

ISSN 1883-1656



Центр Российских Исследований
RRC Working Paper Series No. 91

Does the Currency Crisis Veil the Impact of Economic Sanctions under an Authoritarian Regime? An Inquiry into Russia

Yoshisada SHIDA

June 2021

**RUSSIAN RESEARCH CENTER
THE INSTITUTE OF ECONOMIC RESEARCH
HITOTSUBASHI UNIVERSITY
Kunitachi, Tokyo, JAPAN**

Does the Currency Crisis Veil the Impact of Economic Sanctions under an Authoritarian Regime?

An Inquiry into Russia†

Yoshisada SHIDA‡

Abstract

This paper examines the concurrent shocks of the sanctions and the currency crisis on the Russian economy. It focuses on the commonalities and differences in the impact transmission channels and their interrelationship. The analyses using enterprise interview surveys revealed that the sanctions produced sufficient perceivable business damage that spread through restricted financing. Their negative impact was catalyzed by the currency crisis. These findings show that the impact of the sanctions cannot be hidden from corporate managers even at the height of the harsh currency crisis, possibly undermining the citizens' support for the authoritarian regime.

JEL Classifications: M2 F51 P20 R11

Keywords: economic sanctions, financial sanctions, Russia, currency crisis, authoritarian regime, extended ordered probit models

† This study was financially supported by the Japan Society for the Promotion of Science (Grant No. 19KK0036) and the Slavic-Eurasian Research Center's joint usage and research program.

‡ Economic Research Institute of Northeast Asia. 13th Floor, Bandaijima Building, Bandaijima 5-1, Chuo-ku, Niigata City, 950-0078, Japan. E-mail: shida.yoshisada.2 [at] erina.or.jp.

Does the Currency Crisis Veil the Impact of Economic Sanctions under an Authoritarian Regime?

An Inquiry into Russia

Yoshisada SHIDA

1. Introduction

Unilateral and multilateral economic sanctions are both traditional and recent instruments of foreign policy. As senders, the US and the European Union are increasingly relying on them to pursue their diplomatic goals while also triggering reciprocal actions from the target (Felbermayr et al., 2020). As sanctions object to target countries' policies and either force them to change or contain such policies, it is no coincidence that conflicts occur among countries that do not share common values or interests. Hence, frequent targets of sanctions are non-democratic and authoritarian regimes.

Following Hufbauer et al. (2007), research has discussed the success or failure of the political goals of coercive measures, but has not been limited to it. As sanctions have unintended consequences, studies have covered various aspects. Sanctions accompanied by perceived economic damage in target countries may provoke unrest among the population, possibly undermining the political stability of and support bases for the incumbent leadership. Impacts on the economy, public opinion, and political authority, in terms of their extents, ranges, and the channels through which they spread to the target countries have also been major points of focus in the research (Peksen, 2019; Hufbauer and Jung, 2020; Felbermayr et al., 2021, etc.).

The intensified use of sanctions against authoritarian regimes in contemporary times has added value to the scholarship because the impacts of sanctions can be weakened in such contexts. Such regimes are more likely to seem tough in response to the interventions externally, and pursue strong attitudes domestically. Authoritarian governments can mobilize what they own more fully in order to mitigate the impacts than democratic countries. They may also avert public criticism from their poor economic management by scapegoating sanctions. Sanctions may also provoke backfire-effects like nationalistic "rallying around the flag" behavior and blame-shifting, and veil the

responsibility of the outcomes as well. All of these can contribute toward the weakened political impact of sanctions (Lektzian and Souva, 2007; Allen, 2008; Escriba-Folch and Wright, 2010; Grossman et al., 2018; Frye, 2019; Alexeev and Hale, 2020).

These arguments are particularly relevant to the Russian case. In response to the Crimean crisis in 2014 and subsequent events, Western countries have been imposing economic sanctions, followed by Russia's countermeasures. Since then, Russia has continued to fuel the erosion of its foreign relations, and this has led to escalated sanctions. Russia initially demonstrated its resilience economically and politically. Although moderate and with a temporal interruption, the economy kept growing and Putin's approval ratings increased sharply right after the imposition of the sanctions.¹

A significant oil price reduction, a sharp currency depreciation, and the structural problems of resource dependency, coupled with the remaining after-effects of the global financial crisis, simultaneously affected the economy negatively (e.g., Connolly, 2016; Gurvich and Prilepskiy, 2018; Dabrowski, 2019). The overlaps and interactions among these factors constitute the basic features of the recent economic slowdown and their respective policy measures sometimes conflicted with each other (Mau, 2016; Korotin et al., 2019). Thus, it is difficult to assess the direct impact of the sanctions separately. This complexity is an unfortunate issue for the government to tackle. Meanwhile, it may in fact be fortunate because other factors may mask the sanctions. Milov (2017) criticized the view that blames oil prices and currency shocks as propaganda to make the economy appear resilient and sanctions appear less effective. This may favor sender countries because they may attribute a recession to sanctions even if it is not attributable (Ashford, 2016).

Russia is an unprecedented target of sanctions as an authoritarian country and global superpower. It offers a unique opportunity to examine the effectiveness of international sanctions. Along with repeated escalation, the economic costs of sanctions transcend the targeted countries and sectors (Korhonen et al., 2018; Åslund and Snegovaya, 2021). The IMF (2019) estimated the gap between actual and pre-sanction predicted Russia's growth rates at 0.2% points on average for 2014–2018. Putin himself

¹ According to the Levada Center's survey, Putin's approval ratings jumped from 61% in November 2013 to 88% in October 2014. <https://www.levada.ru/en/ratings/> (accessed on May 11, 2021).

reluctantly admitted to the crippling nature of the sanctions, and he now strives to mitigate them in the face of increasing country-wide social unrest (Vatansever, 2020; Åslund and Snegovaya, 2021).

The sanctions against Russia attracted the attention of several researchers. Macroeconometric studies that used time-series data concluded that sanctions had marginal or no impacts (Dreger et al., 2016; Tuzova and Qayum, 2016; Prilepskiy, 2019). Some compared sanctions and oil price shocks (Dreger et al., 2016; Kholodilin and Netsunajev, 2019; Pestova and Mamonov, 2019), but did not investigate how their possible interrelationship affected the economy. Studies have employed a variety of data and approaches such as high-frequency data on stock market indices, exchange rates, and event news (Ankudinov et al., 2017; Hoffmann and Neuenkirch, 2017; Stone, 2017; Naidenova and Novikova, 2018; Korotin et al., 2019; Aganin, 2020); long-term scenario analysis (Benzell and Lagarda, 2017); advanced approaches including nighttime light data (Brock, 2019) and textual analysis of firms' reports (Davydov et al., 2021); and the impact on neighboring countries (Bayramov et al., 2020), among others.

Research using microdata is rather limited. Golikova and Kuznetsov (2017) found that half the companies surveyed encountered sanctions-related risks. Crozet and Hinz (2020) and Crozet et al. (2021) confirmed that sanctions and counter-sanctions harmed trade with Russia. Ahn and Ludema (2020) demonstrated that the sanctions led to a reduction in the revenue and asset values of targeted companies. These issues highlight the negative impact of sanctions, but pay little attention to other factors and the interrelationship with sanctions. From a political perspective, Frye (2019), Alexeev and Hale (2020), and Peeva (2020) examined the impact of sanctions on citizens' political behavior, but not on the economy itself. Sanctions, without actual or perceived economic damage, may not affect political behavior. We are more concerned about how much sanctions can affect the economy really and whether their impacts are different from other shocks. In this sense, we fill the gap left behind by earlier research by focusing on macro and micro perspectives on the one hand and economics and politics on the other hand.

We aim to assess the impact of sanctions comparatively with other concurrent shocks, disentangle the differences and commonalities among the impact transmission channels, and explore their interrelated impacts on the economy. The last aspect pertains to whether an authoritarian leader's blame-shifting would work. We examine whether

other shocks can mitigate or intensify the impact of sanctions or vice versa. These three aspects remain to be thoroughly examined both at the macro and micro levels. The study used data of a firm interview survey that was conducted in late 2015. The survey asked 742 executive managers of Russian joint-stock and limited liability companies with over 50 employees each to assess the impact of events that occurred almost simultaneously, namely sanctions against Russia, Russia's countermeasures, the Chinese stock market turbulence, and the sharp depreciation of the ruble, which was closely related to the oil price movement. We investigated the factors that determined the impact assessment of each shock using an ordered probit estimator and an extended ordered probit model with an ordinal endogenous covariate. This paper contributes to the literature on whether firm managers under an authoritarian regime perceive the impact of sanctions against the government's allegations, while emphasizing on whether they can differentiate the concurrent impacts and how their perceptions of the impact are intertwined with each other.

The main findings are as follows. First, we found that the economic sanctions produced sufficient perceivable business damage. Second, the shock of the sanctions spread through restricted financial channels. Third, the negative assessment of the sanctions increased in association with those of the currency crisis. Overall, we found differences, commonalities, and interrelationships among the impacts of the sanctions and the currency crisis. The sanctions had their own transmission channels that the currency crisis did not have, and their impacts spread to almost the entire economy. At the same time, both shocks reinforced each other. An increased negative view of the currency crisis did not reduce the probability of the negative assessment of the sanctions. These findings show that the impact of the sanctions could not be hidden from corporate managers even at the height of the harsh currency collapse, probably undermining the citizens' support for the authoritarian regime, and that is why Russia is in a difficult situation and moving farther and farther along the path of economic slowdown.

The rest of this paper is organized as follows. The next section reviews the previous literature and addresses issues we tackle in this study. Section 3 assesses the impact of sanctions and compares it with other shocks using the survey data. Section 4 describes the data and the estimation strategy and interprets the results. Finally, we summarize the study and present its policy implications.

2. Literature review

For over a decade, Russia has been in a crisis that can be deemed a new “normal” (Dabrowski, 2019). The global financial crisis in 2007 followed by the European debt crisis hit the Russian economy very hard and disrupted its high-growth economic model (Mau, 2016). After a short period of recovery, in 2014, external shocks concurrently struck the economy. A significant decline in oil prices and the imposition of sanctions hurt the economy seriously and led to a currency crisis.

Besides various estimates of the impact of sanctions (Gurvich and Prilepskiy, 2018; Prilepskiy, 2019), we retrospectively found a 2.7% point drop in annual growth rates between before and after the sanctions were imposed, for the year 2014–2015, with five successive negative quarterly growth points from 2015Q1 to 2016Q1, for the first time since 2010.² This gap should not be considered the consequence of the sanctions alone, because the concurrent shocks produced intertwined effects that led to the under/over-valuation of sanctions. This section reviews the literature on the extent and the way in which the simultaneous shocks affected the Russian economy, while focusing on two interrelated aspects: (i) the financial sanctions and (ii) the collapse of the ruble caused by two external shocks.

2.1 The impact of economic sanctions

In early 2014, Russia’s annexation of Crimea aroused a strong protest from western countries.³ With subsequent events including the Malaysian Airlines Flight 17 incident, intensified military conflicts in Eastern Ukraine, and the unfulfilled Minsk II agreement, sender countries expanded the scope of the sanctions they imposed. The US responded with a tougher bill to the alleged elections interference and cyberattacks, which tightened the conditions for the lifting of sanctions and made it practically impossible in a short

² Growth rates for 2014–2015 were 0.7% and -2.0%, respectively (accessed on May 18, 2021: <https://rosstat.gov.ru/accounts>). Rosstat revised the estimates several times. Preliminary figures appeared in the annual statistical yearbook for 2016, and were 0.7% and -3.7%, respectively, thus producing a 4.4% points difference (https://gks.ru/bgd/regl/b16_13/Main.htm).

³ See CRS (2020) and the US and the EU’s websites: <https://www.state.gov/ukraine-and-russia-sanctions/>; <https://www.consilium.europa.eu/en/policies/sanctions/ukraine-crisis/>.

period (Countering Russian Influence in Europe and Eurasia Act of 2017 (CRIIEA), P.L. 115–44, Title II). Attempted assassinations of former Russian citizens, the Syrian conflict, and the Alexei Navalny poisoning case led to escalated sanctions according to the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991 (P.L. 102-182, Title III). In 2021, the Nord Stream 2 pipeline was also under the threat of the US sanctions (Protecting Europe’s Energy Security Act of 2019). At the time of writing, Russia was under US sanctions for several executive orders codified by the CRIIEA, Global Magnitsky Act, etc. The EU also imposed sanctions in coordination with the US. It started with restrictive measures targeting individuals and extended to economic sanctions in 2014. The US’ Sectoral Sanctions Identifications (SSI) and Specially Designated Nationals and Blocked Persons (SDN), and the EU’s restrictive measures list the targets of the sanctions, which is continuously expanded on. As of May 2021, 449 entities and 175 individuals were subject to US sanctions, and 177 persons and 48 entities were included in the EU’s list.⁴

The characteristic features of anti-Russian sanctions are their narrow scope. Senders targeted specific companies in finance, energy, and military industries. The companies on the list were barred from financial transactions with a certain maturity. The export of technology and services related to the deep waters, Arctic Oceans, and shale oil to major energy companies was banned. The “smart” sanctions did not concern ordinary citizens. However, the effects may extend to the entire economy as restricted access to the international financial market forms another feature of these sanctions. The targets included only large state banks, but they held almost half the total assets in the banking sector and received most of the Central Bank financing, meaning that most of the financial system was subject to sanctions (IMF, 2014; Orlova, 2016). Russian companies, heavily dependent on foreign currency-denominated debts, faced difficulties in (re)financing after the sanctions began (Dreyer and Popescu, 2014; Shirov et al., 2015; Bitkov and Manuilov, 2018). Foreign authorities strengthened the monitoring of international transactions, which resulted in delays and deterioration in business. Thus, foreign companies became more cautious while dealing with their Russian partners (Ashford, 2016).

Political, economic, and geopolitical uncertainties affected Russia’s reputation

⁴ See the sanctions lists (accessed on May 17, 2021): <https://sanctionssearch.ofac.treas.gov/>; <http://www.consilium.europa.eu/en/policies/sanctions/ukraine-crisis/>.

and increased its risk premium for financing and interest rates (Ulyukaev and Mau, 2015; Tuzova and Qayum, 2016). Large companies returned to domestic markets in these circumstances, which increased domestic financing costs for SMEs (Zakirova and Zakirova, 2018; Pestova and Mamonov, 2019). Thus, the sanctions may have had a wide range of direct and indirect adverse effects on all of Russia's business.

Research shows variations in assessing sanctions. Macroeconomic studies have generally supported the view that sanctions harmed the Russian economy but only slightly (Dreger et al., 2016; Tuzova and Qayum, 2016; Prilepskiy, 2019, etc.). Instead, they emphasized other factors. For example, Gurvich and Prilepskiy (2018) stated that the impact of oil prices was 3.3 times as large as that of sanctions and argued that the effect of sanctions would weaken over time. Bond et al. (2015) and Korhonen et al. (2018) considered declining oil prices and accompanying currency depreciation the most damaging. Various VAR estimations confirmed that the impacts of sanctions on growth, inflation, and exchange rates were smaller than oil prices (Dreger et al., 2016; Tuzova and Qayum, 2016; Bali, 2018; Prilepskiy, 2019; Bali and Nady Rapelanoro, 2020).

In contrast, micro-evidence presented a different picture, suggesting that sanctions have an extensive impact on a wide range of areas of the economy. An opinion survey conducted by the Levada Center in November 2014 showed that one-third of those interviewed considered the sanctions the leading cause of the prevailing economic slump.⁵ According to opinion surveys conducted by the Pew Research Center in 2015 and 2017, half the Russians believed that the sanctions affected the economy (Simmons et al., 2015; Vice, 2017).⁶ Golikova and Kuznetsov (2017) analyzed the risk perception of companies and found that half the companies surveyed felt sanctions-associated risks. Shida (2020) confirmed similar responses from other companies. Naidenova and Novikova (2018) revealed that the announcement of introducing sanctions affected the stock prices of 40 companies listed on the Moscow stock market negatively. Using firm-level data, Ahn and Ludema (2020) demonstrated authentic evidence proving that targeted

⁵ 45% and 30% of the respondents mentioned the falling oil prices and annexation costs, respectively. See The Levada Center: <https://www.levada.ru/2014/11/28/vliyanie-sanktsij-na-potreblenie/>.

⁶ The Pew Research Center's survey in 2015 asked what caused the most harm to the economy. Those who indicated the sanctions and falling oil prices accounted for 33%. The share of those who thought that the sanctions had a major effect was 45% in 2015 and 43% in 2017.

companies had reduced their revenue and asset values because of the sanctions.

2.2 The ruble collapse during the declining oil prices and the sanctions

Whereas both external shocks had different origins, they interrelatedly caused a deep ruble depreciation from 2014 onward (Dabrowski, 2019). The Brent oil price (per barrel) declined by 44.2% from USD 112 in June 2014 to USD 62 in December 2014, with the subsequent decline to USD 31 in January 2016.⁷ In parallel, the exchange rate against the US dollar went up by 33.3% from 34 rubles in June 2014 to 45 rubles in November 2014, and then to 77 rubles in February 2016⁸. This accelerated and peaked in the middle of both these external shocks. This persistent substantial currency depreciation, often accompanied by a reduction in international reserves is considered a currency crisis (Leaven and Valencia, 2008; Dabrowski, 2016; Johnson and Woodruff, 2017). To intervene in the forex market, the Central Bank of Russia (CBR) reduced international reserves by USD 124 billion (-27.7%) in one year for 2014.⁹

Currency depreciation has negative and positive effects: it increases import goods prices, induces inflation, and reduces the population's purchasing power, which, in turn, results in decreased domestic demand. It increases the costs of foreign debt repayments, possibly damaging business. It also raises the price competitiveness of domestic producers, thus stimulating the supply side of the economy, which may contribute toward the increased net export and offset the reduced demand. The influence of currency depreciation encompasses the entire population and its aggregate macroeconomic impact is weighed in the balance between these effects.

In the Russian context, the oil price shock and the sanctions worked together to depreciate the currency. In 2014–2015, as a resource-dependent economy, Russia underwent a significant reduction in export incomes from mineral resources (-37.4%), which led to a decline in oil and gas revenues as part of the federal budget (-21.1%).¹⁰ At

⁷ The US Energy Information Administration's website (accessed on May 17, 2021): https://www.eia.gov/dnav/pet/pet_pri_spt_s1_m.htm.

⁸ The IFS Database (accessed on May 17, 2021): <https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b>.

⁹ The CBR website (accessed on 26 May, 2021): https://www.cbr.ru/eng/hd_base/mrrf/mrrf_m/.

¹⁰ Rosstat's export data and Minfin's data on the consolidated federal budget (accessed on 26 May, 2021): <https://rosstat.gov.ru/folder/11193>; <https://minfin.gov.ru/ru/statistics/conbud/>.

the same time, the sanctions confronted large state banks and companies with the need to deleverage foreign debts by selling foreign assets. Both shocks damaged Russia's economic prospects and indirectly weakened foreign businesses in Russia and direct investments from abroad. In this state of uncertainty, households began to change rubles into foreign currency (Mironov, 2015; Ashford, 2016; Dabrowski, 2016; Bitkov and Manuilov, 2018).

Russia's external debts decreased by 18.1% from USD 733 million in June 2014 to USD 600 million in December 2014, and then to USD 520 million in March 2016; FDI inflows into Russia decreased by 68.2% from USD 69 billion in 2013 to USD 22 billion in 2014, and then to USD 7 billion in 2015; only for the fourth quarter of 2014, did USD 76 billion of private capital in net term flow from Russia, which is 252% larger than that of the second quarter of the same year.¹¹ Prilepskiy (2019) considered the impact of sanctions the main cause of the reduced gross capital inflow, including FDI. Åslund and Snegovaya (2021) also emphasized that the reduced inflow and increased outflow of capital were the consequences of the sanctions, and not the oil price shock.

All these factors contributed toward the ruble collapse and affected the economy in an interrelated fashion (Tyll et al., 2018). Dreger et al. (2016) emphasized the dominant role of oil prices in ruble depreciation, whereas Kholodilin and Netsunajev's (2019) structural VAR estimations showed that the sanctions impacted the growth rates directly and indirectly through the impact on exchange rates. Pestova and Mamonov (2019), based on medium-sized Bayesian VAR models, showed that the financial sanctions substantially affected growth with modest restraining effects on consumption and investment and more marked effects on the exchange rate. They stated that "the impact of the effect more than negligible but less than devastating. [...] imply that an economic crisis would have happened independent of financial sanctions" (p. 21). Wang et al.'s (2019) panel data analysis of 23 countries presented the impact of sanctions on exchange rate volatility through trade and financial channels, which manifested as reduced trade revenue and restrictions on investment, asset, credit, and financing trigger inflation and the financial outflow, which, in turn, resulted in increased exchange rate volatility. Previous research has not fully considered the depreciation effect at the micro-level.

¹¹ CBR's data on external debts, foreign direct investments, and financial transactions of the private sector (accessed on May 17, 2021): https://www.cbr.ru/eng/statistics/macro_itm/svs/.

Reviewing related literature in Sections 2.1 and 2.2, we address the remaining issues to be explored in the following sections. First, the impact assessment of sanctions is contrastive based on macro and micro approaches, and the latter has paid less attention to other factors. Second, the differences and commonalities among the impacts of various shocks on the economy are not evident. The relationship between sanctions and exchange rate volatility and how they influence economic actors in a combined and/or distinct manner have not been explored sufficiently in the literature. From the micro-level perspective, there arises a question as to whether the population can distinguish between the impacts of sanctions and other shocks. This is closely connected to how well authoritarian leadership can manage the population's perception of the effect of sanctions.

3. An impact assessment of sanctions and other external shocks on business: An overview of the Economic Research Institute of Northeast Asia (ERINA) enterprise survey

The probability of the success of sanctions depends on their effectiveness in the early phase, and it declines in the long run (Dizaji and Bergeijk, 2013). In the Russian case, the first two years under the sanctions regime was the most acute phase, when the economic crisis deepened and significant deleveraging of foreign debts took place (Pestova and Mamonov, 2019). Critical issues for the Russian leadership at this point in time were whether the population had detected the impact of the sanctions in its initial stages and whether the ruble collapse had veiled it. Thus, we focus on the early period of the sanctions, namely 2014–2015.

We used data from the enterprise survey conducted by ERINA in the fourth quarter of 2015. The survey targeted joint-stock and limited liability companies with over 50 employees in select regions in Russia.¹² A total of 742 executive managers (top management or senior officials) who were competent to evaluate the prevailing state of the company and respond to questions objectively were interviewed. The survey investigated how they assessed various shocks to their management activities. Those interviewed were asked to grade the impact of the shocks on a five-point scale that ranged

¹² The survey investigated the regional economic heterogeneity between eastern and western Russia, thus covering two different but comparable regions. The selection of regions and companies were based on their economic sizes, population, number of enterprises, industries, etc. GfK Russia, a market-research company based in Moscow, conducted face-to-face interviews (Arai and Iwasaki, 2018).

from definitely negative to definitely positive.

The shocks examined in this survey included: (1) the economic sanctions against Russia, (2) Russia's counter-sanctions, (3) a significant depreciation of the ruble (from the end of 2014 to August 2015), and (4) the Chinese stock market turbulence (in summer 2015). Russia's counter-sanctions barred the import of food and agricultural products from sender countries, which resulted in shortages and inflation. During the Chinese stock market turbulence, one-third of the market value of A-shares on the Shanghai Stock Exchange were lost in a month.

We present an overview of the impact assessments of the four shocks in detail. Table 1 shows the distribution of the answers and clarifies the following three points. First, the sanctions had a significant effect on business. A total of 47.4% of those interviewed assessed the sanctions negatively, whereas 45.0% indicated that they did not suffer because of the sanctions. Only 7.6% reported positive impacts on their business management. We confirmed the far more substantial impact of ruble depreciation as follows: 79.9% indicated a negative assessment of the shock, which included 37.4% who reported "definitely negative." Despite this, the impact of the sanctions was not small on any account, even in comparison to other shocks. A total of 36.1% and 30.2% had negative assessments of Russia's counter-sanctions and the Chinese stock market turbulence, respectively.

Second, the executive managers assessed the impact of each shock differently. The Wilcoxon signed-rank tests rejected the null hypothesis that the distributions of the impact assessments of economic sanctions and other shocks were the same and confirmed that the extent of the impact of the sanctions was statistically significantly different from those of other shocks. The results showed that only the impact of the ruble shock exceeded that of the sanctions.

Third, there were interrelations between the sanctions and other shocks. The chi-square tests rejected the null hypothesis that the impact assessments of the sanctions and other shocks were statistically significantly independent and supported the alternative hypothesis that there were interrelations among them. As shown in Table 2, all shocks had statistically significant and positive correlations according to Spearman's rank-order correlation. The correlation coefficient between the sanctions and counter-sanctions was 0.58 and the strongest among all shocks, implying that both had similar effects on the

business. The sanctions and the ruble collapse had a positive but weak relationship as the correlation coefficient was 0.42. The relationship was also asymmetric. As many as 35.3% respondents assessed the ruble collapse as having a negative impact and the sanctions as having no or positive impact. Only 3.3% reflected that the sanctions had a negative impact and the ruble collapse had no impact. It follows that the companies that experienced pain from the sanctions were inclined to consider the ruble collapse harmful, too, but the opposite was not necessarily true. The Chinese stock market turbulence was weakly correlated with other shocks.

We found that several shocks affected Russian businesses differently and interrelatedly with each other. The four shocks we examined were exogenous for companies that occurred almost simultaneously. Anti-Russian sanctions and Russia's countermeasures had institutional frameworks (institutional shocks) with different origins (domestic or abroad). The Chinese stock market turbulence and ruble depreciation occurred in the financial market (financial shocks), also in different locations.

[Tables 1 and 2 here]

4. Regression analysis: Strategy and results

Considering the argument in the previous section, we can naturally expect the following two hypotheses. First, four external shocks with different profiles differed in the transmission channels in terms of how they affected the perceptions of the respondents. Second, the currency crisis affected the assessment of the sanctions. We explore these issues in this section.

4.1 Estimation strategy and data

We identified the factors that determined the impact assessment of each shock in three steps. First, we applied the same estimation model to all shocks and compared their results to address the commonalities and differences among them. Thus, we introduced the economic sanctions imposed on Russia (*sanction*), Russia's counter-sanctions (*antis sanction*), the Chinese stock market turbulence in 2015 (*chinastock*), and the sharp depreciation of the ruble in 2014–2015 (*rublerate*), as dependent variables. Their impacts on general management activities were ordinal variables assessed on five grades that

ranged from 0=“definitely positive” to 4=“definitely negative,” with 2=“no impact.” We used them as dependent variables for each estimation and employed an ordered probit estimator using robust standard errors as follows:

$$y = \mu + \sum \beta x + \varepsilon \quad (1),$$

where y is a dependent variable, μ is a constant term, x is an independent variable and β is its coefficient, and ε is an error term. We also applied the ordered logit and ordinary least squares (OLS) estimators to exact specifications.

Next, we examined their interrelationship and determined whether the estimation results were derived after controlling the impact assessment of the other external shocks. For this, one of the other shocks (which was not used as a dependent variable) was incorporated as an additional explanatory variable in the estimation of *sanction*, and vice versa, as follows:

$$y = \mu + \sum \beta x + \gamma(\text{the other shock}) + \varepsilon \quad (2)$$

For comparison, we used the same explanatory variables in all estimations.

The four shocks occurred almost simultaneously and did not have causal relationships. Instead, they probably had intertwined relationships, as those interviewed assessed the impact of one shock in conjunction with that of another. Thus, we next inquired into the endogenous relationship among the shocks for which we used an extended ordered probit model with an ordinal endogenous covariate: *antisanction*, *rublerate*, and *chinastock* were treated as endogenous variables in each *sanction* model. The opposite relationships were also examined in the same manner.¹³

Table 3 presents the data, definitions, and descriptive statistics employed. Following Golikova and Kuznetsov (2017) and Shida (2020), we used various explanatory variables, which we divided into four categories. The first pertained to basic characteristics that reflect the legal and organizational features of a company, namely state (*ownsta*) and foreign (*ownfor*) ownership ratios, dummy variables for joint-stock (*jsc*) and listed (*listed*) companies, and the size of the company measured by the number of employees (*comsiz*). They are all categorical variables.

The second pertained to industry dummies with four groups: *mining*,

¹³ *antisanction* was instrumented by a dummy variable for primary industry; *rublerate* by the impact assessment of the global financial crisis; *chinastock* by a dummy variable for foreign trade operations; and *sanction* by a dummy variable for state procurement.

manufacturing, utilities (electricity, gas, and water supply), *construction*, and *tertiary* (trade, transport, and communication).

The third group concerned external financing sources that referred to the main financing source before the sanctions were imposed. No external source was a default category. External sources were classified into the following categories: banking, budget expenditures from federal, regional, and municipal governments (*budget*), and *other*. Banking was divided into large banks located in capital cities (*major bank*), and *regional* and *foreign banks*. As some *major banks* like Sberbank and capital banks in Moscow and St. Petersburg were on the target list of sanctions, this variable had the potential to serve as a signal of financial sanctions. The category titled *other* included private funds and financing from associated companies (holding or group companies other than financial institutions).

Finally, we controlled the geographical factors of the business. Trade partners' regions were considered: *Ukraine*, the Commonwealth of Independent States (*CIS*) excluding Ukraine, European countries (*Europe*), the US and Canada (*US and Canada*), Asian countries (*Asia*), and the rest of the world (*RoW*). The company's location at the federal subject level was also considered through the use of regional dummy variables.

[Table 3 here]

4.2 Results

1) Determinants of the impact assessment of shocks: Differences and commonalities

Table 4 shows the estimation results based on equation (1) in Section 4.1. Using an ordered probit estimator, we identified the factors that determined the impact assessment of four shocks, including the economic sanctions (models [1], [4], [7], and [10]). The different estimators, namely the ordered logit (models [2], [5], [8], and [11]), and OLS (models [3], [6], [9], and [12]), provided supporting results. The determining factors differed based on the shocks.

The first and essential finding related to financing. The external financing channels had a statistically significantly harmful impact on the sanctions assessment of the company (coefficients with positive signs). Companies' financing from the *major bank*, including targeted financial sources like Sberbank and other major state banks

located in the metropolitan cities assessed the sanctions negatively. Those that relied on the budget expenditures (*budget*) and private funds (*other*) suffered as a result of sanctions, too. These effects were not found in other shocks. These factors did not affect *antis sanction* (except for model [4]), *rublerate*, and *chinastock*.

Second, whether they were senders or not, trade partners did not matter for the impact assessment of the sanctions. Statistically significant impacts were reported in other shock assessments. For example, foreign trade with Chinese partners affected *chinastock* negatively.

Third, we found a similarity in the estimation results. The industry factors affected *sanction*, *antis sanction*, and *rublerate* similarly. Companies that worked in the manufacturing, construction, and service sectors suffered more when the shock occurred. Larger companies suffered lesser as a result of the sanctions, Russia's countermeasures, and the currency crisis.

These three findings explain the difference and commonalities between the impact transmission channels of both the sanctions and other shocks. It follows that the sanctions affected the Russian economy through the financial channels and the executive managers of the company perceived the sanctions separately and differently from the currency crisis.

[Table 4 here]

2) The impact relationship between the sanctions and other shocks

Next, we incorporated each shock as a dependent variable into the baseline model to examine the impact of three shocks on *sanction*. Table 5 reports the results. The results confirmed the consistency between Tables 4 and 5. The executive managers noted that the sanctions affected their management activities through financial restrictions on major banks, and the country of the trade partner did not influence their assessment. Other shocks also affected the assessment of the sanctions in a statistically significant manner, implying that the more negatively executive managers assessed the other shocks, the more negatively they evaluated the impact of sanctions.

[Table 5 here]

The impact of the sanctions on the three shocks was examined separately (Table 6). In all models, the coefficients of *sanctions* were statistically significant and positive. Among the respondents, those who had a negative assessment of the sanctions tended to perceive the impact of other shocks negatively.

Tables 4 and 6 are similar in terms of the trade partners' regions. The sanctions and counter-sanctions as institutional shocks, and the Chinese stock market turbulence and the ruble depreciation as financial shocks, differed in several ways. The results show that the shocks were interrelated although they had different transmission channels for their impacts.

[Table 6 here]

3) Endogenous relationships among shocks and the magnitude of their impacts

Table 7 presents the results from the extended ordered probit models with ordinal endogenous covariates. The results show that the financial restrictions on large banks formed the essential feature of the sanctions against Russia that the other shocks did not share in common, even while considering the endogeneity issue.

As models [2] and [4] show, the sanctions (*sanction*) and the currency crisis (*rublerate*) had an endogenous association with each other and reinforced their negative assessments. The error correlation estimates support the endogeneity hypothesis. In contrast, *antisaction* and *sanction* did not have meaningful impacts on *sanction* (model [1]) and *chinastock* (model [6]), respectively.

[Table 7 here]

Finally, we measured the marginal effects of shocks on the sanctions assessment, corresponding to models [1]–[3] in Table 7. Figure 1 depicts the calculated average marginal effects with a 95% confidence interval. The horizontal axis (x) corresponds to the impact assessment of each shock (independent variable). For example, “def. negative” shown on the horizontal axis in Figure 1 (b) corresponds to those who assessed the ruble depreciation (*rublerate*) as having a “definitely negative” impact. The vertical axis (y) in

the figure shows the probability of impact assessment of the sanctions (*sanction*). Compared to those who assessed *rublerate* as having a “definitely positive” impact (a baseline outcome), those with a “definitely negative” assessment were 60.0 and 8.0% points more likely to assess *sanction* as having “definitely negative” (red line) and a “rather negative” impact (blue line), respectively. Those who assessed *rublerate* as having a “rather negative” impact were 31.6 and 27.9% points more likely to value *sanction* as having “definitely negative” (red line) and “rather negative” impacts (blue line), respectively. Those with a “rather positive” assessment on *rublerate* were 22.0% points less likely to assess *sanction* as “definitely positive” (yellow line).

Figure 2 depicts the calculated average marginal effects of *sanction* on other shock assessments, corresponding to models [4]–[6] in Table 7. Those who assessed *sanction* as having “definitely negative” and “rather negative” impacts mostly perceived *rublerate* as having a “definitely negative” impact, with 98.5 and 67.5% points larger than the baseline outcome, respectively (red line).

In sum, the sanctions had peculiar transmission channels to affect businesses, and their negative assessments of the impact in most cases accompanied the negative evaluation of the currency crisis.

[Figures 1 and 2 here]

5. Conclusions

Using data from an interview survey of 742 companies conducted in late 2015, we quantitatively assessed the impact of economic sanctions on the management activities of Russian companies. We paid particular attention to the commonalities and differences between the transmission channels and the interrelation among the sanctions and other shocks that occurred simultaneously. We found that the sanctions had a non-negligible impact on the economy, which is consistent with the literature and evidence drawn using micro data. We also confirmed the argument in the literature using macro time-series data that the ruble depreciation had a stronger impact than did the sanctions.

We found differences among the channels that transmitted the impact of the shocks. The sanctions were one of the economic tools with an institutional framework aimed at an entire nation and had a geographically uniform impact, whereas financial

shocks from the Chinese stock market turbulence and ruble depreciation had different effects on businesses. The impact assessments differed based on the trading partners' region. In contrast, the external financing sources were partly subject to the sanctions and affected only its impact assessment.

We confirmed that the shocks reinforced each other despite differences in the transmission channels of their impacts, which made it difficult to disentangle the impacts of the shocks from the perspective of the executive managers at the firm level. This means that the currency crisis and sanctions worked in the same direction to generate perceivable damage for businesses. However, the former neither reduced the probability of the negative assessment of the latter nor obscured the negative effect of financial restrictions on targeted entities. Thus, we expect that the economic pain of the sanctions will finally connect with a lower level of effectiveness of blame-shifting (scapegoating), thus undermining the legitimacy of the Putin administration. The oil price shocks do not mask, but rather fuel the perceived damages caused by the sanctions. Drawing from the Russian experience, it is clear that citizens or at least business-persons can perceive the impact of various shocks separately. At the same time, their perceptions are not independent of each other. Although authoritarian leaderships strive to blame the external shocks, their efforts do not always work as expected and hardly mask the vulnerability to the sanctions.

As Dabrowski (2019) pointed out, Russia's leadership, which successfully attributed the economic slump to oil prices and insisted on its invulnerability to foreign political pressure was confronted with significant challenges. Russia's international environment has continued to deteriorate, and it faces very severe conditions in which the lifting of sanctions can hardly be expected. Under these circumstances, the sanctions will continuously hurt both businesses and the economy. The impact of sanctions is strengthened by the effect of other existing negative factors. The enhanced ruble depreciation, associated with a decline in oil prices, will leave the business management of Russian companies vulnerable to the impact of sanctions. They will also become vulnerable to changes in economic parameters if they suffer as a result of restricted access to the international capital market. Therefore, economic sanctions against Russia, especially financial ones, remain severe issues for the future in practical terms.

Reference

- Aganin, Artem D. (2020). "Russian Stock Index Volatility: Oil and Sanctions," *Voprosy ekonomiki*, No. 2, pp. 86–100.
- Ahn, Daniel P., and Rodney D. Ludema (2020). "The Sword and the Shield: The Economics of Targeted Sanctions," *European Economic Review*, Vol. 135. <https://doi.org/10.1016/j.euroecorev.2020.103587>.
- Alexeev, Mikhail A., and Henry E. Hale (2020). "Crimea Come What May: Do Economic Sanctions Backfire Politically?" *Journal of Peace Research*, Vol. 57 (2), pp. 344–359.
- Allen, Susan Hannah (2008). "The Domestic Political Costs of Economic Sanctions." *The Journal of Conflict Resolution*, Vol. 52 (6), pp. 916–944.
- Ankudinov, Andrei, Rustam Ibragimov, and Oleg Lebedev (2017). "Sanctions and Russian Stock Market," *Research in International Business and Finance*, Vol. 40, pp. 150–162.
- Arai, Hirofumi, and Ichiro Iwasaki (2018), "Market Quality in the Russian Far East from the Viewpoint of Company Management: Preliminary Report on Microeconomic Comparative Analysis with European Regions," *ERINA Discussion Paper*, No. 1602-e, November (revised version).
- Ashford, Emma (2016). "Not-So-Smart Sanctions: The Failure of Western Restrictions against Russia," *Foreign Affairs*, Vol. 95 (1), pp. 114–123.
- Åslund, Anders, and Maria Snegovaya (2021). *The Impact of Western Sanctions on Russia and How They Can Be Made Even More Effective*. Atlantic Council, May 3, 2021: <https://www.atlanticcouncil.org/in-depth-research-reports/report/the-impact-of-western-sanctions-on-russia/>.
- Bali, Morad (2018). "The Impact of Economic Sanctions on Russia and its Six Greatest European Trade Partners: A Country SVAR Analysis", *Finansy i biznes*, Vol. 14, No. 2, pp. 45–67.
- Bali, Morad, and Nady Rapelanoro (2020). "International Economic Sanctions: Multipurpose Index Modelling in the Ukrainian Crisis", *EconomiX*, 2020-8.
- Bayramov, Vugar, Nabi Rustamli, and Gulnara Abbas (2020). "Collateral damage: the Western Sanctions on Russia and the Evaluation of Implications for Russia's Post-communist Neighbourhood," *International Economics*, Vol. 162, pp. 92–109.
- Benzell, Seth G., and Guillermo Lagarda (2017). "Can Russia Survive Economic

- Sanctions?” *Asian Economic Papers*, Vol. 16 (3), pp. 78 – 120.
- Bitkov, Viktor Pavlovich, and Konstantin Evgen’evich Manuilov (2018). “Vliyanie sanktsii na finansovyi rynok Rossii,” *Problemy natsional’noi strategii*, No. 3 (43), pp. 137–155.
- Brock, Gregory (2019). “A Remote Sensing Look at the Economy of a Russian Region (Rostov) Adjacent to the Ukrainian Crisis,” *Journal of Economic Modeling*, Vol. 41, pp. 416–431.
- Bond, Ian, Christian Odendahl, and Jennifer Rankin (2015). *Frozen: The Politics and Economics of Sanctions against Russia*, Center for European Reform, March.
- Connolly, Richard (2016), “The Empire Strikes Back: Economic Statecraft and the Securitisation of Political Economy in Russia,” *Europe-Asia Studies*, Vol. 68, No. 4, pp. 750–773.
- Congressional Research Service (CRS) (2020). *US Sanctions on Russia*. R54515. January 17, 2020.
- Crozet, Matthieu, and Julian Hinz (2020). “Friendly fire: The trade impact of the Russia sanctions and counter-sanctions,” *Economic Policy*, Vol. 35 (101), pp. 97–146.
- Crozet, Matthieu, Julian Hinz, Amrei Stammann, and Joschka Wanner (2021). “Worth the Pain? Firms’ Exporting Behavior to Countries under Sanctions,” *European Economic Review*, Vol. 134. <https://doi.org/10.1016/j.euroecorev.2021.103683>.
- Dabrowski, Marek (2016). “Currency Crises in Post-Soviet Economies – A Never Ending Story?” *Russian Journal of Economics*, Vol. 2, pp. 306–326.
- Dabrowski, Marek (2019). “Factors Determining Russia’s Long-Term Growth Rate,” *Russian Journal of Economics*, Vol. 5 (2019), pp. 328–353.
- Davydov, Denis, Jukka Sihvonen, and Laura Solanko (2021). *Who Cares about Sanctions? Observations from Annual Reports of European Firms*, BOFIT Discussion Papers, No. 5.
- Dizaji, Sajjad Faraji, and Peter A G van Bergeijk (2013). “Potential Early Phase Success and Ultimate Failure of Economic Sanctions: a VAR Approach with an Application to Iran,” *Journal of Peace Research*, Vol. 50 (6), pp. 721–736.
- Dreger, Christian, Konstantin Kholodilin, Dirk Ulbricht, and Jarko Fidrmuc (2016). “Between the Hammer and the Anvil: The Impact of Economic Sanctions and Oil Prices on Russia’s Ruble,” *Journal of Comparative Economics*, Vol. 44, No. 2, pp.

295–308.

- Dreyer, Iana, and Nicu Popescu (2014). “Do Sanctions against Russia Work?” *European Union Institute for Security Studies Briefs*, No. 35, December.
- Escribà-Folch, Abel, and Joseph Wright (2010). “Dealing with Tyranny: International Sanctions and the Survival of Authoritarian Rulers,” *International Studies Quarterly*, Vol. 54 (2), pp. 335–359.
- Felbermayr, Gabriel, Aleksandra Kirilakha, Constantinos Syropoulos, Erdal Yalcin, and Yoto Yotov (2020). “The Global Sanctions Data Base,” *European Economic Review*, Vol. 129. <https://doi.org/10.1016/j.euroecorev.2020.103561>.
- Felbermayr, Gabriel, T. Clifton Morgan, Constantinos Syropoulos, and Yoto V. Yotov (2021). “Understanding Economic Sanctions: Interdisciplinary Perspectives on Theory and Evidence,” *European Economic Review*, Vol. 135: <https://doi.org/10.1016/j.euroecorev.2021.103720>.
- Frye, Timothy (2019). “Economic Sanctions and Public Opinion: Survey Experiments from Russia,” *Comparative Political Studies*, Vol. 52 (7), pp. 967–994.
- Golikova, Victoria, and Boris Kuznetsov (2017). “Perception of Risks Associated with Economic Sanctions: The Case of Russian Manufacturing,” *Post-Soviet Affairs*, Vol. 33 (1), pp. 49–62.
- Grossman, Guy, Devorah Manekin, and Yotam Margalit (2018). “How Sanctions Affect Public Opinion in Target Countries: Experimental Evidence From Israel,” *Comparative Political Studies*, Vol. 51 (14), pp. 1823–1857.
- Gurvich, Evsey, and Ilya Prilepskiy (2018). “Western Sanctions and Russian Responses: Effects after Three Years,” in: Torbjorn Becker and Susanne Oxenstierna, eds., *The Russian Economy under Putin*, London and New York: Routledge.
- Hoffman, Manuel, and Matthias Neuenkirch (2017). “The pro-Russian Conflict and Its Impact on Stock Returns in Russia and the Ukraine,” *International Economics and Economic Policy*, Vol. 14, pp. 61–73.
- Hufbauer, Gary C., Jeffrey J. Schott, Kimberly A. Elliott, and Barbara Oegg (2007). *Economic Sanctions Reconsidered*, 3rd edition, Washington, D.C.: Peterson Institute for International Economics.
- Hufbauer, Gary C., and Euijin Jung (2020). “What’s New in Economic Sanctions?” *European Economic Review*, Vol. 130(C).

<https://doi.org/10.1016/j.euroecorev.2020.103572>

- International Monetary Fund (IMF) (2014). *Russian Federation: 2014 Article IV Consultation*, IMF Country Report No. 14/175.
- International Monetary Fund (IMF) (2015). *Russian Federation: 2015 Article IV Consultation*, IMF Country Report No. 15/211.
- International Monetary Fund (IMF) (2019). *Russian Federation: 2019 Article IV Consultation*, IMF Country Report No. 19/260.
- Johnson, Juliet, and David Woodruff (2017). “Currency Crises in Post-Soviet Russia,” *The Russian Review*, Vol. 76, pp. 612–634.
- Kholodilin, Konstantin A, and Aleksei Netsunajev (2019). “Crimea and Punishment: The Impact of Sanctions on Russian Economy and Economies of the Euro Area,” *Baltic Journal of Economics*, Vol. 19 (1), pp. 35–51.
- Korhonen, Iikka, Heli Simola, and Laura Solanko (2018). “Sanctions and Countersanctions – Effects on Economy, Trade and Finance,” *Focus on European Economic Integration*, Oesterreichische Nationalbank (Austrian Central Bank), Issue Q3–18, pp. 68–76.
- Korotin, Vladimir, Maxim Dolgonosov, Victor Popov, Olesya Korotina, and Inna Korolkova (2019). “The Ukrainian Crisis, Economic Sanctions, Oil Shock and Commodity Currency: Analysis Based on EMD Approach,” *Research in International Business and Finance*, Vol. 48, pp. 156–168.
- Leaven, Luc, and Fabian Valencia (2008). *Systemic Banking Crises: A New Database*. IMF Working Paper, WP/08/224.
- Lektzian David, and Mark Souva (2007). “An Institutional Theory of Sanctions Onset and Success,” *Journal of Conflict Resolution*, Vol. 51 (6), pp. 848–871.
- Mau, Vladimir (2016). “Between Crises and Sanctions: Economic Policy of the Russian Federation,” *Post-Soviet Affairs*, Vol. 32 (4), pp. 350–377.
- Milov, Vladimir (2017). “Why Sanctions Matter,” *The American Interest*, August 14, 2017: <https://www.the-american-interest.com/2017/08/14/why-sanctions-matter/>.
- Mironov, Valeriy (2015). “Russian Devaluation in 2014–2015: Falling into the Abyss or a Window of Opportunity?” *Russian Journal of Economics*, Vol. 1 (3), pp. 217–239.
- Naidenova, Julia, and Anastasia Novikova (2018). “The Reaction of Russian Public Companies’ Stock Price to Sanctions against Russia,” *Journal of Corporate Financial*

- Research*, Vol. 12 (3), pp. 27–38.
- Orlova, Nataliya V. (2016), “Financial Sanctions: Consequences for Russia’s Economy and Economic Policy,” *Problems of Economic Transition*, Vol. 58, No. 3, pp. 203–217.
- Peksen, Drusrun (2019). “When Do Imposed Economic Sanctions Work? A Critical Review of the Sanctions Effectiveness Literature,” *Defence and Peace Economics*, Vol. 30 (6), pp. 635–647.
- Peeva, Aleksandra (2020). “Did Sanctions Help Putin?” <https://www.dropbox.com/s/45gnyklttpc05zr/Did%20sanctions%20help%20Putin.pdf?dl=0> (Earlier version: No 2019/7, Discussion Papers from Free University Berlin, School of Business & Economics).
- Pestova, Anna, and Mikhail Mamonov (2019). “Should We Care? The Economic Effects of Financial Sanctions on the Russian Economy,” *BOFIT Discussion Papers*, 13.
- Prilepskiy, I.V. (2019). “Financial Sanctions: Impact on Capital Flows and GDP Growth in Russia,” *Journal of the New Economic Association*, Vol. 43 (3), pp. 163–172. (in Russian)
- Simmons, Katie, Bruce Stokes, and Jacob Pushter (2015). “NATO Publics Blame Russia for Ukrainian Crisis, but Reluctant to Provide Military Aid. 2. Russian Public Opinion: Putin Praised, West Panned,” *Pew Research Center Global Attitudes & Trends*, 2015 June 10: <https://www.pewglobal.org/2015/06/10/2-russian-public-opinion-putin-praised-west-panned/>.
- Shida, Yoshisada (2020). “Russian Business under Economic Sanctions: Is There Evidence of Regional Heterogeneity?” *Post-Communist Economies*, Vol. 49 (2), pp. 227–275.
- Shirov, A.A, A.A. Yantovskii, and V.V. Potapenko (2015). “Evaluation of the Potential Effect of Sanctions on the Economic Development of Russia and the European Union,” *Studies on Russian Economic Development*, Vol. 26 (4), pp. 317–326.
- Stone, M. (2017). “The Response of Russian Security Prices to Economic Sanctions: Policy Effectiveness and Transmission,” U.S. Department of State Office. <https://2009-2017.state.gov/e/ocel/rls/papers/262748.htm>
- Tuzova, Yelena, and Faryal Qayum (2016). “Global Oil Glut and Sanctions: The Impact of Putin’s Russia,” *Energy Policy*, Vol. 90, pp. 140–151.

- Tyll, Ladislav, Karel Pernica, and Markéta Arltová (2018). “The Impact of Economic Sanctions on Russian Economy and the RUB/USD Exchange Rate,” *Journal of International Studies*, Vol. 11 (1), pp. 21–33.
- Ulyukaev, Alexey, and Vladimir Mau (2015). “Ot ekonomicheskogo krizisa k ekonomicheskomu rostu, ili kak ne dat’ krizisu prevratit’sia v stagnatsiiu,” *Voprosy ekonomiki*, No. 4 (2015), pp. 5–19.
- Vatansever, Adnan (2020). “Put over a barrel? “Smart” sanctions, petroleum and statecraft in Russia,” *Energy Research & Social Science*.
<https://doi.org/10.1016/j.erss.2020.101607>.
- Vice, Margaret (2017). “Russians Remain Confident in Putin’s Global Leadership. 2. Russians’ take on the economy and problems at home,” *Pew Research Center Global Attitudes & Trends*, 2017 June 20: <https://www.pewglobal.org/2017/06/20/russians-take-on-economy-and-problems-at-home/>.
- Wang, Yiwei, Ke Wang, and Chun-Ping Chang (2019). “The Impacts of Economic Sanctions on Exchange Rate Volatility,” *Economic Modelling*, Vol. 82, pp. 58–65.
- Zakirova, Diliara Farilovna, and El’vira Farilovna Zakirova (2018). “Otsenka vliianiia ekonomicheskikh sanktsii na bankovskuiu sistemu Rossiiskoi Federatsii,” *Aktual’nyi problemy ekonomiki i prava*, Vol. 12 (1), pp. 19–32.

Table 1. Impact assessment of various macroeconomic shocks on a company’s management activity

	anti-Russian sanctions		Russia’s countermeasures		Ruble collapse (late 2014 to summer 2015)		Chinese stock market turbulence (summer 2015)	
	number	share (%)	number	share (%)	number	share (%)	number	share (%)
Extent of the impact:								
definitely negative impact	77	10.6	45	6.3	273	37.4	37	5.4
negative impact	267	36.8	213	29.8	310	42.5	178	25.8
no impact	327	45.0	387	54.2	99	13.6	447	64.8
positive impact	48	6.6	63	8.8	32	4.4	23	3.3
definitely positive impact	7	1.0	6	0.8	16	2.2	5	0.7
hard to answer	16	-	28	-	12	-	52	-
total	742	100.0	742	100.0	742	100.0	742	100.0
Interrelation with the impact of anti-Russian sanctions:								
test of independence ⁽¹⁾ : Chi-2	-		717.645	***	295.071	***	152.061	***
Wilcoxon signed-rank test ⁽²⁾ : z	-		-6.158	***	14.972	***	-5.264	***

Notes:

1) The chi-square test of independence examines the null hypothesis (H0) that the impact assessments of economic sanctions and other shocks are independent. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

2) The Wilcoxon signed-rank test examines the null hypothesis (H0) that distributions of the impact assessments of economic sanctions and other shocks are the same. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Source: The author’s compilation based on the ERINA enterprise survey.

Table 2. Interrelation among the impact assessments of various macroeconomic shocks

	[1]		[2]		[3]		[4]
[1] Anti-Russian sanctions	1.00						
[2] Russia's countermeasures	0.58 ***		1.00				
[3] Ruble collapse	0.42 ***		0.24 ***		1.00		
[4] Chinese stock market turbulence	0.31 ***		0.36 ***		0.15 ***		1.00

Note:

Spearman rank correlation with Bonferroni's correction. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Source: The author's compilation based on the ERINA enterprise survey.

Table 3 Definitions and descriptive statistics of variables used in the estimation

variable	definition	obs.	standard deviation	min	max	median	mean
Impact assessment of shocks on company's management behavior ⁽¹⁾							
sanction	Anti-Russian sanctions	726	0.81	0	4	2	2.49
antisaction	Russia's countermeasures	714	0.76	0	4	2	2.32
rublerate	Ruble collapse (late 2014 to summer 2015)	730	0.94	0	4	3	3.08
chinastock	Chinese stock market turbulence (summer 2015)	690	0.66	0	4	2	2.32
Independent variables							
ownsta ⁽²⁾	Ratio of state ownership participation	690	1.05	0	5	0	0.31
ownfor ⁽²⁾	Ratio of foreign investors' ownership	703	0.73	0	5	0	0.14
jsc	Dummy variable for joint stock companies	742	0.44	0	1	0	0.26
listed	Dummy variable for listed stock companies	742	0.13	0	1	0	0.02
comsiz	Number of employees in the natural logarithm form	742	0.87	3.91	8.61	4.38	4.67
industry dummies ⁽³⁾	Industrial classifications of the company	742	1.82	1	6	4	4.04
external financing ⁽⁴⁾	Categorical variable for a main external financing source of the company	742	1.30	0	5	0	0.85
foreign trade partner ⁽⁵⁾	Dummy for business with countries below						
ukraine	Ukraine	733	0.15	0	1	0	0.02
cis	CIS countries (excluding Ukraine)	733	0.33	0	1	0	0.13
europa	European countries	733	0.39	0	1	0	0.19
asia	Asian countries	733	0.32	0	1	0	0.11
uscanada	US and Canada	733	0.11	0	1	0	0.01
row	Rest of the world	733	0.07	0	1	0	0.01

Notes:

- (1) The impacts of the shock on management activities are assessed as follows: 0=definitely positive; 1=rather positive; 3=no impact; 4=rather negative; and 5=definitely negative.
- (2) This ordinal variable takes the following values according to the ownership share: 0=0%; 1=10% or less; 2=10.1-25%; 3=25.1-50%; 4=50.1-75%; and 5=75% or more.
- (3) These dummies are categorical variables that take the following values according to industrial classification: 1=primary; 2=mining; 3=manufacturing; 4=utilities; 5=construction; and 6=tertiary sector.
- (4) This variable takes the following values based on the main source of external financing: 0=no external financing; 1=major bank (Sberbank and other major banks located in Moscow or St. Petersburg); 2=regional bank; 3=foreign bank; 4=budget (budgets and extra-budgetary funds); and 5=other (investment, private pension funds, financing from non-financial organizations such as partner companies and the same holding and company groups, and other non-financial companies).
- (5) Dummy variables take the value of 1 if the company is engaged in trade with the country listed (multiple choice).

Source: The author's compilation based on the ERINA enterprise survey.

Table 4. Estimation results: Determinants of the impact assessment of various shocks

Model	[1]	[2]	[3]	[4]
Dependent variable	<i>sanction</i>	<i>sanction</i>	<i>sanction</i>	<i>antis sanction</i>
Estimator	ordered probit	ordered logit	OLS	ordered probit
Company's profile				
state ownership	0.044 (0.970)	0.076 (0.910)	0.031 (0.940)	0.059 (1.430)
foreign ownership	-0.088 * -(1.880)	-0.177 ** -(2.320)	-0.061 * -(1.850)	-0.090 ** -(2.160)
joint stock company	0.048 (0.390)	0.030 (0.140)	0.037 (0.420)	-0.023 -(0.200)
listed company	0.429 (1.140)	0.816 (1.190)	0.305 (1.120)	0.374 (0.850)
size (employment)	-0.172 ** -(2.540)	-0.308 ** -(2.330)	-0.122 ** -(2.480)	-0.165 ** -(2.490)
Industry dummies				
mining	0.398 (1.470)	0.572 (1.150)	0.286 (1.470)	0.435 (1.580)
manufacturing	0.470 *** (3.150)	0.756 *** (2.640)	0.337 *** (3.060)	0.407 *** (2.700)
utilities	0.497 ** (2.260)	0.778 * (1.910)	0.352 ** (2.200)	0.512 ** (2.530)
construction	0.692 *** (4.260)	1.144 *** (3.740)	0.489 *** (4.110)	0.603 *** (3.680)
tertiary	0.516 *** (3.380)	0.871 *** (3.030)	0.367 *** (3.300)	0.528 *** (3.360)
Financing				
major bank	0.239 ** (2.220)	0.480 ** (2.500)	0.170 ** (2.180)	0.073 (0.690)
regional bank	0.101 (0.640)	0.110 (0.370)	0.067 (0.580)	0.118 (0.730)
foreign bank	-0.013 -(0.040)	0.006 (0.010)	-0.020 -(0.080)	0.696 * (1.650)
budget	0.544 * (1.830)	0.936 * (1.840)	0.386 * (1.770)	0.428 (1.230)
other	0.473 ** (2.210)	0.876 ** (2.420)	0.338 ** (2.210)	0.270 (1.380)
Trade partner				
Ukraine	-0.011 -(0.040)	-0.141 -(0.260)	-0.012 -(0.050)	-0.554 * -(1.910)
CIS (excl. Ukraine)	-0.092 -(0.610)	-0.162 -(0.580)	-0.063 -(0.580)	-0.172 -(1.000)
Asia	0.170 (1.040)	0.327 (1.070)	0.122 (1.020)	0.258 (1.560)
Europe	-0.076	-0.148	-0.051	0.050

	-(0.440)	-(0.470)	-(0.410)	(0.280)
US and Canda	-0.194	-0.198	-0.156	-0.545
	-(0.380)	-(0.190)	-(0.400)	-(0.960)
RoW	-0.044	-0.055	-0.026	-0.015
	-(0.130)	-(0.090)	-(0.100)	-(0.030)
Constant	-	-	2.836 ***	-
			(9.640)	
region dummies	yes	yes	yes	yes
N	670	670	670	659
Wald chi2/ F statistics	62.94 ***	61.06 ***	1.80 ***	137.64 ***
Pseudo R2/ R2	0.0378	0.0377	0.0857	0.0389
Log pseudolikelihood	-763.6921	-763.8257	-	-710.5824

Table 4. (continued)

Model	[5]		[6]		[7]		[8]	
	<i>antisancion</i>		<i>antisancion</i>		<i>rublerate</i>		<i>rublerate</i>	
Dependent variable								
Estimator	ordered logit		OLS		ordered probit		ordered logit	
Company's profile								
state ownership	0.112		0.036		-0.002		-0.015	
	(1.480)		(1.280)		-(0.040)		-(0.190)	
foreign ownership	-0.157 **		-0.060 **		0.018		0.025	
	-(2.190)		-(2.200)		(0.280)		(0.240)	
joint stock company	-0.092		-0.015		0.188		0.352	
	-(0.400)		-(0.180)		(1.540)		(1.600)	
listed company	0.519		0.263		0.116		0.232	
	(0.590)		(0.860)		(0.340)		(0.450)	
size (employment)	-0.294 **		-0.106 **		-0.135 **		-0.231 **	
	-(2.320)		-(2.380)		-(2.190)		-(2.120)	
Industry dummies								
mining	0.688		0.292		-0.083		-0.140	
	(1.290)		(1.570)		-(0.310)		-(0.310)	
manufacturing	0.661 **		0.268 ***		0.449 ***		0.724 ***	
	(2.190)		(2.620)		(3.160)		(2.860)	
utilities	0.856 **		0.332 **		0.390 *		0.591 *	
	(2.230)		(2.440)		(1.920)		(1.720)	
construction	0.994 ***		0.392 ***		0.654 ***		1.054 ***	
	(3.130)		(3.520)		(4.050)		(3.780)	
tertiary	0.876 ***		0.352 ***		0.536 ***		0.894 ***	
	(2.780)		(3.290)		(3.620)		(3.450)	
Financing								
major bank	0.202		0.050		0.105		0.228	
	(1.040)		(0.690)		(0.970)		(1.250)	
regional bank	0.205		0.081		-0.122		-0.181	
	(0.680)		(0.740)		-(0.770)		-(0.630)	
foreign bank	1.172		0.455		0.108		0.197	

	(1.410)	(1.580)	(0.200)	(0.190)
budget	0.809	0.299	0.007	-0.086
	(1.370)	(1.240)	(0.020)	-(0.180)
other	0.415	0.178	0.249	0.506
	(1.170)	(1.320)	(1.040)	(1.170)
Trade partner				
Ukraine	-1.079 *	-0.359 *	0.052	0.041
	-(1.880)	-(1.850)	(0.160)	(0.070)
CIS (excl. Ukraine)	-0.288	-0.111	0.135	0.304
	-(0.830)	-(0.940)	(0.840)	(1.090)
Asia	0.594 **	0.172	-0.075	-0.149
	(1.980)	(1.520)	-(0.490)	-(0.540)
Europe	0.107	0.030	-0.168	-0.285
	(0.310)	(0.240)	-(0.990)	-(0.920)
US and Canda	-1.251	-0.350	0.051	0.233
	-(1.190)	-(0.890)	(0.100)	(0.260)
RoW	0.135	-0.022	-0.711 *	-1.343 *
	(0.160)	-(0.070)	-(1.670)	-(1.820)
Constant	-	2.638 ***	-	-
		(9.840)		
region dummies	yes	yes	yes	yes
N	659	659	675	675
Wald chi2/ F statistics	119.31 ***	4.02 ***	337.15 ***	266.02 ***
Pseudo R2/ R2	0.038	0.0833	0.0521	0.0558
Log pseudolikelihood	-711.2547	-	-784.9688	-781.9124

Table 4. (continued)

Model	[9]	[10]	[11]	[12]
Dependent variable	<i>rublerate</i>	<i>chinastock</i>	<i>chinastock</i>	<i>chinastock</i>
Estimator	OLS	ordered probit	ordered logit	OLS
Company's profile				
state ownership	0.006	0.112 ***	0.203 ***	0.058 **
	(0.160)	(2.740)	(2.680)	(2.500)
foreign ownership	0.020	-0.034	-0.080	-0.020
	(0.400)	-(0.600)	-(0.770)	-(0.660)
joint stock company	0.168 *	-0.093	-0.163	-0.045
	(1.670)	-(0.750)	-(0.700)	-(0.680)
listed company	0.084	-0.241	-0.237	-0.109
	(0.280)	-(0.530)	-(0.210)	-(0.430)
size (employment)	-0.112 **	-0.058	-0.111	-0.032
	-(2.170)	-(0.880)	-(0.910)	-(0.910)
Industry dummies				
mining	-0.083	-0.927 **	-1.625 **	-0.478 **
	-(0.310)	-(2.420)	-(2.060)	-(2.190)
manufacturing	0.382 ***	-0.030	0.001	-0.012

	(2.920)		-(0.210)		(0.000)		-(0.160)
utilities	0.358 **		0.055		0.096		0.051
	(2.050)		(0.210)		(0.190)		(0.370)
construction	0.541 ***		0.325 *		0.671 **		0.171 *
	(3.880)		(1.930)		(2.180)		(1.840)
tertiary	0.449 ***		0.158		0.310		0.098
	(3.330)		(1.050)		(1.060)		(1.190)
<hr/>							
Financing							
major bank	0.047		0.075		0.184		0.044
	(0.510)		(0.650)		(0.870)		(0.690)
regional bank	-0.093		-0.093		-0.226		-0.054
	-(0.730)		-(0.550)		-(0.690)		-(0.600)
foreign bank	0.044		0.461		0.917		0.243
	(0.110)		(0.940)		(0.960)		(0.830)
budget	0.078		-0.171		-0.344		-0.086
	(0.350)		-(0.630)		-(0.660)		-(0.630)
other	0.164		-0.131		-0.236		-0.075
	(0.860)		-(0.610)		-(0.570)		-(0.630)
<hr/>							
Trade partner							
Ukraine	0.078		-0.239		-0.427		-0.145
	(0.280)		-(0.880)		-(0.800)		-(1.020)
CIS (excl. Ukraine)	0.095		-0.363 **		-0.630 *		-0.181 **
	(0.720)		-(2.100)		-(1.900)		-(2.010)
Asia	-0.082		0.552 ***		1.069 ***		0.307 ***
	-(0.660)		(3.030)		(3.320)		(2.960)
Europe	-0.195		0.121		0.208		0.056
	-(1.340)		(0.590)		(0.580)		(0.480)
US and Canda	0.042		-0.655		-1.524		-0.289
	(0.090)		-(0.970)		-(0.970)		-(0.810)
RoW	-0.688		-0.534		-0.931		-0.261
	-(1.600)		-(1.460)		-(1.350)		-(1.290)
<hr/>							
Constant	3.404 ***		-		-		2.189 ***
	(11.110)						(10.210)
<hr/>							
region dummies	yes		yes		yes		yes
N	675		637		637		637
Wald chi2/ F statistics	23.57 ***		101.4 ***		96.68 ***		2.47 ***
Pseudo R2/ R2	0.1219		0.0572		0.0596		0.0994
Log pseudolikelihood	-		-560.0792		-558.618		-

Notes: This table contains estimation results of the ordered probit and logit, and OLS regressions. It provides detailed definitions and descriptive statistics of the covariates. *z* statistics are reported in parentheses under the regression coefficients. The Wald and F tests examine the null hypothesis that all coefficients are zero. Pseudo R2 is calculated for ordered probit and logit estimators, and R2 is for OLS. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5 Estimation Results: Impact of Various Shocks on the Sanctions Assessment

Model	[1]	[2]	[3]
Dependent variable	<i>sanction</i>		
Estimator	ordered probit	ordered logit	OLS
Other Shock			
<i>antisancion</i>	1.029 *** (10.400)	2.074 *** (11.600)	0.588 *** (13.770)
<i>rublerate</i>			
<i>chinastock</i>			
Company's profile			
state ownership	0.028 (0.590)	0.044 (0.550)	0.017 (0.600)
foreign ownership	-0.045 (-0.790)	-0.067 (-0.730)	-0.024 (-0.760)
joint stock company	0.106 (0.880)	0.260 (1.260)	0.064 (0.930)
listed company	0.304 (0.890)	0.553 (0.890)	0.155 (0.830)
size (employment)	-0.126 * (-1.940)	-0.229 * (-1.940)	-0.071 * (-1.890)
Industry dummies			
mining	0.184 (0.740)	0.287 (0.750)	0.103 (0.750)
manufacturing	0.292 * (1.910)	0.520 ** (2.030)	0.163 * (1.850)
utilities	0.269 (1.170)	0.492 (1.240)	0.144 (1.110)
construction	0.401 ** (2.470)	0.741 *** (2.580)	0.222 ** (2.370)
tertiary	0.282 * (1.830)	0.636 ** (2.400)	0.160 * (1.840)
Financing			
major bank	0.209 * (1.920)	0.432 ** (2.260)	0.124 * (1.960)
regional bank	0.034 (0.210)	0.029 (0.110)	0.018 (0.200)
foreign bank	-0.543 * (-1.720)	-1.057 * (-1.720)	-0.306 * (-1.700)
budget	0.350 (0.930)	0.517 (0.980)	0.202 (0.910)
other	0.376 (1.280)	0.626 (1.330)	0.217 (1.290)
Trade partner			

Ukraine	0.385 (1.080)	0.706 (1.120)	0.213 (1.020)
CIS (excl. Ukraine)	0.032 (0.200)	-0.032 (-0.110)	0.015 (0.160)
Asia	0.019 (0.110)	-0.154 (-0.510)	0.009 (0.080)
Europe	-0.095 (-0.520)	-0.058 (-0.170)	-0.051 (-0.480)
US and Canda	0.060 (0.120)	-0.018 (-0.020)	0.035 (0.120)
RoW	-0.093 (-0.280)	-0.076 (-0.140)	-0.060 (-0.310)
Constant	-	-	1.351 *** (5.230)
region dummies	yes	yes	yes
N	657	657	657
Wald chi2/ F statistics	186.54 ***	202.75 ***	9.94 ***
Pseudo R2/ R2	0.1942	0.2155	0.3694
Log pseudolikelihood	-624.1596	-607.6911	-

Table 5. (continued)

Model	[4]	[5]	[6]
Dependent variable	<i>sanction</i>	<i>sanction</i>	<i>sanction</i>
Estimator	ordered probit	ordered logit	OLS
Other Shock			
<i>antisancion</i>			
<i>rublerate</i>	0.601 *** (10.190)	1.078 *** (9.530)	0.376 *** (10.560)
<i>chinastock</i>			
Company's profile			
state ownership	0.050 (1.100)	0.091 (1.090)	0.030 (1.020)
foreign ownership	-0.109 ** (-2.150)	-0.206 ** (-2.220)	-0.067 ** (-2.110)
joint stock company	-0.054 (-0.440)	-0.115 (-0.520)	-0.029 (-0.360)
listed company	0.446 (1.150)	0.908 (1.330)	0.284 (1.150)
size (employment)	-0.132 ** (-1.970)	-0.217 * (-1.670)	-0.082 * (-1.890)
Industry dummies			
mining	0.506 * (1.970)	0.775 (3.030)	0.317 * (1.260)

	(1.790)		(1.480)		(1.760)
manufacturing	0.286 *		0.448		0.181 *
	(1.810)		(1.520)		(1.780)
utilities	0.325		0.498		0.204
	(1.420)		(1.170)		(1.370)
construction	0.457 ***		0.733 **		0.285 ***
	(2.660)		(2.330)		(2.570)
tertiary	0.312 **		0.492 *		0.194 *
	(1.980)		(1.670)		(1.920)
Financing					
major bank	0.259 **		0.463 **		0.162 **
	(2.470)		(2.390)		(2.390)
regional bank	0.166		0.346		0.105
	(1.040)		(1.140)		(1.020)
foreign bank	-0.035		0.033		-0.026
	-(0.100)		(0.050)		-(0.120)
budget	0.593 *		1.168 **		0.369 *
	(1.770)		(2.020)		(1.700)
other	0.427 *		0.856 **		0.280 *
	(1.790)		(2.130)		(1.850)
Trade partner					
Ukraine	-0.041		-0.099		-0.030
	-(0.140)		-(0.190)		-(0.160)
CIS (excl. Ukraine)	-0.144		-0.300		-0.089
	-(0.930)		-(1.040)		-(0.900)
Asia	0.186		0.348		0.118
	(1.180)		(1.180)		(1.160)
Europe	0.036		0.003		0.022
	(0.210)		(0.010)		(0.200)
US and Canda	-0.240		-0.065		-0.156
	-(0.390)		-(0.050)		-(0.370)
RoW	0.331		0.519		0.217
	(0.950)		(0.780)		(0.960)
Constant	-		-		1.566 ***
					(5.370)
region dummies	yes		yes		yes
N	666		666		666
Wald chi2/ F statistics	164.91 ***		150.32 ***		5.11 ***
Pseudo R2/ R2	0.1255		0.122		0.2587
Log pseudolikelihood	-690.0154		-692.8094		-

Table 5. (continued)

Model	[7]	[8]	[9]
Dependent variable	<i>sanction</i>	<i>sanction</i>	<i>sanction</i>

Estimator	ordered probit	ordered logit	OLS
Other Shock			
<i>antisancion</i>			
<i>rublerate</i>			
<i>chinastock</i>	0.566 *** (6.200)	1.121 *** (6.560)	0.370 *** (6.560)
Company's profile			
state ownership	-0.005 (-0.110)	-0.011 (-0.140)	-0.003 (-0.100)
foreign ownership	-0.079 (-1.340)	-0.161 * (-1.700)	-0.050 (-1.320)
joint stock company	0.082 (0.660)	0.124 (0.580)	0.055 (0.660)
listed company	0.475 (1.280)	0.839 (1.200)	0.314 (1.240)
size (employment)	-0.131 * (-1.910)	-0.226 * (-1.750)	-0.085 * (-1.860)
Industry dummies			
mining	0.756 ** (2.480)	1.215 ** (2.340)	0.493 ** (2.440)
manufacturing	0.428 *** (2.740)	0.741 ** (2.510)	0.279 *** (2.650)
utilities	0.482 ** (2.180)	0.856 ** (2.140)	0.313 ** (2.140)
construction	0.594 *** (3.480)	0.967 *** (3.040)	0.385 *** (3.320)
tertiary	0.502 *** (3.130)	0.940 *** (3.180)	0.326 *** (3.070)
Financing			
major bank	0.289 *** (2.560)	0.569 *** (2.840)	0.189 ** (2.510)
regional bank	0.199 (1.230)	0.339 (1.140)	0.127 (1.180)
foreign bank	-0.170 (-0.650)	-0.303 (-0.660)	-0.107 (-0.640)
budget	0.666 ** (2.180)	1.271 ** (2.430)	0.436 ** (2.110)
other	0.488 * (1.940)	0.962 ** (2.400)	0.325 ** (1.980)
Trade partner			
Ukraine	0.048 (0.130)	-0.070 (-0.100)	0.027 (0.110)
CIS (excl. Ukraine)	-0.086 (-0.520)	-0.153 (-0.500)	-0.052 (-0.470)

Asia	-0.001 (0.000)	-0.092 (-0.280)	-0.001 (-0.010)
Europe	-0.106 (-0.570)	-0.185 (-0.540)	-0.072 (-0.570)
US and Canda	0.373 (0.870)	0.813 (1.110)	0.243 (0.870)
RoW	0.035 (0.090)	0.120 (0.170)	0.019 (0.070)
Constant	-	-	1.909 *** (6.090)
region dummies	yes	yes	yes
N	633	633	633
Wald chi2/ F statistics	97.82 ***	103.67 ***	3.26 ***
Pseudo R2/ R2	0.0803	0.0877	0.1699
Log pseudolikelihood	-674.5016	-669.1095	-

Notes: This table contains estimation results of the ordered probit and logit, and OLS regressions. It provides detailed definitions and descriptive statistics of the covariates. *z* statistics are reported in parentheses under the regression coefficients. The Wald and F tests examine the null hypothesis that all coefficients are zero. Pseudo R2 is calculated for ordered probit and logit estimators, and R2 is for OLS. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6. Estimation results: Impact of the sanctions on the other shock assessment

Model	[1]	[2]	[3]
Dependent variable	<i>antis sanction</i>	<i>antis sanction</i>	<i>antis sanction</i>
Estimator	ordered probit	ordered logit	OLS
Sanctions	0.985 *** (9.980)	1.996 *** (10.950)	0.529 *** (13.310)
Company's profile			
state ownership	0.036 (0.860)	0.069 (0.850)	0.016 (0.690)
foreign ownership	-0.055 (-1.070)	-0.102 (-0.980)	-0.029 (-1.050)
joint stock company	-0.091 (-0.810)	-0.246 (-1.220)	-0.044 (-0.740)
listed company	0.151 (0.370)	0.352 (0.540)	0.100 (0.460)
size (employment)	-0.068 (-1.110)	-0.125 (-1.130)	-0.036 (-1.090)
Industry dummies			
mining	0.268 (1.080)	0.427 (0.940)	0.146 (1.110)
manufacturing	0.199 (1.270)	0.271 (1.050)	0.098 (1.200)
utilities	0.292 (1.350)	0.445 (1.240)	0.152 (1.350)
construction	0.312 * (1.830)	0.409 (1.370)	0.155 * (1.680)
tertiary	0.308 * (1.880)	0.359 (1.220)	0.157 * (1.760)
Financing			
major bank	-0.059 (-0.550)	-0.124 (-0.620)	-0.032 (-0.550)
regional bank	0.078 (0.490)	0.175 (0.600)	0.045 (0.530)
foreign bank	0.910 ** (2.270)	1.728 ** (2.370)	0.476 ** (2.120)
budget	0.154 (0.350)	0.471 (0.840)	0.099 (0.420)
other	0.020 (0.070)	0.067 (0.140)	0.006 (0.040)
Trade partner			
Ukraine	-0.694 ** (-2.170)	-1.252 ** (-2.020)	-0.359 ** (-2.100)
CIS (excl. Ukraine)	-0.167 (-0.890)	-0.224 (-0.660)	-0.084 (-0.820)
Asia	0.196	0.494 *	0.113

	(1.130)	(1.650)	(1.190)
Europe	0.114	0.004	0.048
	(0.600)	(0.010)	(0.450)
US and Canda	-0.470	-1.219	-0.259
	-(0.860)	-(1.310)	-(0.860)
RoW	0.028	0.177	0.015
	(0.060)	(0.220)	(0.060)
Constant	-	-	1.104 ***
			(4.980)
region dummies	yes	yes	yes
N	657	657	657
Wald chi2/ F statistics	188.1 ***	184.6 ***	8.74 ***
Pseudo R2/ R2	0.2017	0.2203	0.3685
Log pseudolikelihood	-589.2185	-575.5031	-

Table 6. (continued)

Model	[4]	[5]	[6]
Dependent variable	<i>rublerate</i>	<i>rublerate</i>	<i>rublerate</i>
Estimator	ordered probit	ordered logit	OLS
Sanctions	0.728 ***	1.273 ***	0.500 ***
	(11.050)	(10.650)	(11.150)
Company's profile			
state ownership	-0.020	-0.072	-0.009
	-(0.460)	-(0.970)	-(0.270)
foreign ownership	0.065	0.109	0.051
	(0.970)	(0.990)	(1.080)
joint stock company	0.202	0.412 *	0.161 *
	(1.620)	(1.890)	(1.760)
listed company	-0.101	-0.158	-0.077
	-(0.280)	-(0.260)	-(0.280)
size (employment)	-0.056	-0.089	-0.051
	-(0.930)	-(0.820)	-(1.130)
Industry dummies			
mining	-0.285	-0.479	-0.224
	-(1.000)	-(0.960)	-(0.900)
manufacturing	0.286 *	0.496 *	0.229 *
	(1.900)	(1.850)	(1.900)
utilities	0.232	0.344	0.198
	(1.070)	(0.920)	(1.200)
construction	0.374 **	0.614 **	0.295 **
	(2.210)	(2.110)	(2.280)
tertiary	0.368 **	0.626 **	0.276 **
	(2.420)	(2.310)	(2.260)
Financing			

major bank	-0.001 (-0.010)	0.007 (0.030)	-0.043 (-0.530)
regional bank	-0.178 (-1.100)	-0.386 (-1.290)	-0.138 (-1.180)
foreign bank	0.071 (0.140)	0.187 (0.190)	0.041 (0.110)
budget	-0.235 (-0.710)	-0.523 (-0.910)	-0.088 (-0.380)
other	0.048 (0.180)	0.198 (0.420)	0.000 (0.000)
Trade partner			
Ukraine	0.028 (0.090)	0.035 (0.060)	0.071 (0.300)
CIS (excl. Ukraine)	0.187 (1.170)	0.386 (1.340)	0.119 (1.010)
Asia	-0.114 (-0.760)	-0.229 (-0.830)	-0.111 (-1.060)
Europe	-0.145 (-0.870)	-0.234 (-0.770)	-0.169 (-1.350)
US and Canda	0.165 (0.250)	0.681 (0.620)	0.114 (0.230)
RoW	-0.810 * (-1.800)	-1.560 * (-1.890)	-0.669 * (-1.700)
Constant	-	-	1.979 *** (6.480)
region dummies	yes	yes	yes
N	666	666	666
Wald chi2/ F statistics	255.44 ***	242.57 ***	10.89 ***
Pseudo R2/ R2	0.1376	0.1402	0.2861
Log pseudolikelihood	-706.8529	-704.7119	-

Table 6. (continued)

Model	[7]		[8]		[9]	
	<i>chinastock</i>		<i>chinastock</i>		<i>chinastock</i>	
Estimator	ordered probit		ordered logit		OLS	
Sanctions	0.506 *** (6.620)		0.988 *** (6.650)		0.246 *** (6.660)	
Company's profile						
state ownership	0.110 *** (2.750)		0.207 *** (2.810)		0.054 ** (2.560)	
foreign ownership	-0.008 (-0.120)		-0.031 (-0.240)		-0.006 (-0.170)	
joint stock company	-0.114 (-0.910)		-0.220 (-0.900)		-0.047 (-0.750)	

listed company	-0.384		-0.593		-0.183
	-(0.870)		-(0.580)		-(0.790)
size (employment)	-0.001		-0.023		-0.006
	-(0.010)		-(0.190)		-(0.180)
<hr/>					
Industry dummies					
mining	-1.171	***	-1.857	**	-0.549
	-(2.890)		-(2.360)		-(2.480)
manufacturing	-0.122		-0.201		-0.060
	-(0.800)		-(0.700)		-(0.810)
utilities	-0.053		-0.112		-0.008
	-(0.210)		-(0.220)		-(0.070)
construction	0.186		0.393		0.090
	(1.060)		(1.240)		(1.010)
tertiary	0.027		0.034		0.027
	(0.180)		(0.120)		(0.350)
<hr/>					
Financing					
major bank	-0.021		0.002		0.000
	-(0.180)		(0.010)		-(0.010)
regional bank	-0.138		-0.331		-0.069
	-(0.820)		-(1.010)		-(0.820)
foreign bank	0.492		0.943		0.244
	(1.080)		(1.130)		(0.960)
budget	-0.323		-0.717		-0.151
	-(1.170)		-(1.440)		-(1.170)
other	-0.250		-0.571		-0.137
	-(1.020)		-(1.210)		-(1.110)
<hr/>					
Trade partner					
Ukraine	-0.238		-0.532		-0.148
	-(0.770)		-(0.870)		-(0.990)
CIS (excl. Ukraine)	-0.348	*	-0.603	**	-0.157
	-(1.920)		-(1.690)		-(1.800)
Asia	0.553	***	1.161	***	0.293
	(2.890)		(3.460)		(2.940)
Europe	0.164		0.362		0.072
	(0.750)		(0.940)		(0.640)
US and Canda	-0.738		-1.739		-0.325
	-(1.320)		-(1.370)		-(1.130)
RoW	-0.522		-0.943		-0.233
	-(1.250)		-(1.320)		-(1.100)
<hr/>					
Constant	-		-		1.483
					(7.060)
<hr/>					
region dummies	yes		yes		yes
N	633		633		633
Wald chi2/ F statistics	123.48	***	120.37	***	3.60
Pseudo R2/ R2	0.1135		0.1209		0.1886
Log pseudolikelihood	-520.4603		-516.1465		-

Notes: This table contains estimation results of the ordered probit and logit, and OLS regressions. It provides detailed definitions and descriptive statistics of the covariates. *z* statistics are reported in parentheses under the regression coefficients. The Wald and F tests examine the null hypothesis that all coefficients are zero. Pseudo R² is calculated for ordered probit and logit estimators, and R² is for OLS. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7. Estimation results: Extended ordered probit models with endogenous variables

Model	[1]	[2]	[3]
Dependent variable	<i>sanction</i>	<i>sanction</i>	<i>sanction</i>
Estimator	ordered probit	ordered probit	ordered probit
Endogenous variable			
	<i>antisanction</i>	<i>rublerate</i>	<i>chinastock</i>
rather positive	0.568 (0.580)	0.663 ** (2.370)	-0.669 (-1.270)
no impact	1.488 (0.760)	1.757 *** (6.710)	0.948 (1.600)
rather negative	2.361 (0.820)	2.644 *** (10.090)	2.503 *** (3.790)
definitely negative	3.192 (0.840)	4.222 *** (15.160)	4.056 *** (5.750)
Company's profile			
state ownership	0.034 (0.540)	0.047 (1.090)	-0.055 (-1.250)
foreign ownership	-0.051 (-0.690)	-0.048 (-0.730)	-0.028 (-0.440)
joint stock company	0.107 (0.830)	-0.052 (-0.440)	0.155 (1.300)
listed company	0.357 (0.830)	0.497 (1.390)	0.498 (1.460)
size (employment)	-0.139 (-1.280)	-0.027 (-0.430)	-0.056 (-0.880)
Industry dummies			
mining	0.230 (0.600)	0.418 ** (2.010)	0.430 * (1.950)
manufacturing	0.335 (1.200)	0.166 (1.550)	0.303 *** (2.670)
utilities	0.308 (0.920)	0.254 (1.480)	0.341 ** (1.960)
construction	0.442 (1.550)	0.292 ** (2.320)	0.424 *** (3.200)
tertiary	0.330 (1.180)	0.257 ** (2.270)	0.368 *** (3.170)
Financing			
major bank	0.206 * (1.860)	0.232 *** (2.830)	0.201 ** (2.410)
regional bank	0.034 (0.220)	0.172 (1.550)	0.175 (1.570)
foreign bank	-0.540 (-1.150)	-0.025 (-0.080)	-0.095 (-0.280)
budget	0.358 (1.030)	0.475 * (1.940)	0.561 ** (2.130)
other	0.375 * (1.180)	0.312 ** (2.270)	0.349 ** (3.170)

	(1.730)	(2.030)	(2.020)
Trade partner			
Ukraine	0.395 (1.190)	0.082 (0.380)	0.107 (0.440)
CIS (excl. Ukraine)	0.035 (0.220)	-0.188 (-1.670)	-0.096 (-0.800)
Asia	0.011 (0.070)	0.031 (0.300)	-0.127 (-1.100)
Europe	-0.098 (-0.600)	-0.014 (-0.120)	-0.171 (-1.380)
US and Canda	0.047 (0.110)	0.360 (1.100)	0.259 (0.710)
RoW	-0.103 (-0.170)	0.062 (0.150)	0.087 (0.190)
region dummies	yes	yes	yes
N	657	611	633
Wald chi2	60.18 **	742.7 ***	487.17 ***
Log pseudolikelihood	-1348.26	-1331.49	-1245.10
Error correlation	0.13	-0.80 ***	-0.78 ***

Table 7. (continued)

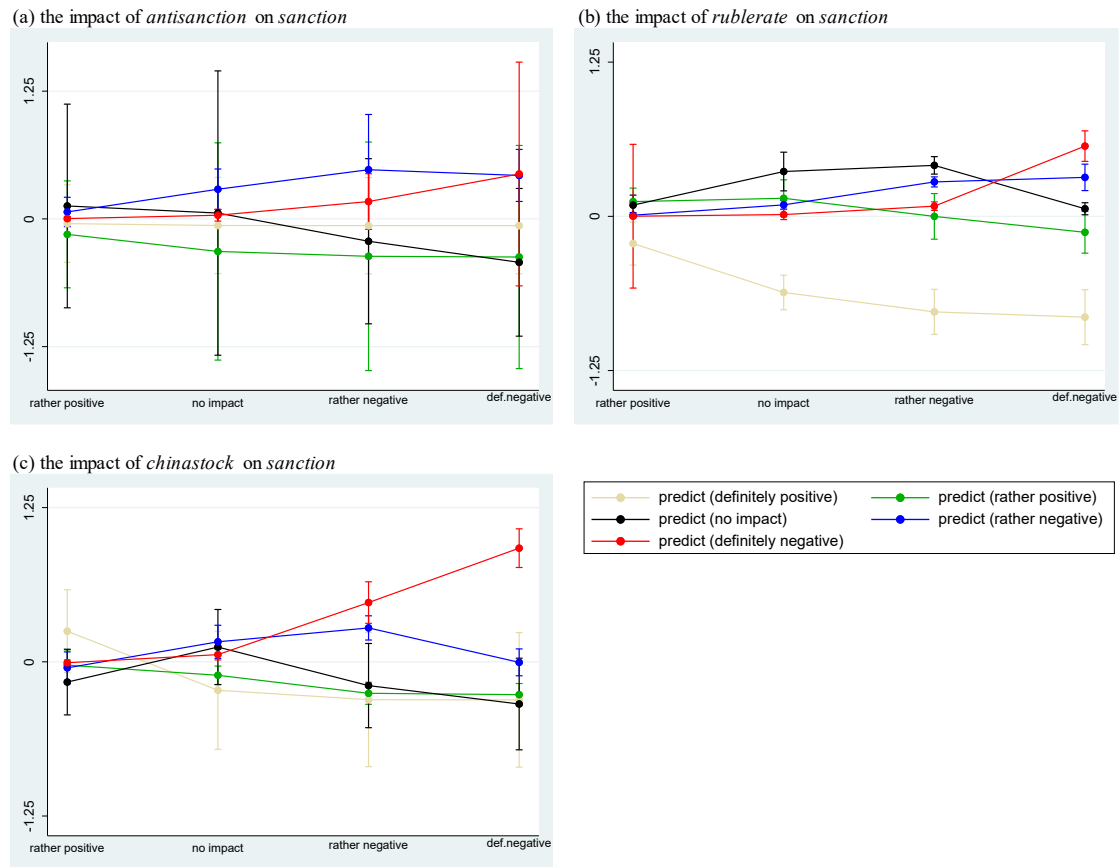
Model	[4]	[5]	[6]
Dependent variable	<i>antisanction</i>	<i>rublerate</i>	<i>chinastock</i>
Estimator	ordered probit	ordered probit	ordered probit
Endogenous variable	<i>sanction</i>	<i>sanction</i>	<i>sanction</i>
rather positive	1.579 *** (5.430)	1.791 *** (6.050)	0.369 (0.380)
no impact	3.436 *** (10.790)	3.121 *** (10.580)	0.689 (0.370)
rather negative	5.070 *** (15.070)	4.530 *** (15.020)	1.437 (0.520)
definitely negative	6.455 *** (19.110)	6.302 *** (18.990)	1.626 (0.440)
Company's profile			
state ownership	-0.048 (-1.160)	-0.061 (-1.470)	0.115 * (1.760)
foreign ownership	0.022 (0.380)	0.086 (1.490)	-0.006 (-0.070)
joint stock company	-0.014 (-0.130)	0.144 (1.290)	-0.120 (-0.840)
listed company	-0.376 (-1.140)	-0.396 (-1.190)	-0.370 (-0.750)
size (employment)	0.103 * (1.710)	0.072 (1.180)	-0.011 (-0.100)

Industry dummies				
mining	0.200	-0.129	-1.307	***
	(1.320)	-(0.800)	-(3.890)	
manufacturing	0.095	0.121	-0.115	
	(1.350)	(1.580)	-(0.700)	
utilities	0.062	0.108	-0.035	
	(0.540)	(0.880)	-(0.140)	
construction	0.091	0.195	0.261	**
	(1.100)	(2.110)	(1.380)	
tertiary	0.122	0.158	0.030	**
	(1.720)	(1.970)	(0.180)	
Financing				
major bank	-0.038	-0.041	-0.066	
	-(0.720)	-(0.700)	-(0.540)	
regional bank	0.077	-0.079	-0.201	
	(1.050)	-(0.970)	-(1.190)	
foreign bank	0.438	0.136	0.471	*
	(1.830)	(0.560)	(0.960)	
budget	0.093	-0.166	-0.363	
	(0.550)	-(0.900)	-(0.920)	
other	0.118	0.041	-0.294	
	(1.100)	(0.360)	-(1.240)	
Trade partner				
Ukraine	-0.403	0.110	-0.178	**
	-(2.380)	(0.640)	-(0.470)	
CIS (excl. Ukraine)	-0.090	0.067	-0.399	
	-(1.240)	(0.790)	-(2.270)	
Asia	0.101	-0.090	0.541	***
	(1.420)	-(1.120)	(3.390)	
Europe	0.049	-0.109	0.289	
	(0.640)	-(1.230)	(1.570)	
US and Canda	-0.141	0.112	-0.853	
	-(0.690)	(0.500)	-(1.580)	
RoW	-0.022	-0.380	-0.560	
	-(0.080)	-(1.210)	-(0.810)	
region dummies	yes	yes	yes	
N	649	658	626	
Wald chi2	1075.98	1076.04	88.75	***
Log pseudolikelihood	-1315.19	-1457.42	-1221.74	
Error correlation	-0.95	-0.93	-0.01	***

Notes: This table contains estimation results of the extended ordered probit regressions introducing an endogenous variable. Models [1]–[3] introduce *antisanction*, *rublerate*, and *chinastock* as endogenous variables, respectively: *antisanction* is instrumented by a

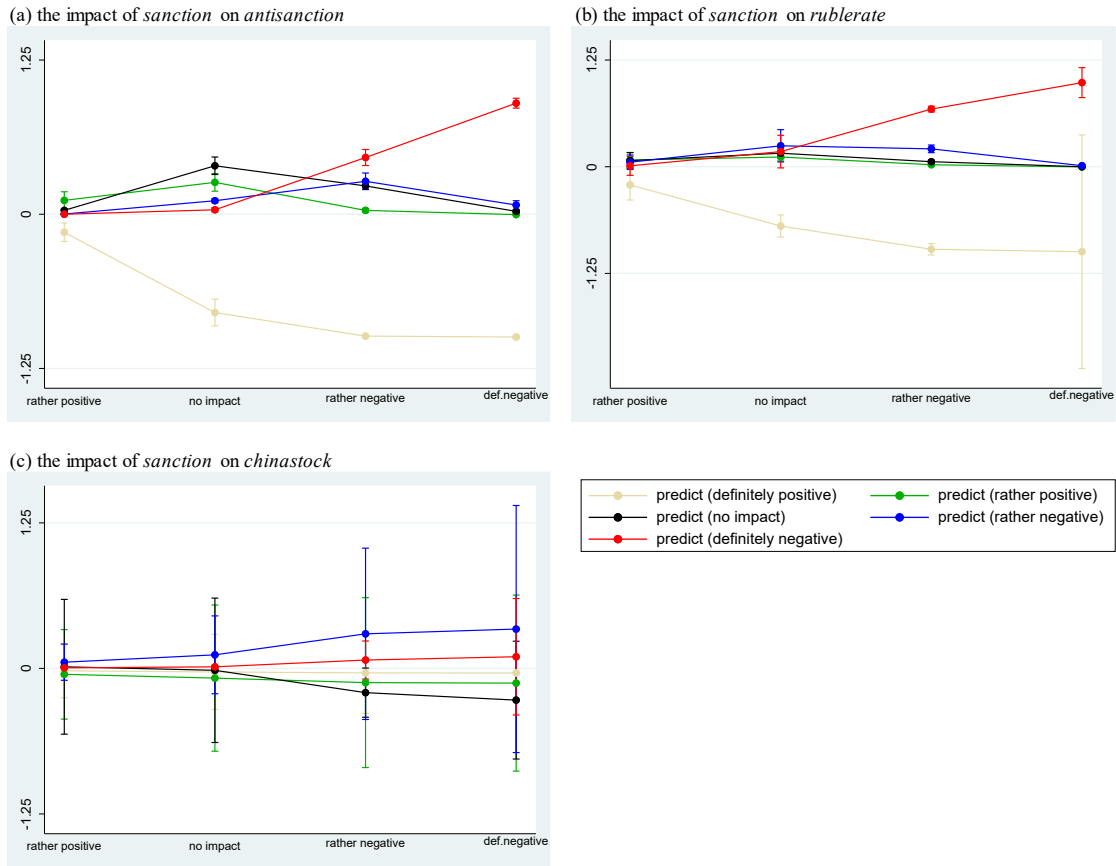
dummy variable for the primary industry; *rublerate* by the impact assessment of the global financial crisis; *chinastock* by a dummy variable for foreign trade operations. Models [4]–[6] introduce *sanction* as an endogenous variable that is instrumented by a dummy variable for state procurement. *z* statistics are reported in parentheses under the regression coefficients. The Wald test examines the null hypothesis that all coefficients are zero. The error correlations represent estimates of the correlation between equations for the outcomes and endogenous covariates, thus examining the null hypothesis of the exogeneity of the covariate. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Figure 1. Marginal effects of various shocks on sanctions assessment



Note: Average marginal effects of other shocks on sanctions assessment (with a 95% confidence interval) are based on estimation results [1] ((a) *antisancion*), [2] ((b) *rublerate*) and [3] ((c) *chinastock*) on Table 7. They depict the correspondence of the magnitude of the impact assessment of sanctions and other shocks. The vertical axis (y) measures the magnitude of the impact of each shock on the sanctions assessment. The horizontal axis (x) corresponds to the extent of the impact assessment of each shock (independent variable): “rather positive,” “no impact,” “rather negative,” and “definitely negative,” where “definitely positive” is the base outcome. Each line in the figure corresponds to the impact assessment of *sanction*; red line: the impact of the sanctions is assessed as having a “definitely negative” impact on the company management; blue line – “rather negative;” black line – “no impact;” green line – “rather positive;” and yellow line – “definitely positive.”

Figure 2. Marginal effects of the sanctions on other shock assessment



Note: Average marginal effects of the sanctions on other shock assessment (with a 95% confidence interval) are based on estimation results [4] ((a) *antisancion*), [5] ((b) *rublerate*) and [6] ((c) *chinastock*) on Table 7. They depict the correspondence between the magnitude of the impact assessment of other shocks and the sanctions. The vertical axis (y) measures the magnitude of the impact of the sanctions on the assessment of other shocks. The horizontal axis (x) corresponds to the extent of the impact assessment of the sanctions (independent variable): “rather positive,” “no impact,” “rather negative,” and “definitely negative,” where “definitely positive” is the base outcome. Each line in the figure corresponds to the impact assessment of *antisancion*, *rublerate*, and *chinastock*, respectively; red line: the impact of the sanctions is assessed as having a “definitely negative” impact on the company management; blue line – “rather negative;” black line – “no impact;” green line – “rather positive;” and yellow line – “definitely positive.”