap_rd	-0.000399 (0.000533)
Foreign capital	ir_foreign_capital	0.000976 (0.00978)
Participation in professional associations	ir_assoc	0.0185 (0.0242)
Corporate site quality	ir_site_quality	-0.00341 (0.00380)
Site citations on the internet	gap_citation	-0.00495 (0.00396)
Company location	ir_loc_pop	0.0217** (0.0106)
Number of subsidiaries	ir_subs	-0.000226 (0.000232)
<i>Control variables</i>		
Import activities	rus_intern_import_	0.00789* (0.00445)
Export activities	rus_intern_export_	-0.00856* (0.00498)
Time fixed-effect	y_2005	-0.126*** (0.00543)
	y_2006	-0.00315 (0.00649)
	y_2007	0.00363 (0.00761)
	y_2008	-0.121*** (0.00853)
	y_2009	-0.0179** (0.00719)
	y_2010	-0.00926 (0.00839)
	y_2011	-0.0315*** (0.00997)
	y_2012	-0.0276** (0.0116)
	y_2013	-0.0499*** (0.0168)
	Constant	-0.0112 (0.0252)
Observations		5,654
Number of groups		747
R ²		0.266

Notes: Standard errors in parentheses; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$
Source: self-elaboration

underinvestment in structural resources, such as ERP systems and other intangible assets, are considered positive factors that reduce gaps in EVA. These phenomena might be seen as not being reasonable investments in these assets, in the current stage for Russian companies. In other words, costs associated with this investment are not paid back. Although we have not established the significant influence of foreign capital, export and import activities are considered relevant factors that are responsible for the competitiveness of Russian companies. Moreover, we have failed to determine the significant impact of innovativeness and company networks. Still, one possible explanation might be attributed to the estimator applied. Fixed effect took on all individual characteristics of companies that are not time-varying. Innovativeness and network orientation can be seen as such individual traits. Thus, these factors of intangible endowment have to be studied more precisely. At the moment, we offer no interpretation of these results. The analysis of the time-fixed effect has checked the robustness of the dynamic changes of the EVA gap. As can be seen from the results of the estimation, the gap in EVA has been expanding after the crisis period when compared to the initial period (from 2004).

Conclusions

The analysis of the gap in competitiveness of Russian companies enabled us to answer the question of whether the endowments of intangibles are responsible for the underperformance of Russian companies as compared to their European rivals. Here, we highlight the most important findings established by our investigation.

First, we have found a significant difference in the means of competitiveness between European and Russian enterprises. Moreover, we have found a robust negative trend in the global competitiveness of Russian companies, despite a number of positive conjunctural shifts in favor of Russian local production – appreciation of the rouble, together with measures of protective governmental policy. We can assert that there is a gap in the competitiveness between Russian and European companies and that this gap is more significant in the manufacturing, construction, services and financial sectors.

Second, we have discovered gaps in the endowment of intangible resources, with the emphasis on those that are raised in the relevant literature and considered the most pivotal. The statistical analysis based on the large samples of listed Russian and European companies demonstrated substantial gaps in the major proportion of intangibles in Russia. Notably, productivity, investment in human capital and investment in R&D shows an expanding gap because growth in these investments from 2004 until 2013 was not sufficient to shrink the gap with European rivals.

Third, there is a significant positive influence of the gap in three out of six investigated factors on the competitiveness of Russian companies. Unsurprisingly, the frequently discussed problem of low productivity is, according to our findings, one of the three most relevant negative factors of the competitiveness gap for Russian enterprises. Besides productivity, qualification of top management and long-term strategic orientation can bridge the competitiveness gap of Russian companies.

The findings of this study demand a more precise robustness check, including an in-depth investigation of the individual traits of companies, like those associated with their competitiveness and networking opportunities. The econometric strategy chosen for our study has not allowed us to carry out this analysis. Moreover, there is room to explore in depth the moderation effects of sectors and the economic cycle of the gap of competitiveness driven by the low endowment of intangibles. These research questions are left for further stages of our study.

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