

DOI: 10.26794/2587-5671-2023-27-1-174-184

UDC 336.717.111.7(045)

JEL C12, F14, G22, O52

Role of Export Credit Insurance and the Development of Russian Export Trade

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ABSTRACT

Since the Russian Agency for Export Credit and Investment Insurance (EXIAR) was established in 2011, only a few scientists have bothered to substantiate of the Agency's economic policy. **The aim** of the paper is to investigate the role of EXIAR economic policy in promoting the growth of Russia's export trade. The current study conducts **methods** such as statistical, comparative and empirical analysis of panel data on the basis of econometric models. **The results** of the research suggest that export credit insurance can be useful for the development of Russian export trade, especially for exports to high-risk developing countries and to high-value-added Russian exporting enterprises, such as machinery, electrical and chemical-pharmaceutical industries. The authors **suggest** that Russia should raise the status of export credit insurance, increase the penetration rate of high-tech goods into key countries-importers, improve the foreign trade opportunities of exporting enterprises.

Keywords: export credit insurance; Russian export trade; foreign trade development; policy effects; EXIAR

For citation: Xie W., Kuznetsova N.P., Toan N.K. Export credit insurance and the development of Russian export trade. *Finance: Theory and Practice*. 2023;27(1):174-184. DOI: 10.26794/2587-5671-2023-27-1-174-184

INTRODUCTION

The relevance of the EXIAR study is predetermined by its economic and institutional role in the Russian export trade development and national sustainable economic growth provision. In export credit, exporting companies providing commercial credit as well as financial institutions providing financial credit face as a rule property and non-payment risks [1]. Trade credit insurance can include a component of political risk insurance which is offered by the same insurers to insure the risk of non-payment by foreign buyers due to currency issues, political unrest, expropriation etc. (See Fig. 1) [2].

Export credit insurance is an important credit management tool to control risk, to provide clients' payment discipline improving one's payment behaviour, obtain important information about buyers and monitor risks, thereby managing the risk of importers being unable to pay their accounts receivable for export transactions due to commercial factors such as delinquency and bankruptcy of importers and political factors

such as trade barriers, local either regional wars [3]. Global Export Credit Insurance has played an important role in supporting exporters, facilitating cross-border trade by introducing a range of new tools to provide flexible liquidity support to affected exporters and importers as a reliable response to the political and economic shocks caused by different global threats including the new coronavirus pandemic [4].

According to the Berne Union¹ (the international union of credit and investment insurers), nowadays 12–15% of the global trade volume is achieved with the annual support of export credit insurance. Export credit insurance agencies in some countries provide export credit insurance cover that exceeds 25% of their total exports. EXIAR was established in 2011. The Agency is a dedicated government export support institution for the implementation of export credit and investments export protection

¹ The International Union of Credit and Investment Insurers (Berne Union) is a not-profit association, representing the global export credit and investment insurance industry since 1934.

instruments. EXIAR serves as the national export credit agency (ECA). Since its establishment, the government has developed and implemented a range of systemic initiatives to promote export activities both at the national economic level and within specific business lines and sectors (innovations, aircraft construction, agricultural products, SME's export, etc.).

LITERATURE REVIEW

The relationship between export credit insurance and foreign export is demonstrated by Hideki Funatsu (1986) who used a theoretical model of microeconomics and argued that governmental export credit insurance promotes export by exporters' protection against importers' political and commercial risks meaning the effective instrument for boosting export volume growth [5]. Abraham and Dewit (2000) also conclude that export credit insurance provides export by conducting a regression analysis of data on export credit insurance schemes and export in Belgium, and thus argue that the World Trade Organization (WTO) and the European Union (EU) are right not to make a ban on export credit insurance [6]. Moser, Nestmann and Wedow (2008) also consider the impact of political risk on export trade, suggesting that public export insurance policies reduce the higher hidden costs of political risk, and using German export credit insurance data, demonstrate that export insurance policies have a positive effect on international trade [7]. Baltensperger and Herger (2009) have found through empirical tests that official export credit insurance agencies had a strong facilitating effect on exports to countries with higher political and commercial risk in 30 OECD (The Organisation for Economic Co-operation and Development) countries over the period 1999–2005 [8]. Pradhan, Zohair and Alagawadi (2013) using an empirical test of export trade data for the Indian state of Karnataka has found that policy instruments such as export credit insurance have contributed significantly to Karnataka's export growth [9]. Some Chinese scholars — He Shenyan et al. [10], Huang Lijiang

et al. [11], Zhang Tianxiang et al. [12] — have focused their attention on the overall pulling effect of China's export credit insurance for foreign trade and have demonstrated the causal relationship between these two parameters. Other Chinese scholars such as Wei Qiaoqin [13], Wu Xiangyou [14] and Wang Guojun [15] have verified that China's export credit insurance has a strong "counter-cyclical" effect on China's foreign trade development, and have proved that there are certain industry differences in the value of export credit insurance in the Chinese market. Chinese scholars such as Yu Jinping [16], Liu Weilin [17] and Su Li [18] have shown that export credit insurance has a significant impact on the transformation of foreign trade and national industrial upgrading as well as on the development of Chinese SMEs. Wang Youxin [19] observed that the change in the structure of trade export led to domestic employment rise, while the change in the structure of processing trade exports reduced domestic employment. In general, since China's accession to WTO, export credit insurance has been of great significance to Chinese enterprises in terms of productivity improvement, industrial transformation and upgrading. These studies have also laid an important foundation for Chinese researchers and practitioners-exporters to gain a comprehensive understanding of export credit insurance and its role in the economic development.

Export credit insurance not only facilitates the development of export trade by avoiding political risks and reducing the cost of exporting, but also fits the strategic development of different countries according to their national conditions. Regarding the influence of export credit insurance on export to specific markets, Rienstra-Munnicha and Turvey (2002) use Canadian export credit insurance to bilateral trade data between Canada and its less developed trade partners-importers to apply an econometric model finding that export credit insurance does increase the volume of export. These empirical results argue that a government can increase exports to underdeveloped countries through subsidies to exporters [20].

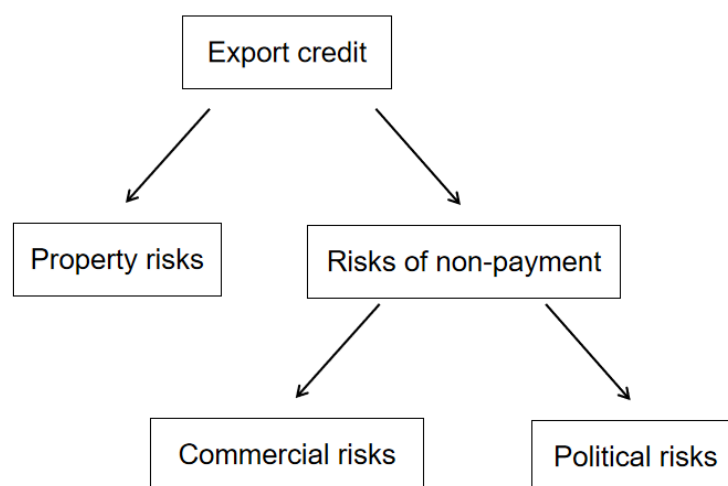


Fig. 1. Structure of Risks in Export Credit

Source: Karyakin M.Y. [1].

The situation in Russia concerning the theory and practice of export credit insurance application is different. In fact, the earliest research on Russian policies to help exports dates back to the Soviet Union in 1920, and BLACKBALSEA² (f. in 1925) could serve a prototype of such support. Arkhipov's A.P. study detailed the USSR's 20–30-s XX century incessant exploration and research of policies to support export development [21]. The Soviet scholar Rykov A.B. (1984) considered export credit insurance as a means of the capitalist countries to monopolize export trade of third world countries, breaking the fair international competition, but at the same time recognized the role of export credit insurance in stimulating national export trade [22]. The Russian scholar Ulitina E.M. (2007) suggests that Russia should learn from the Swedish experience and set up its own export credit insurance institution to stimulate the country's export trade [23]. A.A. Gavrilov (2011) argues that Russia should increase its financial support for export trade and diversify its export products [24].

The structure of foreign trade is a comprehensive reflection of the country's level of economic and technological development, the situation of industrial structure, the international competitiveness of goods and other factors in the

international division of labor and international trade [25]. Although energy export has helped Russia to become an important part of world trade and have an increasing impact on the development of the world economy as a whole, the long-term depends on energy export reflects Russia's homogeneous industrial structure and the instability of its economic development. In the wake of the global financial crisis in 2008, Russia ended nine consecutive years of economic growth, and GDP was down by 25% in one year. At the same time an analysis of I. Asmundson, T. Dorsey, A. Khachatryan (2011) found out that the effect of export credit insurance was strengthened during the financial crisis of 2008 – mid-2009, premium income of global export credit insurers increased by 30–50% and the share of export credit insurance in global trade was up by 1–2 percentage points [26]. Wang Guojun and Wang Debao (2014) use Chinese export credit insurance data from 2002 to 2013 to demonstrate that export credit insurance helped to increase exports, promoted market diversification, increased support for key sectors and enterprises showing certain “counter-cyclical” effects in response to the 2008 international financial crisis [27]. Unfortunately, in 2008 Russia did not have export credit insurance agency of its own but the chain of economic and political shocks stimulated its creation. In 2014 another economic crisis in Russia happened, accompanied and resulted by the US sanctions,

² Black Sea and Baltic General Insurance Company Limited — an insurance company set up by the Soviets in Great Britain in 1924 to secure the USSR's foreign trade with Western Europe, discontinued in 2003.

that caused the devaluation of rouble and a precipitous fall in the Russian economy, which affected negatively the country's foreign trade hampering it for more than two years, in spite of the fact that EXIAR was already organized in 2011 and functionally. The main strategic priority of EXIAR's activities is defined as qualitative innovations growth and nowadays focuses on supporting industries that provide the largest stable volume of Russian non-commodity non-energy exports such as metallurgy, mechanical engineering, and the pharma-chemical industry, support for which in 2019 accounted for 85% of the supported export volume. In 2020, for the first time in two decades, export of energy resources (oil, gas, coal) accounted for less than half of the total Russian export (49.6%).³

The export sector of a country's foreign trade has a positive effect on the structural optimization of the domestic industrial sector, that via upgrading the export sector will have a significant impact on the national economic development [28]. Felbermayr and Yalcin (2011) conducted an empirical study using data on German exports 2000–2009 and found out that the export promotion effect of German export credit insurance agencies was more significant and particularly effective in certain industries and exporting countries through static and dynamic panel models [29].

Summing up we should point out that the specific role played by export credit insurance was not explored thoroughly by the named foreign and Russian researchers in the context of analyzing the role and impact of EXIAR as a new institution on economic development of Russia presuming the most important variables of foreign trade dynamics investigation. To determine these parameters, the authors, concentrate their attention on the value of Russian exports, importing countries and exporting industries within the specific time horizon (t), a specific exporting country/spacial dimension (i), a specific industry (s).

DATA AND DESCRIPTIVE STATISTICS

Selection of Variables

This paper selects data on Russia's exports to 188 countries for the period 2016–2020 for 1,197 export commodity categories, and divides these 188 countries into seven groups of countries according to the strategic importance of Russia's export trade development: CIS, Western Europe, Eastern Europe, Asia, South America, Africa, and others. By the way, for reasons of missing data, it was not possible to separate out China for analysis, but since China has been Russia's largest trading partner for 11 consecutive years and is a large country in terms of population and GDP, the results of the analysis of the Asian group will also be of great relevance to the development of trade between China and Russia. In the industry data, as the data from the Russian Customs Service "Table on the distribution of Russia's most important exports by country" used by HS 4 marks, based on a strategic study of Russian commodity exports and the EXIAR grouping concept, these 1,197 commodity categories were summed into Machinery and electrical products, Chemical products, Metal products, Service Industry, Foodstuff, Timber and paper products, Fuel and Mineral, Other Sectors.

In addition, the penetration rate of export credit insurance is an indication of the share of export credit insurance to the value of exports, it can also be the penetration rate to a particular country or to a sector (value of exports/value of the cover), this parameter appeared to be a very important index.

Figure 2 depicts a graph of the trend in the total export trade of Export Credit Russia from 2013–2020 (solid line, left axis) and the penetration rate of Export Credit Russia (dashed line, right axis). Russia's export plummeted in 2014 due to the economic crisis and the US sanctions. In 2016, the country's export growth increased considerably, the penetration rate having increased. Russian export fell again in 2020 due to the global pandemic, but by this time the increased penetration rate had already played a role in the sudden trade risk, so this time there was only a small drop and not a big impact, and if the penetration rate was above 10% at this stage, the possibility of reverse growth could

³ RosBusinessConsulting. How Russia's trade with other countries has changed over the year. URL: <https://www.rbc.ru/economics/15/02/2021/6028f9c79a794754fdb4362e> (accessed on 20.12.2021).

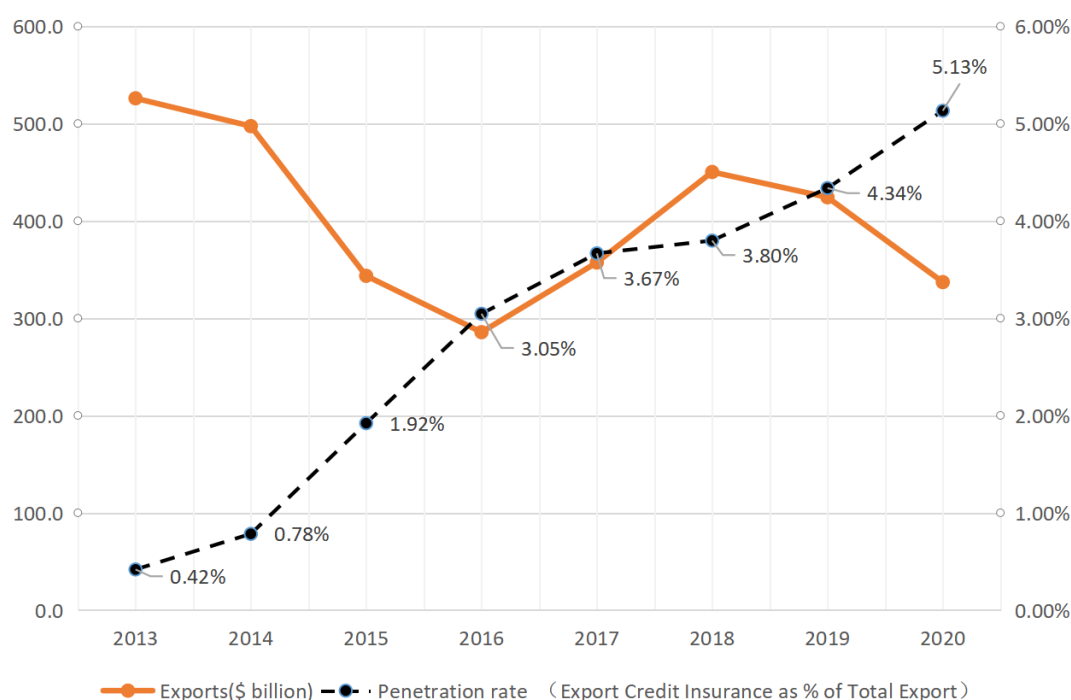


Fig. 2. Growth in Export Credit Insurance Penetration in Russia

Source: Compiled by the authors.

Table 1

Intervals for All Categories

Risk index	A	B	C	D	E
Start of interval	1	41.4	81.8	122.2	162.6
End of interval	41.1	81.8	122.2	162.6	203

Source: Compiled by risk map methodology of EXIAR.

not be ruled out, as it was for China in the 2008 economic crisis. This process shows the importance of this data. The penetration of export credit insurance determines the role of export credit insurance for export trade. Export credit insurance agencies in developed countries typically have a penetration rate of 25%, and China's has reached 31% in recent years, but Russia's penetration rate is currently only 7%.

There are many other factors that influence the development of export. That's why we will also include in this test three important control variables: GDP, population and country risk index. Country Risk Index is based on an internal scoring model consisting of six blocks of statistical indicators grouped thematically — Macroeconomics (30%), Trade (20%), Balance of

Payments (15%), Public Finance (5%), External Debt (5%) and Political Risk (25%). Finally, a total score is obtained by adding up the six scores, which are divided into five grades A-E. The intervals for all categories are shown in the Table 1.

According to the named EXIAR methodology we have divided the 188 countries into 7 country groups, we will add up the scores of all the countries in the group to derive an average score after dividing by the mean, and then derive an average country risk index, expressing A-E as values 1–5, with higher values indicating higher risk, resulting in the following Fig. 3.

Source of Data

Export data from the Russian Customs Service, export credit insurance data from EXIAR's

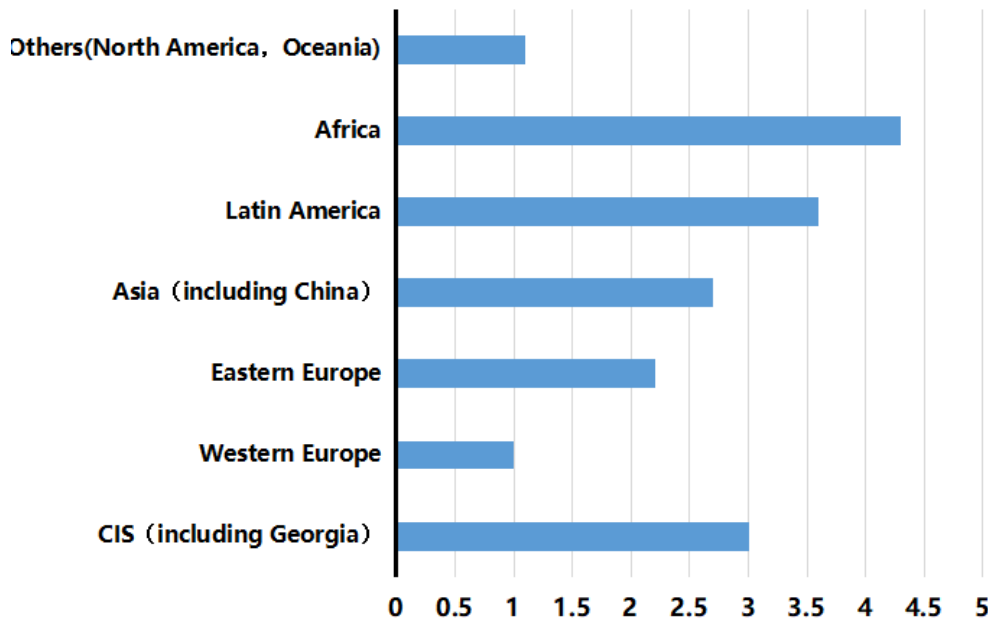


Fig. 3. Risk Scores for Country Groups

Source: Compiled by the authors.

Table 2

Descriptive Statistics

Description	Variable	Obs	Mean	Std. Dev.	Min	Max
Export value _{<i>i,t</i>}	<i>y</i>	35	52.93543	43.3026	3.6	144.74
EXIAR _{<i>i,t</i>}	<i>x1</i>	35	1.793314	1.008083	0.174	3.591
RISK _{<i>i,t</i>}	<i>x2</i>	35	2.557143	1.151543	1	4.3
GDP _{<i>i,t</i>}	<i>z1</i>	35	1535.6	149.6492	1277	1687
Population _{<i>i,t</i>}	<i>z2</i>	35	144.366	0.1465499	144.1	144.5

Source: Compiled by the authors.

annual report (2016–2020), population and GDP data for each country from World bank, country risk data from EXIAR's website, services, export data from the Eurasian economic commission. A special explanation of the industry's insurance coverage data is provided, so far as EXIAR's annual reports have only specific percentage values for 2016 and 2017, and reports after 2018 are presented in bar charts with no data. Hence, these figures can only be calculated by prognosis, within a 5% error.

TEST RESULTS

Test results are studied via four consequent steps: 1) model setting and descriptive statistics

of variables; 2) descriptive statistics; 3) linear regression analysis; 4) finalizing econometric application of linear regression analysis to 8 industries.

Step I. Model setting and descriptive statistics of variables

This study is more concerned with the risk of a buyer country and the change in exports of an industry, while the specificity of a particular enterprise is not the focus of this paper, so the data are combined into the form of year, industry and buyer country and an empirical model is constructed. (*i*) denotes the country of export (i.e. export destination) and (*t*) denotes the year. Firstly, the paper takes the export value (*Y*) of exports

Table 3

Tests of Correlation

Variate	y	x1	x2	z1	z2
y	1				
x1	0.3529** (0.0376)	1			
x2	-0.4908*** (0.0028)	0.0958 (0.5842)	1		
z1	0.1854 (0.2863)	0.4154** (0.0131)	-0.0000 (1.0000)	1	
z2	0.0966 (0.5810)	0.0281 (0.8727)	0.0000 (1.0000)	0.4352*** (0.0090)	1

Source: Compiled by the authors.

Table 4

Regression Analysis

y	Coef.	Std. Err.	t	P > t	[95% Conf. Interval]
x1	17.73103	6.779493	2.62	0.014	3.8854 31.57661
x2	-19.94131	5.303803	-3.76	0.001	-30.773 -9.109495
z1	-0.008235	0.050472	-0.16	0.871	-0.1113 0.0948423
z2	28.77404	46.85463	0.61	0.544	-66.915 124.464
cons	-4069.216	6730.422	-0.6	0.55	-17814 9676.14

Source: Compiled by the authors.

from Russia to each country (i) for the period 2016–2020 (t) as the dependent variable, the EXIAR underwriting ($X1$) and country risk index ($X2$) as the independent variables, the country GDP ($Z1$) and population ($Z2$) as the control variables, and gives the following estimate equation:

$$Y_{i,t} = \beta_0 + \beta_1 \times X_{1i,t} + \beta_2 \times X_{2i,t} + \beta_3 \times \text{Control}_{i,t} + \mu_{i,t}$$

Step II. Descriptive statistics

This paper uses stata16.0⁴ software to collate data on selected Russian exports and EXIAR export credit insurance related variables for 2016–2020, the results of which are shown in Table 2.

According to the descriptive statistics, the minimum and maximum values of Y and $X1$ have a relatively large difference, indicating that there

is a relatively large difference in the amount of exports and EXIAR coverage for different countries at different periods of time, and the main reason for such situation may be caused by $X2$, which has a minimum value of 0.174 and a maximum value of 3.591, indicating a large difference in the risk ratings of different countries, while $Z1$ and $Z2$ — the mean and maximum values are not very different, which may happen due to the relatively short period in which the data was selected (only 5 years), the country's population has not changed significantly and there has been some growth in GDP.

When $P\text{-value} < 0.01$, then the test is significant at the 1% level and the marker *** (strongly correlated). When $0.01 < P\text{-value} < 0.05$, the test is significant at the 5% level and is marked ** (more relevant). When $0.05 < P\text{-value} < 0.1$, the test is significant at the 10% level and is labelled * (weakly correlated). According to the test of correlation, there is a strong correlation between Y and $X1$,

⁴ Stata 16 is a big release, which our releases usually are. This one is broader than usual. It ranges from lasso to Python and from multiple datasets in memory to multiple chains in Bayesian analysis.

Table 5

Linear Regression Summary by Sector

Variables	Sectors	$P > t $
$Y_{s,t} 1$	Machinery and electrical products	0.0150**
$Y_{s,t} 2$	Chemical products	0.0173**
$Y_{s,t} 3$	Metal products	0.245
$Y_{s,t} 4$	Service Industry	0.106
$Y_{s,t} 5$	Foodstuff	0.059*
$Y_{s,t} 6$	Timber and paper products	0.268
$Y_{s,t} 7$	Fuel and Mineral	0.288
$Y_{s,t} 8$	Other Sectors	0.854

Source: Compiled by the authors.

indicating that there is a strong correlation between the underwriting and the amount of exports, and a strong correlation between Y and $X2$, indicating that foreign trade exports are strongly influenced by the risk of the countries to which they are exported, and this is also consistent with the actual situation (Table 3). The strong correlation indicates an interaction between population and GDP, and these are also logical. While Y and $Z1$ and $Z2$ are not direct enough to be correlated, probably still due to the relatively short years of data selection, the country's population and GDP have not changed much. As already mentioned, the limited data available in EXIAR may not be conducive to our analysis, but since we have refined the data to include data on country risk, as well as the variables of population and GDP, we have been able to prove the correlation between export credit insurance coverage and the value of Russian exports through a correlation test analysis, so that we can proceed to the next Step III (Table 4).

Step III. Linear regression analysis

From the regression analysis we conclude that there is a positive correlation between Y and $X1$, with a p-value of 0.014, which is almost close to a strong correlation, indicating that the development of export credit insurance has a certain contribution to the development of export trade in Russia, and there are two possible reasons for not reaching a strong correlation (p-value < 0.1): firstly, the development of EXIAR is not fast enough and the penetration rate is not high

enough, with the penetration rate by 2020 only 5.13%, failing to achieve a strong boost to export trade; secondly, the positive correlation boost may be affected by the decline in export value due to the new crown pandemic in 2020. And there is a strong negative correlation between the export value and the risk index of the export destination country, with a p-value of 0.001, which indicates that the higher the risk of the export destination country, the lower the export value, which makes it more necessary for the support of export credit insurance to help enterprises share the export risk and increase the underwriting amount in developing countries with higher risk in order to be more conducive to the development of Russia's export trade.

The same method was then used to test the amount of coverage for each sector, with the sector represented by (s), to obtain the formula:

$$Y_{s,t} = \beta_0 + \beta_1 \times X1_{s,t} + \beta_2 \times \text{Control}_{i,t} + \mu_{i,t}$$

Step IV. Finalizing econometric application of linear regression analysis to 8 industries

This step could be considered as the final stage of our analysis. A linear regression analysis was done for each of the eight industries according to this formula and the final statistics are shown in Table 5.

From the results of the analysis, it is clear that the export credit insurance has a more obvious role in promoting the machinery, electrical

and chemical products sectors, which should be explained by the fact that these two sectors are characterized by high risks and high value added. They are two of the most important export sectors for the country to develop. In addition, we find a certain boost to the food industry, probably due to the changing world trade situation giving Russia the opportunity to export more food products. For example, China, the world's largest consumer of food, has gradually opened up its imports of soy, dairy and meat products from Russia because of the trade war with the Americas, which has led to a reduction in import quotas from Canada, Australia and New Zealand. In 2020, China imported 1.8 tonnes of meat and beef from Russia, up 169% year-to-year, and 47% of imported alcoholic products, up 47% year-to-year.

In this experiment, using panel data on total Russian exports and EXIAR coverage for 2016–2019, as well as population and GDP indicators, plus a risk index for the country of destination of exports, we demonstrate using correlation tests and linear regression analysis that EXIAR, the Export Credit Insurance Agency, has a positive impact on the growth of Russian exports and finds a strong correlation between country risk and export value added. This is all logical. The data was then segmented into 8 sectors, and it was found that EXIAR had a significant effect on the machinery, electrical and chemical products sector, and that there was a strong potential for growth in the food export sector.

CONCLUSIONS AND RECOMMENDATIONS

This paper constructs an econometric model to investigate the contribution of export credit insurance to the development of export trade in Russia in a number of dimensions.

The main results of the empirical analysis are as follows:

1. Export credit insurance has a certain promotion effect on the development of Russian export trade;

2. The promotion effect of export credit insurance is more pronounced for exports to developing countries with high risks (Africa, Latin America, CIS countries, Asia), for high risks and high value added sectors such as: machinery, electrical and chemical products;

3. Export credit insurance has had a relatively significant contributing role in driving trade growth, promoting trade market diversification and helping the development of related trade sectors, particularly in terms of export trade volume and credit insurance coverage growth trends in 2016–2019.

Based on the above findings, this paper makes the following recommendations:

First, further clarification, the policy status of export credit insurance, introduction an export credit insurance law as soon as possible, gradual improvement the export credit insurance system, and pointing out the important role of export credit insurance in Russian export trade.

Second, further increase the penetration rate of export credit insurance, especially in key countries with more complementary trade and industries where the country needs to develop production urgently, support national strategic development and actively explore more possibilities in the international market.

Third, further use of export credit insurance to promote the diversification of export markets, optimizes the structure of export products, accelerates the transformation of export industries and promotes the diversification of production enterprises that enables Russia to occupy a more important position in international trade, improve the country's overall competitiveness and import-substitution ability to withstand the economic and sanctions challenges.

ACKNOWLEDGEMENTS

This paper was supported by the RFBR [grant No. 21–510–92001]. The study was realized with the support of the China Scholarship Council (Grant No. 202109010065). St. Petersburg State University, St. Petersburg, Russia.

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W. Xie — statement of the problem, development of the concept of the article, critical analysis of literature.

N.P. Kuznetsova — description of the results and the formation of conclusions of the research.

N.K. Toan — econometric modeling, collection of statistical data, formation of tables and figures.

Conflicts of Interest Statement: The authors have no conflicts of interest to declare.

The article was submitted on 03.03.2022; revised on 17.03.2022 and accepted for publication on 27.09.2022. The authors read and approved the final version of the manuscript.