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Physical, Economic, and Political Feasibility for Trade of U.S. Grain for Russian Oil

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Chapter 1. INTRODUCTION

After the demise of the Soviet Union in 1991, the newly formed Russian Federation has implemented a set of economic and political reforms. These reforms had the purpose of reducing the role of the public sector in the economy. Because of the reforms, the planned economy of the former Soviet Union has largely disappeared.²

The speed of Russia's transition from administrative control to a free market economy has no analogy in global history. As recently as 1988, Russia had no private industrial companies, banks, or insurance firms. Private companies, as a percentage of all Russian companies, increased from 3% in 1990 to 78% in 1997.⁷ Virtually all political and economic changes in Russia during the last decade have been connected with the general process of democratization and the development of a market economy. Among the factors that have characterized the reforms are price control removal, privatization, a decrease in state subsidies, liberalization of foreign trade, promotion of export, and encouragement of foreign investments.² The use of marketing instruments, management and production practices, and western orientation in political programs have been intended to make Russia's economic system more similar to economic systems of countries with developed market economies, in particular, the United States.

Although Russia's economic and political environments still remain challenging for conducting business, some positive trends in the economic and political developments are now visible.² The

development of new Russia's political and economic systems create opportunities for international Russian-American trade agreements that were previously inconceivable.

Russia and the United States have endured a long period on their way from hostile to partnering relationships. The end of the Cold War and the collapse of the Soviet Union started a new era in American-Russian political and economic relationships. A significant example is the campaign against terrorism started by the United States after the September 11, 2001 terrorist attacks. The campaign was supported by Russia's President Vladimir Putin, who has also announced the availability of Russian oil in the event of a supply breakdown in the Middle East. This example of recent political cooperation between the countries represents a new milestone in Russian-American relationships. It also signals potential for significant advances in the trade of commodities, oil in particular, between these two large countries.¹

The difficulties that are being experienced by Russia's internal economic and political reforms influence Russia's international political and economic activities to date and the country's posture for future activities. Roadblocks to the development of a market economy place Russia in a situation where its budget strongly depends on natural resources sold outside the country. Russia has vast natural resources, and among them are oil reserves. Russia has been ranked as the second-largest oil exporting nation in the world.⁶ Its total oil export to countries outside of the Commonwealth of Independent States (CIS) was about 997 million barrels (about 136 million tons) in 2001.⁵ The country's oil production is about 8 million barrels (about 1.12 million tons) per day.¹¹

At the same time, oil is of great demand in many countries around the world, in particular, in the United States. The United States currently imports about 60% of the oil used in the country¹¹. In 2001, the United States imported from Russia about 0.09 million barrels (about 0.01 million tons) per day, while this rate was increased to about 0.2 million barrels (about 0.03 million tons) per day in 2002⁹. Total American crude oil imports averaged 9 million barrels (about 1.26 million tons) per day in March 2002³. This data shows that oil imports from Russia forms approximately 1-3% of the total American oil imports. This study is going to explore causes of Russia's low proportion of the total rate of U.S. imports. The U.S. Energy Information Administration predicts that foreign oil dependence will increase to 70% by 2010¹¹.

In contrast to Russia's large reserves of oil, during the economic and political transition Russia has experienced shortages in agricultural products. Due to a weak agricultural sector and climate conditions in the largest part of its territory, Russia has found itself in a position of needing to import agricultural products, in particular, grain. Russia's import of grain has been changing over recent years. The peak of Russia's wheat imports from countries outside of the CIS was about 165 million bushels (about 4.5 million tons), achieved in 1999, but after that the import decreased to 29 million bushels (about 0.8 million tons) in 2001⁵. Reasons for this large decrease will be investigated in this research project.

In contrast to its demand for oil, the United States traditionally has been among the world leaders in grain exports. Agricultural regions of the United States have participated in the export of principal grains, such as wheat, corn, rice, and soybeans. The former Soviet Union was among the largest buyers of principal grain, and the revenues of the grain exports were a fundamental

component in the budgets of the grain producing states.¹ Russia's economic transition period is characterized by decreased grain imports to Russia. This was partially due to instability and devaluation of the Russian ruble in comparison with the U.S. dollar. For comparison, total wheat exports from the United States to Russia was about 44 million bushels (about 1.2 million tons) in 1999 vs. 1.5 million bushels (0.04 million tons) in 2002 vs. 0 in 2001⁴. Such fluctuations in statistical data suggest the presence of political factors that influence international grain trade and these factors will be explored in this study.

American-Russian supply-demand relationships show some opportunities for economic partnerships between the countries. The purpose of this study is to explore whether such an economic partnership between the countries is feasible. The feasibility will be explored on the basis of physical, economic, and political standpoints.

One of the features of this study that makes it different from all others relevant to the subject is a consideration of logistical issues. The study will explore whether ocean-going ships can be used both ways to haul oil and grain in order to avoid deadheading. Analysis will be done to consider the efficiency of logistical approaches that are in current use and to explore ways to containerize these dissimilar commodities so that they can possibly be shipped in the same vessel. Recommendations will be made how to overcome barriers and to make the trade agreement beneficial for the both countries.

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Chapter 2. LITERATURE REVIEW

The purpose of this chapter is to explore published academic resources that relate to the subject of cooperation and possible trade of oil and grain between the United States and Russia. A number of researchers have considered economic and political aspects of such cooperation between the United States and Russia. The subject of oil trade has received considerably more attention in academic studies than the subject of grain trade.

2.1 Oil Trade

One of the most recent, relevant and comprehensive articles on this subject is by Victor and Victor.¹⁰ These authors analyze the role that petroleum can play in current American-Russian relationships and state that both the United States and Russia consider this topic as a matter of interest for both countries. The authors indicate that “without oil, the Russian-American political agenda is short”¹⁰. Some efforts toward the enhancement of the oil partnerships have been made on the highest governmental levels. For example, new partnership efforts in the oil sector between the U.S.A. and Russia were started during the meeting of Presidents George W. Bush and Vladimir Putin at the Kremlin in May 2002 when the two countries established governmental working groups on oil cooperation.¹⁰

Victor and Victor also explore reasons for this interest in the oil trade. In particular, they analyze Russia’s oil resources and American oil demands. They indicate that “in 2002 Russia reclaimed

its status, last held in the late 1980s, as the world's top oil producer"¹⁰. Today, Russia's oil production is about 8 million barrels (mbd) (about 1.12 million tons) per day. On the other hand, the U.S.A. is among the largest consumers of oil; it usually imports about 60% of the oil used in the country. The US Energy Information Administration predicts that foreign oil dependence will increase to 70% by 2010.¹⁰

Several factors that can impact negatively on American–Russian supply-demand partnerships are acknowledged by Victor and Victor: ineffective regulation of independent investments, economic interests of Russian oil companies affected by the Iraq war, international oil prices unfavorable for Russia and the disorganization of driving forces in the oil industry¹⁰. Some examples of these factors are presented in the paragraphs that follow.

First, Russia's oil sector needs foreign investment. However, investors face obstacles impacting the safety of their stakes, one of which is ineffective legislation and tax systems, in particular, the "production sharing agreements" (PSA) regulations. PSAs have been traditionally used in unpredictable and non-transparent markets to achieve more stable implementation of a project. A typical PSA defines resource of ownership and guarantees payments.¹⁰ The "function of aiding particular deals is an important intergovernmental task, whether ad hoc or institutionalized. No PSA really provides an enclave of stability – investors know that they are always vulnerable to 'renegotiation' where the law is weak and once their investments are entrenched"¹⁰.

Second, some top Russian oil companies control leases for several Iraq oilfields. "Russian officials have pressed the United States to guarantee the existing contracts, but the US

government has wisely demurred”¹⁰. The loss of these oil contracts can very negatively impact Russian oil companies’ bottom line.¹⁰ This issue will be addressed in chapter 5 of this thesis.

Third, Russia’s oil industry is now market driven, and oil prices most likely will largely depend on business decisions of leading oil companies. The committees created by both governments have little impact over oil prices and private investments in the oil industry. Russia’s state budget heavily depends on the world’s oil prices. Victor and Victor claim that a one-dollar shift in oil price causes a billion-dollar impact on the budget. The reason that oil prices affect Russia’s budget so heavily is that Russia depends upon oil exports to sustain its revenue. The authors indicate that “when oil prices drop, Washington and Moscow will discover that they have very different interests.”¹⁰

Finally, there is disorganization and conflicting motivation in the forces that drive Russia’s oil industry. Victor and Victor state that “privatization and competition ... make it increasingly difficult for Russia’s oil industry to identify a single national interest or to behave, like OPEC’s members, as a coherent unit. ... Thus the oil sector’s grip on Russian policy is much weaker than that of other energy sectors – such as gas or electricity – where single firms still dominate.”¹⁰

The article by Victor and Victor sheds light on the factors that would affect American-Russian oil trade. Still, there is no clear conclusion that such trade should or should not take place in the future.

Another author, Fiona Hill, also indicates how strongly the Russian budget depends on world oil prices. The author points out some limitations in the future development of Russia's oil sector, such as oil reserves and political issues. Russia is ranked third in oil production, second in oil exports, and seventh in proven oil reserves among countries around the world. Nevertheless, Hill states that "Russia will never displace OPEC in world oil markets. Over the long term, it can not match OPEC's oil reserves"⁴. Hill, as well as Victor and Victor, indicates that "Russia and the United States remain divided on the global oil issues – especially the interests of Russian energy companies in Iraq"⁴. Thus, the political factor may be an important determinant in whether a Russian-American oil trade agreement can take place.

On a more positive note, another study, by Morse and Richard, suggests that increasing oil trade can benefit Russia both politically and economically: "In economic terms, energy production lets Russia integrate itself into the industrialized West. In political terms, energy resources can be used to buttress Moscow's goal of becoming a key partner of the United States"⁹.

In contrast to Hill, Morse and Richard state that Moscow has a chance "to displace OPEC as the key energy supplier to the West"⁹. Some Russian oil companies own oil reserves outside of Russia, in other former Soviet Union republics. New reserves found in these republics have increased Russia's reserve potential. Morse and Richard see consolidation of the Russian oil industry after the 1998 financial crisis, in disagreement with Victor and Victor, who saw disorganization in the driving forces in Russia's oil industry. Morse and Richard have also noted a recent increase in Russia's oil exports that makes Russia stronger in international oil trade.⁹

Additionally, Morse and Richard point out how recent changes in the overall oil sector have affected individual oil companies. The companies are trying to improve their “corporate governance records,” to adopt an internationally recognized financial reporting system, to improve managerial and production practices, all of which will increase the attractiveness and profitability of investments in the companies. Also, recent Russian federal judicial and tax reforms have intended to create a more harmonized business environment in Russia.⁹

Morse and Richard also acknowledge failures that some Russian oil companies faced during their attempts to develop international partnerships. Two examples are Lukoil and Yukos. In Lukoil’s case the U.N. sanctions on Iraq in 1999 touched Lukoil’s interests; in Yukos’ case it is the failure to reach a commercial agreement regarding a refinery and offshore terminal on Lithuania’s Baltic coast that could let the company ship oil in large tankers to New York. Nevertheless, the authors indicate that “Russian producers will continue to expand their influence into historical markets and beyond. ... several Russian firms will compete in privatization tenders for downstream oil assets in Poland, Latvia, the Czech Republic, Slovakia and Croatia”⁹. In summary, Morse and Richard believe that there is a future in Russian-American oil trade.

Ziener, another researcher in the field, considers weak production and lack of investments as the main problems of Russia’s oil industry. He also considers the causes of the problems, two of which are the failures during the Soviet period and the roadblocks during economic transition from a planned to a market economy. Ineffective management during the Soviet and transition periods, focus on short-term productivity, inefficient development of oil reserves and the use of

obsolete equipment characterize the difficulties that Russia's oil sector has experienced during its transition from a planned to a market economy.¹²

Ziener also stresses the role of investments in the oil industry. He states that the decline in oil production and oil export in the late 1980s was largely caused by reduced government support of this sector of the national economy. In 1995, total investments in exploration and production were 35% of the 1990 level. The reason for this decrease is Russia's budget deficit. The lack of investments still remains a problem today.¹²

Ziener gives some recommendations for Russia's fiscal and law systems that, if implemented, would help attract more investments, including those from American investors. Among the recommendations are protection against legal and political risks as well as flexibility of a tax system on the basis of production cycles and types of projects. Specifically, new projects with little proven oil reserves should receive favorable tax incentives.¹²

Goldman considers some political issues that influence the oil sector in Russia. The author indicates that "while privatization may not have invigorated the energy sector, it did enrich those who presided over the process. Recognizing the vast opportunities for personal gain, many of the *apparatchiks* in the newly-formed Energy Ministry set aside at least a portion of the ministry's oil assets for privatization, while assuring themselves positions as chief executive officers and major stockholders in the new companies that controlled these assets"³. For example, Vagit Alekperov, "the acting minister of the Fuel and Energy Ministry during Soviet days ...put

together a collection of choice properties, including oil fields and refineries, into what in 1991 became Lukoil”³. Today, *Forbes* magazine lists Vagit Alekperov in the list of billionaires.³

Like Victor and Victor, Hill and some other researches, Goldman stresses the influence of world oil prices on Russia’s budget and economic stability: “Russia may see economic recovery with a rise of oil prices, but without higher prices it is most unlikely the economy will improve significantly”³.

Like Ziener, Goldman points out a strong need for investments in Russia’s oil industry. However, in contrast to Ziener, Goldman sees the shortage of investments mainly due to lack of trust in Russian companies. The author lists some factors that caused this, such as corruption and mismanagement. Also, foreign investors, including American investors, are concerned with the limitations on percent of stock that foreigners may have in a Russian oil company. Another concern is limitations in legal protections to enforce PSAs. The author considers the roles of Russia’s President and Duma in the preparation and adoption of laws that are important for foreign investors. Goldman points out that “as long as wanton disregard of international business practices exists in Russia, foreign investors are likely to remain hesitant.”³

Khripunov and Matthews consider interest groups presented in the oil sector. According to the authors, today there are at least four interest groups in the area: “the oil complex, the military-industrial complex, the agro-industrial complex and regional elites”⁵. Representatives of all groups are present in the State Duma, the lower Chamber of the Federal Assembly (Russia’s legislative branch), as well as in Russia’s federal government.⁵

An example of the first interest group is Viktor Chernomyrdin, the former Minister of Fuel and Energy and the head of Gazprom, represented oil interests in the Yeltsin government. The political party called “Our Home is Russia” was created for the December 1995 parliamentary elections under the auspices of the government and presided over by Chernomyrdin. This political party had “the second-largest representation ... in the State Duma”⁵.

The military-industrial complex consists of industrial plants that formerly manufactured weapons and have better production practices. The oil complex prefers to place orders for oil equipment with these former defense plants. Therefore, the military-industrial complex represents the second interest group, according to Khripunov and Matthews. This puts oil companies into a “savior” or at least highly collaborative position for the defense industry that has experienced tremendous decline during market reforms.⁵

The third interest group is the agro-industry sector, the largest consumer of oil products. Agro-industry accumulated of \$10 during earlier stages of the economic reform. Russia’s major oil companies realized “that should they deny deliveries of oil products (to the sector) they would be accused of jeopardizing economic recovery – something they (could) not afford politically”⁵. Unsuccessful negotiations with the agro-industrial complex showed to oil companies that market reformation of agriculture would be the only way out of the situation.⁵

Finally, the fourth interest group, political authorities, so called “elites,” of many agricultural regions in Russia, initiated and supported a campaign for re-nationalization of Russia’s oil sector due to rising costs for energy products in 1995. For example, “the Rostov-Don Assembly urged

the State Duma to pass a law restoring state ownership of the oil ... complex facilities during the period of economic reforms”⁵. The leaders of the energy sector, who were represented in the State Duma and the federal government, refused this initiative of course.⁵

Khripunov and Matthews explain the role of state government and the President as they affect the oil industry. According to the authors, since 1992 Russian government and presidential staff have been making attempts to increase control over the oil industry “to derive administrative, financial, and political dividends”⁵. This was done by adopting new Laws (for example, the Law on Natural Monopolies), changing government leaders (Ministers and Prime Ministers) and supporting opposition among competitive groups. The authors refer to Russia’s long-term energy strategy until the year 2010 that was approved on May 07, 1995 by Yeltsin’s edict no.427 as a document defining Russia’s foreign policy in the oil sector. “Despite the generally protectionist regime inside Russia, economic imperatives are increasingly opening the energy industry to Western companies and investments”⁵. The authors name some American companies that were able to start business in Russian oil sector. Among them are Exxon and Conoco.⁵ (Conoco merged with Phillips Petroleum Company in 2002 and is now ConocoPhillips; Exxon and Mobil formed new Exxon Mobil Corporation in 1999.)

Like Goldman, Khripunov and Matthews believe that “for the foreseeable future, the oil... complex will remain dependant on Western markets, investments, and technologies if it wishes to become globally competitive. ... Russia’s foreign policy is likely to bear the imprint of the oil... complex as a leading interest group...”⁵.

An article by Kolchin considers logistics of oil transportation. Kolchin considers directions of shipment of Russian oil. In addition, the author studies the mode of transfer and indicates that 55% of the oil is shipped through ports and 45% is pumped through pipelines. According to the decision of Russia's Ministry of Fuel and Energy, particular oil companies are assigned to coordinate shipments for different directions and modes of transportation. Like Khripunov and Matthews, Kolchin indicates that "the government is not abandoning its hopes of establishing stricter control on oil exports"⁶. The author discusses several tax mechanisms related to oil exporters that the government was trying to implement in 1995-96.⁶

According to Kolchin, the following ten leading oil companies form more than 50% of Russian total oil exports. The companies are Lukoil, Yukos, Surgutneftegas, Sibneft, Tatneft, Tiumen Oil Company, Bashneft, Rosneft, Sidanko and Slavneft. Average export rate for the companies is about 35% of their total production.⁶

Kolchin believes that crude oil exports will increase during upcoming years. However, this tendency will depend on "domestic economic situation and on investment, financial, and tax policies in the oil sector, as well as on changes in the market conditions of the domestic economy"⁶.

Like Victor and Victor, Hill, and some other researchers, Krapels points out the importance of oil prices to Russia's budget. Krapels indicates that international oil trade depends on three factors: political doctrine of the U.S.A., Russia's oil industry development in the post-Soviet period, and environmental issues.⁸

Considering the U.S.A. political doctrine, the author focuses on international political trends such as the Iraq war (Gulf War) and the role of OPEC. Although the writer was writing before the second Iraq war, without doubt this second war has also had an impact. With respect to Russia's oil industry development, Krapels, like Ziener and some other researchers, identifies some barriers. The "oil industry lacks the critical organizing principles... - that tense blend of resource husbandry and profit maximization"⁸. Krapels also considers how the environmental movement can affect oil trade. There is mutual dependence between oil quality and air quality, and the author addresses some general ecological issues in connection with oil production.⁸

The purpose of Krapels article is to explore possible Russian energy policies. The author believes that any such policy must be based on the three foregoing factors. Krapels recognizes that public policy in a free market environment is difficult. This can be seen in his statement that "Oil is one such area where a policy interest (mitigating the costs of an oil supply shock) coexists uneasily with free market principles"⁸.

Watson, like the other authors except Hill and Krapels, acknowledges the need for foreign investments to the Russian oil industry. Watson also recognizes the obstacles to such investments, for example, the lack of legal guarantees, unfavorable taxation regulations, and uncertain export rights. The reasons for the obstacles are largely problems that occurred during Russia's political and economic transformation, such as battles for political authority between federal and local governments, high rate of turnover of government officials, and inflation.¹¹

Watson, like Khripunov and Matthews, recognizes the importance of interest groups existing in the oil sector. However, in contrast to Khripunov and Matthews, Watson defines these groups as the oil companies themselves, government bureaucracy and domestic energy consumers. In addition, the author gives some prospects on the future development of international investment projects in Russia. Affecting these projects would be the factors of political stability, fluctuating oil prices, access to transportation channels, and others.¹¹

Many features and obstacles of the current Russian political and economic environment that impact the oil trade can also influence the grain trade.

2.2 Grain Trade

Kopsidis studied Russian grain markets because for Russia grain is a very important agricultural product and is essential for achieving food security. The author states that since 1990, due to several economic crises, Russia has experienced a decline in the production of agricultural products. Some of the causes of this decline include inefficient market policy of federal and local authorities, the undeveloped market economic system (for example, the prevalence of barter trade), and roadblocks to privatization. Low productivity and efficiency of Russia's agricultural sector can be the main reason for Russia's need to import food and in particular, grain.⁷

The author examines the causes and possible consequences of the disintegration process that occurred in the agricultural sector during Russia's transition to a market economy. In particular,

the following issues were considered: growing transaction costs in domestic grain trade, political and economic development affecting the agricultural sector, the effect of market disintegration on domestic grain production, and competition and specialization of the domestic grain market.⁷ All of these factors will define demand for grain import.

Gaidar, like Kopsidis, refers to the crisis situation that occurred in Russia's grain market in the early 1990s. "The market was not functioning, prices were not equilibrium prices, savings were compulsory, and the authorities increasingly lost their ability to redistribute resources with each passing day. ... The grain procurement crisis was the most painful symptom and result of this situation"².

The author considers the actions taken by the federal government in response to the situation and what results were achieved after the actions were implemented. The achieved results resolved the urban supply crisis and created "preconditions for forming institutions of a market economy and privatization"².

Also, the issue of financial support (subsidies) of agriculture is considered. The author points out the need for legal reforms that could create a mechanism for new types of financing, perhaps through seasonal loans, for example.²

In another study Brock focuses on farm productivity and price regime for one of Russia's regions– the Volgograd region. This region is among Russia's top grain producing regions based

on the quality of land. Like Kopsidis, the author examines the role of local authorities in the development of the agricultural sector.¹

In conclusion, oil trade occupies a significant place in the U.S. - Russia political agenda. American demand for petroleum and Russia's need to support its federal budget on the basis of money received for oil exports define the attention that this matter receives on the highest governmental levels of both countries. Nevertheless, some international (the Iraq wars) and domestic (interest groups) political factors can impact negatively on the trade collaboration.

The oil industry and oil export in Russia has been growing rapidly during the last several years. Many research studies point to Russia's potential for oil export. However, the oil industry needs investment. Obsolete equipment needs replacement and new managerial practices should be initiated to make the industry more efficient. Foreign investors face difficulties such as ever changing legislation and an unstable tax system. The development of a market economy in Russia has decreased and will continue to decrease the influence of governments of both countries over business decisions regarding oil prices and financial investment in the Russian oil sector.

In contrast to the oil industry, Russia's agricultural industry, and in particular the grain industry, has experienced production instability since 1995. This instability has been caused by inefficient market policy of federal and local authorities, an undeveloped market economic system (for example, the prevalence of barter trade), privatization roadblocks, and some other economic conditions. This production instability is the main reason for Russia's need to import grain.

In all of the studies reviewed, the literature search did not find any resources that would consider American–Russian trade exchanges for both products simultaneously. Indeed, the studies were not conclusive about the existence of or the need for the trade of these commodities taken individually. Also, although some studies considered transportation issues, no study was found that focused on the design of modes of transportation to facilitate the trade of oil and grain. The review of existing studies has served the useful purpose of setting the stage for the particular objectives of the research project proposed herein.

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Chapter 3. STATEMENT OF PROBLEM

Information obtained in the Literature Review section of this proposal has provided a basis to formulate the study hypothesis. The hypothesis is that there is physical, economic and political feasibility for a trade agreement between the United States and Russia to trade U.S. grain for Russian oil.

In order to prove or dismiss the hypothesis, a series of questions to be researched follows¹:

Technological Feasibility:

1. Is it feasible to ship grain and crude oil in the same ship?

2. Is it feasible to ship petroleum *products* in the same ship that transports grain?

If so, which petroleum *products* are most suitable for such shipment? Example petroleum products with widely varying characteristics would include such products as: gasoline, liquefied petroleum gas, natural gas, refined motor oil, polymer beads, coal tar, naphtha.

3. What containerization methods have been tried? Possible examples: tank-supported bladders, unitized containers loaded dockside and craned into the ship, and preloaded, pressurized tanks.

4. What safety and environmental hazards impact the feasibility of shipping such dissimilar commodities as petroleum and grain?
5. What is the existing ship inventory of carriers that might be able to respond to the type of traffic of an ongoing trade between Russia and the United States in the two dissimilar commodities in question.
6. For ports within the United States and Russia, what is the comparative port capability for this type of trade on both sides of the globe?

Economic Feasibility:

1. What is the estimated freight cost of transporting a metric ton of grain from the rural points of production to various ports of embarkation within the United States?
2. What is the estimated freight cost of transporting a metric ton of grain from various ports within the United States to various ports within Russia? This question should be answered under two alternative assumptions: (1) that both petroleum and grain can be shipped in the same ship, and (2) that empty, grain-handling ships must deadhead back to the United States.
3. What is the estimated freight cost of transporting a metric ton of grain from the port of debarkation in Russia to the point of use or further value-added processing?

4. What is the estimated freight cost of transporting crude oil or petroleum products from the point of production within Russia to the various, feasible Russian ports of embarkation?
5. What is the estimated freight cost of transporting crude oil or petroleum products from the various feasible Russian ports of embarkation to the various feasible ports of debarkation within the United States?
6. What is the estimated freight cost of transporting crude oil or petroleum products from the various feasible ports of debarkation in the United States to refineries or other points of value-added processing?
7. What effects do the comparative stabilities of the U.S. dollar and the Russian ruble play upon any trade agreement to exchange grain and petroleum?
8. What are current and historical average prices for typical grains, such as wheat, corn, and soybeans and for crude oil and petroleum products?
9. What unit price ratios between grain and oil can be determined to act as a basis for international trade.

Political Feasibility:

1. What parties in both the United States and Russia have the authority to negotiate general trade agreements of the scope required to effect a trade between petroleum and grain between the two countries?
2. Do private companies in either the United States or Russia have the authority to negotiate with their counterparts in the other country to initiate a trade agreement?
3. By what political procedure do interested parties initiate trade negotiations between the United States and Russia?
4. Do political embargoes exist that would limit the trade of grain and petroleum between the United States and Russia?
5. What effect does the recently-imposed U.S. steel tariff have upon the political feasibility of initiating a trade agreement for the exchange of U.S. grain for Russian oil?
6. What effect does the recently-imposed restriction upon the import of U.S. poultry into Russia have upon the potential of a U.S. grain/Russian oil trade agreement?
7. What safety, environmental, and other regulations of either country would impact any agreement to trade U.S. grain and Russian oil?

References:

1. Asfahl, C. Ray. "A Proposal to Study the Physical, Logistic, Economic, and Political Feasibility of Petroleum/Grain Exchange Shipments With Russia." Grant Proposal. University of Arkansas, 2002.

Chapter 4. METHODOLOGY

In this chapter, a method for reaching conclusions about the hypothesis of this research is outlined. It must be recognized that this is complex problem that is subject to the interaction of many qualitative factors. The method of this research is to find factual data to answer the questions posed in Chapter 3 and then to draw conclusions.

The research is based on analysis of information related to economics, politics, logistics, and other issues that may influence international trade. The study can be classified as a feasibility study. Study of market conditions, cost-benefit analysis and other methods of analysis are employed for the study.

The study is based on a systems approach. Evidences that support or weaken the hypothesis formulated in Chapter 3 is considered based on the mutual influence of all elements listed in the questions to be researched. By systems approach it is meant that the study considers mutual influence between the factors, rather than consider the separate factors themselves. System elements considered include political decisions, government rules and regulations, market economic parameters, and technological characteristics of transportation processes.

A “Yes/No” answer to the hypothesis of this research is valid only if a set of certain factors is present. Therefore, it is recognized that the study uses a “What If” approach in the statement of conclusions. This means that “What If” scenarios will be described under which the hypothesis is

found to be true. Another set of scenarios will be described under which the hypothesis is found to be false.

The dynamic character of both economic and political environments must be taken into account. Therefore, it must be acknowledged that the validity of the study results will decay when the factors change over time.

Resources for the research include academic studies and studies done by practitioners, both in the U.S.A. and Russia, related to the project topic. Also, interviews with specialists in the field are used.

The research findings are to be presented in professional meetings and journals.

Chapter 5. ANALYSIS

5.1 Technological Feasibility

5.1.1 *Is it feasible to ship grain and crude oil in the same ship?*

According to the opinions of experts that were interviewed for this study, physical feasibility to ship grain and crude oil in the same ship does exist. Indeed, some specialists have reported that this type of transport has already taken place.

The first of the related issues is cleaning of a ship and the costs associated with such an undertaking. Cleaning costs consist of two categories: demurrage of a ship (lost money as potential profits since the ship is not operating), and cleaning itself (costs associated with equipment, materials, and labor).¹⁸ Special chemicals are needed to clean a ship after it has been used to ship oil. For grain, water must be used to clean the ship after its use.¹⁴ These costs are considered in more detail in Section 2 of this chapter.

The second issue is legal requirements that determine transportation policies for different types of ships. In particular, current laws prescribe the usage of “double hulled” type of vessels. They mandate that petroleum and grain are commodities that can not be shipped in the same vessel at the same time.

The quantity of products shipped may be affected by both of these factors. The effectiveness of cleaning operations is important for commodity quality considering either sequence of shipment: first petroleum and then grain or vice-versa. Residues left after the cleaning are the main characteristic of cleaning ineffectiveness. The practice has shown that the quality of grain is more sensitive to the effectiveness of cleaning operations, and up to 3% of the grain can be lost after the transportation is completed.¹⁴

5.1.2 Is it feasible to ship petroleum products in the same ship that transports grain? If so, which petroleum products are most suitable for such shipment? Example petroleum products with widely varying characteristics would include such products as: gasoline, liquefied petroleum gas, natural gas, refined motor oil, polymer beads, coal tar, naptha.

Considering the feasibility of the shipment of petroleum products in the same ship that transports grain, interviewed specialists point out limitations in the shipment of liquefied petroleum gas. Special physical conditions, such as pressure, require special ways of containerization. The shipping of petroleum products, such as gasoline and refined motor oil, is not subject to such strict limitations.¹⁴

A different strategy is to import oil products instead of crude oil, making shipment of crude oil and grain in the same ship unnecessary. Current American practice is to ship crude oil from different parts around the world and to refine the oil in the Caribbean, Texas, or New Jersey. Refinery processes are more expensive in the U.S.A. comparing to

the similar processes in other countries. Therefore, the specialists believe that a more cost-efficient strategy is to import oil products instead of crude oil.¹⁸

5.1.3 *What containerization methods have been tried? Possible examples: tank-supported bladders, unitized containers loaded dockside and craned into the ship, and preloaded, pressurized tanks.*

Methods of containerization of petroleum and grain impact transportation costs, which can directly influence the economic feasibility of the shipments. For example, oil might be shipped in bladders.¹⁸ Processed cargo is more likely than crude oil to be shipped by using containerization. Similarly, small amounts of grain products (for example, flour and rice) are also shipped in containers.¹⁵

Another economic issue is the impact that the containerization or its absence has over unloading or loading costs. The practice has shown that the handling of containers is difficult even by using automated equipment. These above mentioned factors lead to a situation where transportation costs may form about 30-50% of the commodities' prices.¹⁴ Detailed information about related costs is presented in Section 2 of this chapter.

Political issues must be also recognized. Containerization makes possible the control of the amount of commodities shipped and prevents unplanned or uncontrolled access to the commodities. Some ports are famous for their "bad practices," which means the existence

of non-authorized access to the commodities. To address this issue, specialists in the field use the term “identity preservation”¹⁵. This approach represents a growing usage of this strategy that is affected by special characteristics of a market as well as quality standards for the products.

The general conclusion is that bladders and containers are in many cases not economically feasible. However, containerization can be used specifically in two cases:

1. for ports that are known for their “bad practices,”
2. for shipping final products.

5.1.4 *What safety and environmental hazards impact the feasibility of shipping such dissimilar commodities as petroleum and grain?*

Safety and environmental hazards that impact the feasibility of shipping petroleum and grain can be considered in two stages: transportation and cleaning of ships.

During the transportation stage, fire is the main hazard. Sources of the hazard are grain dust and oil itself as burnable substances.¹⁸ Additionally, there have been several cases in recent world history when tankers carrying oil had leaks. These notorious spills caused great ecological impact on water, animals and plants in the polluted zone. The U.S. Environmental Protection Agency (EPA), Greenpeace and other organizations may be involved in this type of situation.

Not the same, but related to safety and environmental hazards are regulations pertaining to the shipment of food products. According to American regulations, which are different from Russia's, a ship is eligible for transportation of grain only if it had a non-toxic cargo in its three most recent shippings. Residues of the chemicals or the commodities themselves can represent a hazard for the next commodity to be shipped.¹⁴

5.1.5 *What is the existing ship inventory of carriers that might be able to respond to the type of traffic of an ongoing trade between Russia and the United States in the two dissimilar commodities in question.*

The existing ship inventory of carriers that might be used for ongoing trade between the U.S.A. and Russia for grain and oil is now considered.

On the American side, there are "SUEZMAX" and "LR2" (vessels of about 1 million barrels (136 thousand tons)), "AFRAMAX" (500-650 thousand barrels (68-89 thousand tons)), "PANAMAX" (300-400 thousand barrels (41-55 thousand tons), which are capable of going through the Panama Canal), and "HANDYMAX" (a smaller ship, which goes through the Black Sea and Baltic ports).^{15,26} The usage of ships with the American flag is mandatory for all shipments fulfilled by American government. This regulation will be also considered in Section 3.7 of this chapter.

On Russia's side, 80% of all tankers belong to three companies: Sovkomflot (a 100% state owned company), Novorossiyskoe Morskoe Parokhodstvo (the Novorossiyskoe Steamship Line) and Primorskoe Morskoe Parokhodstvo (the Primorskoe Steamship Line). Technical and economic parameters of these and two other smaller companies are presented in table 5-1. Some of Russia's ships use foreign flags such as Liberia and Malta instead of a Russian flag, in order to decrease taxes by 4-5 times.⁶

Table 5-1 Russia's Ship Inventories

Company	Number of ships	Volume of transportation, million tons per year (2001)	Average age of ships, years*	Profits, million dollars
Sovkomflot	70	12.0	17	7.2
Novorossiyskoe MP	77	13.5	14	3.5
Primorskoe MP	46	10.4	14	5.1
Murmanskoe MP	37	7.1	-	3.1
Dalnevostochnoe MP	74	8.0	16.5	-1.5

*maximum age for tankers has to be no more than 25 years

** MP - Morskoe Parokhodstvo

Russia does not have enough ships for its international trade, including oil export. In particular, 84% of total shipments on Russia's export market (\$6 billion) in October 2002 were provided by foreign ships. Some oil companies make intensive efforts to solve this deficit of transportation means. For example, LUKOIL bought stock in Murmanskoe

Morskoe Parokhodstvo, which manages transportation issues for the company. Table 5-2 represents shipments of crude oil and oil products (million tons) for different geographical directions.⁶

Table 5-2 Russia’s Oil Ship Transportations Based on Ports’ Geographical Locations

Direction	North		West		South		East		Total	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Crude Oil	-	-	0.5	0.7	44.4	51	1	2	45.9	58.7
Oil Products	0.8	1	8.8	11.8	11.8	12.7	8.6	9.5	29.5	35

As shown in the table, Southern ports are the most active in the transportation of oil and oil products.

5.1.6 *For ports within the United States and Russia, what is the comparative port capability for this type of trade on both sides of the globe?*

Comparing port capabilities of both countries, it is important to keep in mind that factors besides the ports themselves can impact the feasibility of trade. Railroads and pipelines that transport the commodities to the ports are also important. Therefore, this section considers ports capabilities including railroad and pipeline facilities that serve these ports.

In general, Russia has four variants of oil transportation: southern ground pipelines, pipelines and ships to the Mediterranean Sea, the Baltic Sea terminals, and pipelines to Europe.¹² For oil export to the U.S.A., the Baltic Sea terminals and access to the Mediterranean Sea are of great importance. Some examples of Russia's port terminals are considered below.

In particular, the marine terminal in Primorsk opened in December 2001 has a productivity of 7.3 million barrels (1 million tons) of oil per month. Other examples are marine terminal in Buting (Lithuania), which handles 5.9 million barrels (0.8 million tons) of oil per month, and Novorossiskiy port with productivity of 25.7 million barrels (3.5 million tons) per month.²⁵ Experts believe that most of Russia's ports have limited capabilities. In particular, the Baltic Sea ports do not possess enough depth for large oil tankers. Without the big tankers, oil exports to America are economically infeasible. Ships from the Black Sea ports should cross the Bosphorus, which aggravates Turkey's ecological movements.⁴²

In particular, UKOS's two oil shipments to the U.S.A were done from the ports in the Black Sea. In order to make oil shipment from Russia efficient, the general approach is to have super-tankers with a total displacement over 1.8 million barrels (250 thousand tons). Neither the Baltic nor Black Sea ports have this capability. So, UKOS first transported oil in smaller tankers, and in the Mediterranean Sea the oil was re-filled in supertankers.⁴⁴ These port limitations directly affect transportation costs, which will be further considered in Section 2 of this chapter.

Another type of transportation is pipelines. The biggest pipeline system controlled by Russia's government is Transneft. Its capability is 2.65 million barrels (362 thousand tons) of oil per day. Other pipeline systems are relatively small; they possess a capability of about 0.4 million barrels (55 thousand tons) per day.¹⁰ Among these smaller pipeline systems the largest are the Baltic pipeline system, with productivity of 132 million barrels (18 million tons) per year, and Druzhba-Ardia – 37 million barrels (5 million tons) per year (planned to be increased to 110 million barrels (15 million tons)). Druzhba-Ardia represents strategic importance because it transports oil to port Omishal in Croatia. This port is deep enough for big super-tankers which can go to the Mediterranean Sea.³⁷ Thus, the usage of the port excludes re-filling of tankers and costs associated with this process.

Experts believe that the total volume of Russia's oil export can achieve 2,272 – 2,566 million barrels (310-350 million tons) in 2010 vs. 1,759 million barrels (240 million tons) in 2002.³⁷ Currently, Russia's transportation facilities are insufficient. Despite the negative factors, Russian oil companies make active efforts to improve their limited transportation capabilities in order to keep their positions on the international oil market. This is achieved by means of port development and the usage of alternative means of transportation.

For example, Lukoil's project is one of the most interesting among the current projects for transporting Russian oil to the U.S.A. The project plans to build a pipeline from West Siberia to Murmansk (length - 1.5 thousand kilometers, productivity – 367 million barrels (50 million tons) per year, cost of construction - \$4 billion) and a new terminal in

Murmansk port. This route will avoid the current practice of re-filling of tankers in Amsterdam, Rotterdam or Antwerpen. The oil from Murmansk can directly go to the U.S.A. This will decrease transportation costs as is shown in Section 2 of this chapter in order to make Russian oil competitive on the American market.³⁷

Some oil companies consider investment in Transneft to improve the pipeline capability.³⁷ Also, oil companies use alternatives to Transneft transportation channels for oil exports, for example, railroads. In May 2002 total oil export performed by using rail transportation was 16 million barrels (2.2 million tons). Moreover, Russian oil companies annually export up to 161 million barrels (22 million tons) by using river ships and railroads in combination.²¹ Also, Russia's oil companies have tanker-accumulators for oil that was transported by rivers, in St.Petersburgh, the Black Sea and Kerch.²⁵

Port capability information for current grain export from Russia allows us to estimate capacities for potential grain import as well. In general, the limitation for grain imports is the same as for oil export, namely, there are insufficient port capabilities.

For example, Port Muuga (Estonia) is the biggest port for grain transportation in the Baltic Sea. Its capability is 74 million bushels (2 million tons) of grain per year.⁷ On average, port terminal capacity is no more than 110 million bushels (3 million tons).⁴⁹ Economically efficient grain transportation assumes usage of ships with total displacement of at least 5 million bushels (140 thousand tons). Terminals on the Azovskoe and Black Sea do not have enough depth. Under conditions of the shortage of

national ships, this depth constraint does not permit companies to rent and use foreign ships. A consideration was to use the Far East ports instead of Southern ports. This will be economically efficient if railroads decrease transportation costs.⁸

Alternative modes of grain transportation in Russia, such as railroads, have limited capacity and are economically ineffective. Russia's railroads are overloaded with grain trains that are delivering grain for export. Boundary points can permit 15 trains per day. In the Fall of 2002, Roskhebo-product (Russia's biggest grain company) experienced losses that will be discussed in Section 2 of this chapter due to delays in transportation caused by railroad overloading.⁷

There are some other technological factors that were not addressed by questions to be researched. In particular, another question related technological feasibility that was not foreseen in the original research proposal is type of oil shipped from Russia. Oil shipped to Russia from the U.S. is considered in the U.S. as crude oil grade "Urals." It is the most common Russian grade, generally "sour crude." This type of oil is characterized by 32⁰ on the API scale and contains 18% sulfur.¹³ This oil needs to be refined. Standardization issues in foreign trade related to standards for test methods, terminology, quality and other parameters of the commodities are considered in Section 3.7 of this chapter.

In summary, the principal physical barrier to commodity trade between the United States and Russia is Russia's limited transportation capabilities both for ports and commodity movement inside the country. Similar problems are currently not observed for US

transportation capabilities. In particular, the US has many ports with sufficient depth berth. Russia's private companies, aware and concerned about the situation, are developing projects to solve these transportation problems.

5.2 Economic Feasibility

5.2.1 *What is the estimated freight cost of transporting a metric ton of grain from the rural points of production to various ports of embarkation within the United States?*

There are three methods of grain transport from the rural points of production to various ports of embarkation within the U.S.: railroad, barge and truck.¹¹ Table 5-3 represents rail tariffs for different destinations for principal grains.

Table 5-3 Rail Rates for Principal Grain Transportation Within the U.S.¹¹

Origin	Destination	Commodity	Rate per Bushel, \$	Rate per Metric Ton, \$
Minneapolis, MN	Houston, TX	Wheat	0.62	22.6
Minneapolis, MN	Portland, OR	Wheat	1.16	42.74
Kansas City, MO	Houston, TX	Wheat	0.50	18.19
Kansas City, MO	Portland, OR	Wheat	1.30	47.92
Omaha, NE	Portland, OR	Wheat	1.20	44.15
Minneapolis, MN	Portland, OR	Corn	0.85	33.62
Kansas City, MO	Portland, OR	Corn	0.76	29.76
Omaha, NE	Portland, OR	Corn	0.80	31.42
Minneapolis, MN	Portland, OR	Soybean	0.91	33.40
Omaha, NE	Portland, OR	Soybean	0.83	30.64

The second mode of transportation – barge – is limited to the geography of navigable rivers. Table 5-4 tabulates barge tariffs for the most common transportation destinations.

Table 5-4 Barge Rates for Grain Transport¹¹

Geographical Location	Rate per Bushel, \$	Rate per Metric Ton, \$
Twin Cities	33	1,208
Mid-Mississippi	25	900
Illinois River	20	746
Lower Ohio	17	628
St. Louis	15	535
Cario-Memphis	11	393

Finally, truck transportation costs are difficult to estimate because they are dependent on oil prices. General estimates are in Table 5-5.

Table 5-5 Price of Grain Based on Transportation Destinations¹¹

Commodity	Origin-Destination	Rate per Bushel, \$	Rate per Metric Ton, \$
Corn	IL-Gulf	0.38	14
Corn	NE-Gulf	0.29	11
Soybean	IA-Gulf	2.26	83
HRW	KS-Gulf	0.36	13
HRS	ND-Portland	0.98	36

5.2.2 *What is the estimated freight cost of transporting a metric ton of grain from various ports within the United States to various ports within Russia? This question should be answered under two alternative assumptions: (1) that both petroleum and grain can be shipped in the same ship, and (2) that empty, grain-handling ships must deadhead back to the United States.*

According to the interviewed experts, estimated freight cost of transporting a shipload of grain from various ports within the United States to various ports within Russia is about

\$1.5 million for a one-way trip.¹⁸ This cost is based on a \$25,000-30,000 transportation cost per day for a 22 day trip. A significant part (40%) of this initial cost is expended to fill or unload the vessel. Thus, discharge rates can be in the range of \$10-15 per ton of a commodity.¹⁵ Profit of transportation companies as a percentage of total transportation cost varies.

As was considered in Section 1 of this chapter, if petroleum and grain are shipped in the same vessel, additional costs are incurred in cleaning the ship. Cleaning costs consist of two sources: demurrage (lost of potential profits while the ship is not operating), and the cleaning itself (costs associated with equipment, materials, and labor). According to the experts' estimates, total cleaning costs may be as expensive as \$15,000-\$30,000 for mid-size ships (time for cleaning is about 2 days) or up to \$100,000 for big tankers (time for cleaning is up to 5 days).¹⁸ This data shows that cleaning costs can form up to 7% of freight cost of transporting a shipload of grain from a port in the United States to a port in Russia.

The alternative to ship cleaning is to containerize the cargo. However, the use of containers can cost an additional \$150 per metric ton of a commodity, while the transportation cost itself can range between \$45 and 75 per ton.¹⁴

In summary, these above mentioned factors lead to a situation where transportation costs may make up about 30-50% of grain price.¹⁴

If empty, grain-handling ships must deadhead back to the U.S., which means that the trip back will generate only expense and no profit. Current world practice, though, is to use “tramp ships.” Today, 99% of the world’s grain transportation is by tramp ship. Tramp shipping assumes a charter basis for specific point-to-point hauls without regular schedule. Ships move around places in the world based on the location of a customer who needs to contract them. The crew may know their next destination only after they have arrived in the port of their current shipment, unless there are several hauls for this ship contracted ahead.¹³

5.2.3 What is the estimated freight cost of transporting a metric ton of grain from the port of debarkation in Russia to the point of use or further value-added processing?

Russia has large expanses of territory, therefore average estimated freight cost for transporting a metric ton of grain from the port of debarkation in Russia to the point of use or further value-added processing varies significantly. The practice has shown that Russia’s grain import for the Far East regions are economically efficient because of high transportation costs for moving national grain to these regions. In particular, in the past three years, Russia has had comparatively big grain harvests, which increased the grain exports of the country. In order to prevent grain prices from suffering a significant decrease, Russia’s government has implemented centralized purchasing of the grain to form the so-called grain national reserve. However, the research has found that even under such good grain production, Russia does not refuse grain imports to the country. In

particular, Aleksey Gordeev, Russia's Minister of Agriculture, announced that about 183 million bushels (5 million tons) of grain were to be imported for the Far East regions in 2002. This is an economically efficient import because of high transportation costs for shipping national grain to these regions.³⁹

Another cost factor consists of losses that companies can experience due to transportation delays. In particular, Russia's grain company Roskheboexport estimated its losses due to delays as \$2 - \$10 per ton of grain transported by railroads in 2002.⁷ Railroad overloads are seasonal and depend on annual grain harvests in the country.

5.2.4 What is the estimated freight cost of transporting crude oil or petroleum products from the point of production within Russia to the various, feasible Russian ports of embarkation?

Russia's large territory impacts freight costs of transporting oil or petroleum products from the point of production within Russia to the various, feasible Russian ports of embarkation. Table 5-6 shows how transportation tariffs of Transneft for its main pipelines vary.²⁹

Table 5-6 Transneft's Tariffs for Different Pipelines Within Russia

Pipeline	Tariffs, rouble per 100 ton-km	Tariffs*, \$ per 100 ton-km
Northern pipelines	7.41	0.25
Chernomortransneft	7.02	0.23
Transsibneft	6.26	0.21
Sibnefteprovod	5.31	0.18
Verkhnevolzhsknefteprovod	3.49	0.12
Baltnefteprovod	3.29	0.11
Privolzhsknefteprovod	3.27	0.11
Uralsibnefteprovod	2.91	0.10
Northern-West pipelines	2.73	0.09
Druzhba	2.44	0.08

* The currency rate is 1 \$ ≈ 30 rubles.

Average transportation costs from an oil reserve in West Siberia to the Murmansk port are about \$3.4 per barrel (\$25 per ton of oil).³⁴

Russia's Board of the Federal Energy Committee has established a new procedure for tariff calculations for petroleum transportation by pipelines. The new methods include indexation, contract, long-term, and competitive.²⁷

The method using indexation is based on the changes in freight turnover, increased energy tariffs, wholesale prices for industrial plant products, prices of consumer goods, territorial and climate conditions of oil transporting companies.

The contractual tariff method calculates different tariffs for separate sections of pipeline systems (points of fill-in, re-fill, fill-out) under mutual agreement of all parties involved in transportation. Contractual tariffs can also be used if a pipeline system section is controlled by a lone oil transporting company.

The long-term method defines tariffs that are fixed over a long-term by agreements based on freight volume and accessibility to a pipeline.

Finally, if a transportation direction has alternative means of oil transportation, tariffs are defined using market price principles provided equal access to the pipeline systems. This approach is defined as the competitive method for tariff calculations.

Traditional tariff regulations are discussed in Section 3.7 of this chapter. Russia's Federal Energy Committee implemented the new methods in order to make tariffs more relevant and to address the needs of different types of oil transporting companies.

5.2.5 What is the estimated freight cost of transporting crude oil or petroleum products from the various feasible Russian ports of embarkation to the various feasible ports of debarkation within the United States?

The estimated freight cost of transporting crude oil or petroleum products from the various feasible Russian ports of embarkation to the various feasible ports of debarkation within the U.S. on average is \$2 per barrel. An example can be a delivery of oil from the Russian port Novorossiysk to the American port Houston, Texas. These costs include transportation, port charges, demurrage and possible delays in the delivery of the commodity, for example, in Bosphorus. This price can be considered as FOB (free of

board) price, which means that this price depends on the location where the cargo is received and it includes transportation costs to the FOB point, but not beyond.²⁶

Besides normal transportation costs, there are may be complex additional costs associated with oil shipment. As shown in Section 1 of this chapter, in order to make oil shipment from Russia efficient, the general approach is to have super-tankers with a total displacement over 2 million barrels (250 thousand tons). This type of ship is called VLCC. The lack of sufficient depth in Russia's ports necessitates re-filling oil from smaller tankers to supertankers. In order to re-fill a supertanker, up to a week is needed and one day of a supertanker's demurrage costs \$70 thousand.⁴⁴

Considered in Section 1 of this chapter, Lukoil's project is one of the most economically efficient approaches to transportation of Russian oil to the U.S. Transportation costs for 1 ton of oil from a Russian reserve to an American port (including pipeline transportation costs within Russia) will be \$23-25 (\$3.2-\$3.4 per barrel).³⁷ This estimate is consistent with the earlier estimate of \$2 per barrel for the ocean portion of transportation.

5.2.6 What is the estimated freight cost of transporting crude oil or petroleum products from the various feasible ports of debarkation in the United States to refineries or other points of value-added processing?

The estimated freight cost of transporting crude oil or petroleum products from the various feasible ports of debarkation in the United States to refineries or other point of value-added processing is formed from two sources. First, oil from a supertanker has to be-refilled in a smaller ship (a vessel of 500,000 barrels) that will shuttle to pipelines or barge. This cost is estimated at \$0.4 per barrel. Second, pipeline charges vary depending on transportation destination. U.S. tariffs for pipelines are regulated by the Federal Energy Regulatory Commission. One of the American pipeline systems used is Seaway. In particular, transportation of oil from Freeport, Texas to Cushing, Oklahoma costs about \$1 per barrel. If the oil needs to be transported further in the U.S., for example, to Minnesota, it may cost an additional \$1 per barrel.²⁶ Tariffs of another company, Philips Pipeline, are in Table 5-7.

Table 5-7 Philips Pipeline Tariffs⁴⁵

Origin	Destination	Tariff per barrel, \$
Phillips Pasadena, TX	Wichita, KS	1.29
Convay, KS	Decatur, IL	1.53
Borger, TX	Wichita, KS	0.3
Wichita, KS	Indiana Harbor, IN	1.03

Some experts believe that the usage of a smaller ship versus the usage of a VLCC does not make any significant difference. In particular, oil from Russia can be delivered to a Louisiana off-shore port by a VLCC vessel. In this case, oil will be re-filled to 500,000 barrels shuttle-type ships to deliver the oil to a pipeline. As mentioned above, this will add \$0.4 per barrel to the oil price. Alternatively, oil can be shipped in smaller ships (500,000 barrel capacity) across the Atlantic Ocean. In this case, re-filling operations are

not needed. However, because less amount of oil will be brought from Russia, price of a barrel will be higher comparing to VLCC vessel excluding re-filling operations. So, re-filling costs of a VLCC compensate the higher price per barrel of a smaller ship. This case shows that there is no difference what type of ship is used, however, in order to meet current port facilities, especially for Russian ports, smaller ships will be more preferable.

5.2.7 What effects do the comparative stabilities of the U.S. dollar and the Russian ruble play upon any trade agreement to exchange grain and petroleum?

There are may be several consequences of currency fluctuation. Due to roadblocks to economic transformations in Russia, its national currency, the ruble, is more vulnerable to unfavorable changes in the international oil market. Decrease in Russian currency rate against the dollar may erode profits of Russian oil companies because of decreased buying capability of money received. Therefore, international trade agreements are contracted in American currency units. Anticipated gain/loss due to fluctuations in currency and prices can be accommodated in the provisions of the trade agreement.¹⁴

5.2.8 What are current and historical average prices for typical grains, such as wheat, corn, and soybeans and for crude oil and petroleum products?

Current and historical prices of gasoline are presented in Fig. 5.1.



Figure 5.1⁴⁸

Current and historical prices of wheat are presented on Fig.5.2.

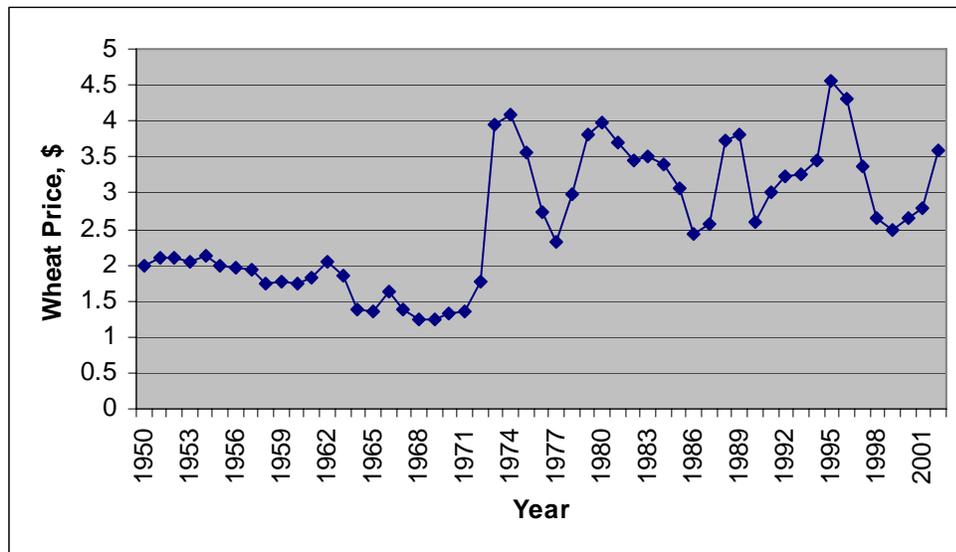


Figure 5.2²

5.2.9 *What unit price ratios between grain and oil can be determined to act as a basis for international trade.*

In order to make oil shipments from Russia efficient, experts believe that the minimum oil price should be above \$19 per barrel.¹

Currently, Russia's average commodity exchange price for wheat (FOB Central Russia) is about \$70 per metric ton. Price of imported grain should be below that in order to be competitive on the Russian market.³¹

5.3 Political Feasibility

5.3.1 What parties in both the United States and Russia have the authority to negotiate general trade agreements of the scope required to effect a trade between petroleum and grain between the two countries?

Parties in the USA and Russia who have authority to negotiate and affect the scope of agreements concerning petroleum and grain trade between the two countries can be classified into four groups. The classification is based on the level of authority that each party has within its country. These groups include the highest governmental level (Presidents of the countries), executive and legislative governmental level (Ministers, governmental departments and agencies), independent private business companies, and independent nonprofit professional associations/societies/institutes. It should be also taken into account that the impact and degree of influence over a trade agreement will vary for each of the groups.

The first level of authority is the highest governmental level, where negotiations are conducted between the Presidents of the countries or at least one country is represented by its President. Usually these negotiations have the purpose of outlining general strategies for a trade agreement. The parties mostly confirm their interests in further development of economic opportunities rather than discuss details of a possible trade agreement. The details will be developed on the lower levels of authority. On the other hand, if there is no mutual interest in the economic partnership during the highest-level

negotiations, most likely this economic possibility does not exist for at least one of the two countries.

An example of the highest-level negotiations is the Russian-American summit in St. Petersburg and Moscow in May 2002. Experts believe that Russia, in union with Azerbaijan, Kazakhstan and Turkmenistan, can challenge interests of the Organization of the Petroleum Exporting Countries (OPEC) by making efforts to replace Saudi Arabia in the world's oil market. In particular, during that summit, President Putin alluded to the fact that financial roots of international terrorism are located in Saudi Arabia, which plays an important political role in OPEC.⁴⁰ Presidents Vladimir Putin and George W. Bush discussed possibilities of replacement of Arabian oil by Russian oil on the American petroleum market.⁴⁷ As a result of the summit, the Presidents announced strategic alliance between the countries in the energy field, which includes the support of collaborative projects.⁴⁶

No recent examples of negotiations on the highest levels of authority were found that address American grain exports to Russia. Nevertheless, basic principles of negotiations, if they would take place, would be similar to corresponding negotiations for the oil trade.

In the second level of authority, the executive and legislative governmental level, negotiations can be conducted between, for example, ministers of countries. For instance, Ministers of Energy of the "Big 8" countries met in Detroit, Michigan, in May 2002. American Secretary of Energy, Spenser Abraham, and Russia's Minister of Energy, Igor

Jusufov, discussed some issues related to American energy security. In particular, as a political partner of the USA, Russia could provide increasing stable oil shipments to America. Also, Russia together with the USA could set oil prices that would be favorable for both countries and would not go below a certain level. The stabilization of oil prices could be achieved based on the fact that American Exxon-Mobil is potentially the largest supplier of Russian oil to the USA. This company has expressed interest in extracting oil from the oil-rich Sakhalin shelf.⁴⁷

Another example is the visit of Secretary Abraham to Moscow in August 2002. The Secretary presented a plan of financing geological works for oil search on the Arctic coast of Russia.⁴⁶ This example illustrates that ministers can be involved in different stages of a trade agreement, even including its preparation where the trade itself is not taking place.

Negotiations on this level of authority sometimes present an opportunity for general public participation. An example is the first Russian-American summit on energy held in Houston, Texas in October 2002. The American delegation was represented by Spenser Abraham, the Energy Secretary, Donald Evans, the Secretary of Commerce, and heads of America's biggest oil companies that participate in oil projects in West Siberia and Sakhalin. The Russian delegation was represented by German Gref, the Minister of Economic Development and Trade, Igor Jusufov, the Minister of Energy, heads of over 30 Russian oil companies and banks, and local governmental authorities of Russia's regions involved in the oil sector.³²

Donald Evans acknowledged the fact that this summit was possible due to the strategic partnership that was agreed upon by Presidents Putin and Bush in Moscow. So, this summit represented the continuation of political decisions and commitments made on the highest governmental levels of both countries.

German Gref promised to American businessmen that the Russian government will provide transparency of Russia's legislation and business regulations, a decrease in Russia's governmental control and protection of the rights of any foreign company for fair competition within Russia.²⁰ Donald Evans pointed out the possibility of American investments in the Russian oil industry in the amount of up to \$18 billion. The summit also discovered some political disagreements between the countries such as positions on the Iraq War and Russia's ever changing tax legislation. Economic factors, for example, costs of oil extraction, transportation, and oil prices may also be barriers for the trade.³⁹

Aleksey Gordeev, Russia's Vice-Premier and Minister of Agriculture, met with his Canadian colleague Lyle Vancliff in September 2002. The ministers discussed possibilities to export Russia's grain to Canada. Russia had had large grain harvests for 3 years, which caused a decrease in grain prices. The Canadian Minister refused the proposal of Russia's Minister, with the reason being the existence of Canada's grain reserves.¹⁹ The foregoing example illustrates negotiations on the executive and legislative level of authority for grain trade. It should be noticed that the purpose of these negotiations was opposite to the purpose suggested in this study. Namely, the

negotiations were about Russia's grain export. However, if there would be a need to negotiate grain import, a similar procedure could be still followed.

In general, considering the Russian-American trade negotiations for the executive and legislative level of authority, the following governmental bodies can be identified as the main players. From the American side: U.S. Departments of Energy, Transportation, Agriculture (including the Farm Service Agency, Foreign Agricultural Service, and Federal Grain Inspection Service), Commerce (including the Business Information Service for the Newly Independent States, and the Financial Services and Countertrade) and U.S. trade representatives. From the Russian side: the Ministries of Energy, Agriculture, and Economic Development and Trade. These agencies may establish their technical or procedural requirements for trade. An example is the Federal Grain Inspection Services that conducts quality control and standardization in the field of international grain trade. The issues of regulations developed by both countries will be further discussed in Section 3.7 of this chapter.

The third level of authority, independent entrepreneurs that lead private companies, is of a great importance for any new business initiative. Governmental agencies and private companies have different bases for their decision-making processes. While governmental agencies are more concerned with publicity and accountability to taxpayers, private companies have their bottom-line as their criteria.¹⁴ In spite of the fact that Russia's government wants to play a more significant role in its oil exports, several companies (for example UKOS and LUKOIL) due to their leadership initiative have already sold some

oil to the USA.⁵ Similar examples of economic partnerships established between the companies will be further discussed in Section 3.2 of this chapter.

Finally, the fourth level of authority, independent nonprofit agencies, can impact a trade agreement by establishing common requirements to contents for contracts (for example, contracts developed by the North American Export Grain Association – appendix #1) or public policy issues (for example, the American Petroleum Institute). Nonprofit professional agencies are not very developed or active in Russia as compared to similar American agencies.

In summary, the possible channels of communication during negotiations of a trade agreement are presented in Figure 5.3.

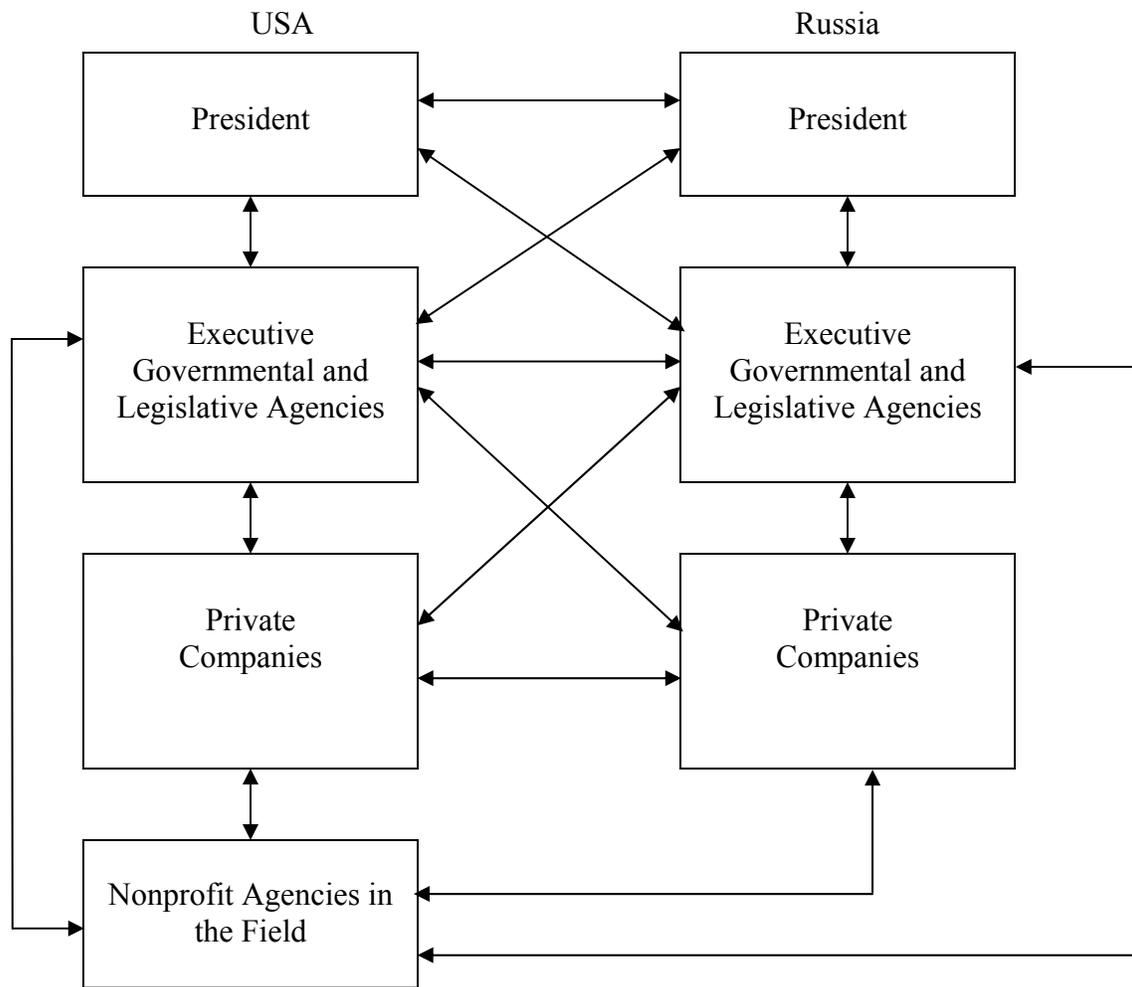


Fig. 5.3 Communication Channels for Negotiations of Trade Agreements

5.3.2 Do private companies in either the United States or Russia have the authority to negotiate with their counterparts in the other country to initiate a trade agreement?

Contrary to the expectations expressed in the questions to be researched this study has found that private companies both in the USA and Russia have no restrictions to initiate a business contact and negotiate trade agreements for oil or grain international trade. The

development of modern information technologies, especially the Internet, has had a big, positive impact on such communication. Other significant factors are the business leadership of a company's representatives and the economic effectiveness of a trade agreement.

Below are some examples of companies that have established and implemented trade agreements for the oil trade. The trade agreements considered deal with purchasing operations as well as investments and final product delivery.

For the first example, UKOS announced results of its oil export to the USA, which it considers a worthwhile endeavor. The supertankers *Astro Lupus* and *Luxemburg* brought to Houston, TX two batches of oil with a total volume of 497 thousand tons (3.64 million barrels) in July and August 2002. Both batches were purchased by ExxonMobil. International traders also participated in the trade deal. Some other Russian companies argue about profitability of the oil shipments. Their arguments deal with transportation economics issues, which are discussed in Section 2 of this chapter. Some experts believe that UKOS was trying to achieve the strategic goal of improvement of its position on the American market and may actually have lost several million dollars as a result of these shipments.⁴⁴

The second example is Exxon-Mobil, which completed an agreement with Russia's government, Sakhalinskaia Regional Administration, and some Russian and international oil and investing companies regarding the development of oil reserves at one of Russia's

islands in the Pacific Ocean – Sakhalin. Exxon-Mobil invested 30% of the total project funds. The total size of the oil reserves that will be developed under the project is about 307 million tons (2250 million barrels) of oil. The project called “Sakhalin-1” considers the construction of a new pipeline between oil reserves and ports in this geographical area as well as the use of tankers for oil export from Russia.²⁸ Additionally, another American company that participated in a set of oil projects on the Sakhalin shelf is ChevronTexaco.³⁹

The next example is LUKOIL, which bought an American chain of 1300 Getty gas stations for \$73 million. About 2.8 million tons (21 million barrels) of oil products are sold through Getty annually. This represents an interesting trend in business strategies of Russian oil companies that want to sell not only crude oil, but also final oil products that are ready for use by customers. So far this project has exhibited low profitability.⁴

Some short term prospects for Russian-American oil economic partnerships include investment projects by foreign/American businesses that become co-owners of Russia’s oil companies.⁴¹ SIBNEFT and TNK seem to the experts to be the most attractive companies due to their size and potential. Also, mergers between Russian and international/American oil companies can occur and this is possible for LUKOIL and UKOS.⁹

In summary, present oil trade agreements are based mainly on economic factors, not political ones as it was in the era of the Soviet Union. The presence of legal risks in

Russia can be a barrier for the trade agreements. These risks are further considered in Section 3.7 of this chapter.

No recent example of Russian-American grain trade between private companies was found, but if one would take place, it could be done in a way similar to the oil trade. There are also several trends in Russia's internal grain market that can be useful bases for an international trade agreement. Agricultural producers have become more actively involved in trade by means of so-called "free channels." In Russia in 2001, 42.5% of all agricultural products were sold through markets, exchanges, auctions, processing and wholesale organizations (vs. 31.9% in 2000). Also, there is a decreasing trend in barter trade: 26.8% in 2001 vs. 29.3% in 2000. Russia's grain producers have tended to develop interregional trade within Russia and access to the international grain market as grain exporters.²⁴ This development is noted to be in contrast to the research hypothesis that Russia needs to import grain.

5.3.3 By what political procedure do interested parties initiate trade negotiations between the United States and Russia?

There is no special political procedure for interested parties to initiate trade negotiations for oil and grain international trade. No government permission is needed for private companies in Russia due to the development of a new market economy within the country.

At the same time, it is important to point out here that any party involved in international trade agreement development or implementation should be aware of the legislative risks involved. The legislative risks include internal legislative regulations of both countries and international agreements adopted between the countries. Examples of the risks are customs regulations, export/import laws, etc.^{14, 15}

5.3.4 Do political embargoes exist that would limit the trade of grain and petroleum between the United States and Russia?

Historically, a grain embargo existed in the late 70s. However, there is currently no political embargo that would limit the trade of grain and petroleum between the USA and Russia. From a short-term business perspective, this situation is stable. Looking at the long term, US political risks are lower and the market is more stable than in Russia.

US subsidies for grain export existed in the late 80s and early 90s. These policies are still on the books, but are now practically never used.¹⁵

The U.S. Comprehensive National Energy Policy Act of 1992 (section 3019) recommended the consideration of barter, countertrade and other methods that exclude any financial exchange to trade American food for former Soviet Republics' oil and other energy products. This represents the so-called "food-for-commodity" exchange. Analysis has found that these methods can be not cost-effective since the trade agreements often

depend on price discounting of commodities in the Newly Independent States (NIS).¹⁷
Again, it can be seen that economic factors, not political ones, restrict the barter trade.

5.3.5 What effect does the recently-imposed U.S. steel tariff have upon the political feasibility of initiating a trade agreement for the exchange of U.S. grain for Russian oil?

5.3.6 What effect does the recently-imposed restriction upon the import of U.S. poultry into Russia have upon the potential of a U.S. grain/Russian oil trade agreement?

Interviewed specialists in the field have shown strong correlation in their opinion that neither US steel tariffs nor Russia's restrictions upon US poultry imports have any impact on the political feasibility of initiating a trade agreement for the exchange of US grain for Russian oil.^{14,15} These measures had temporal character and are obsolete now from political standpoints.

In general, tariffs and restrictions need to be taken into account as possible threats to a trade agreement; this issue will be further developed in Section 3.7 of this chapter and in Chapter 7.

5.3.7 What safety, environmental, and other regulations of either country would impact any agreement to trade U.S. grain and Russian oil?

There are many regulations in both countries that can impact an international trade agreement. The most important current regulations can be classified into at least seven groups based on the issues covered.

The first group of regulations deals with transportation. For example, the US Jones Act prescribes that the US government ships US products in vessels with the American flag. American ships have the biggest transportation costs among vessels of other countries due to the costs of the ships, safety compliance and crew training. This regulation can significantly increase transportation costs and impede a trade agreement. At the same time, private companies have flexibility to choose a ship that belongs to a country other than the USA.¹⁸

The second group deals with export or import volume, physical and/or economic limitations such as quotas, duty, etc. For instance, quota distribution for pipelines that belong to Russia's federal company Transneft is controlled by means of governmental regulations. Planned changes to these regulations can affect scheduling and volume of oil exports. The current regulations permit Russia's oil companies to export up to 30% of total oil produced.²² Another example is the *postanovlenie* signed by Mikhail Kasianov, Russia's Prime Minister, that increased oil export duty from \$26.2 to \$29.8 per ton in November 2002. According to the Russian Duma's amendments to the federal law dealing with customs tariffs, the duties depend on increased world oil prices.³ Similar regulations impact the transportation tariffs of Transneft that can be increased by 12% according to Russia's Energy Committee, which in turn impact oil export prices.²⁹ The

next example is the planned increase in Russia's grain import duty during internal "grain interventions." This concept represents the purchase of a part of Russia's big grain harvest by the government for the federal reserves in order to prevent the decrease in internal grain prices.³⁸

The third separate group is changes in Russia's tax system. For example, Russia's government is considering increased tax rates for production sharing agreements of oil projects with foreign partners or investors.³³ Another example is a new version of legislation regarding mineral wealth, developed by Russia's Ministry of Natural Resources. It affects taxes for different types of projects in the search, extraction, and production of natural resources.³⁰

The fourth group of regulations deals with the creation of new marketing instruments such as oil exchanges. This initiative is supported by the law project of Russia's Ministry on Antimonopoly Politics. In particular, Aleksandr Fillipenko, the Gubernator of Khanti-Mansiyskiy region, announced the beginning of the creation of the regional oil exchange. He predicts that 25-30% of Russia's oil will be sold in Russia through oil exchanges in the future.³⁵

The fifth group is regulations made after some conflicts between commercial partners by an independent third party, usually a court. For example, the American company, Dardana Ltd., claimed that one of UKOS's sub-companies, Uganskneftegas, owed it \$17 million for geological services provided by Petro-Alians, which was later bought by

Daradana. Right after the first tanker sent by UKOS to the USA reached the USA, Dardana asked the USA federal court in Houston, TX to stop payments to UKOS. The court seized a part of UKOS's profits.³⁶

The sixth group is privatization regulations that may open new opportunities for existing or future trade agreements. For example, Murtaza Rakximov, the President of Bashkiria, issued the edict that permitted an open auction of Bashneft, Russia's tenth largest oil company. The change of the company's owner may significantly impact the company's strategy and business contracts.⁴³

Finally, the seventh group of regulations is quality standards of the countries that can impact negatively on a trade agreement. The standardization issues include differences in classification of products, quality parameters, specifications, quality control methods, terminology, and units of measurements.¹⁶ Table 5-5 summarizes differences in requirements of American and Russian standards for the commodities under consideration.

Table 5-5 Differences in Requirements of the American and Russian Standards

Standardization Problem	Examples
Different parameters of the commodities used as their quality characteristics	According to Russia’s standards, quality of wheat is defined based on gluten content. In contrast, American standards establish requirements to protein content.
Different classifications confuse the estimation of quality requirements for subtypes of the same commodity	Russia’s standards classify oil in Groups I, II, and III while oil exported to the U.S. from Russia is considered in the U.S. as “Urals” type.
Different methods and procedures of quality tests imply quality control of different parameters of the commodities as well as differences in the accuracy of test results	Russia’s standards require the use of a long and more accurate laboratory method to define gluten content of wheat. U.S. standards use quick tests for protein content and size of grains. In another example, the U.S. is more strict than Russia in its standard requirements for heterogeneous pieces (so-called “foreign material”) in wheat.
Different terminologies create misunderstanding of the concepts and approaches used	The differences in the definition and measurement of grain density.
Different systems of measurements cause the needs of special mathematical formulas based on physical rules to convert units of measurements from the metric system to the U.S. customary system	Russia uses “tons” for oil and grain measurements whereas the U.S. uses “bushels” for grain and “barrels” for oil.
Different organization of standards as documents can result in different information included in a document.	Sections of standards.

These differences create a situation where important commodity parameters are not the same for a producer and a consumer. As a result, during the implementation of a trade agreement producers’ or consumers’ interests may need protection. To overcome this barrier, close collaboration in the field of metrology and standardization between the countries is needed.

In summary, more than the seven groups of regulations can impact a trade agreement. The regulations are not stable; they are continually changing or arising over time. Despite the existence of seven groups of regulations affecting trade, experts see no political barriers. It is important to understand that regulations have direct connections with national strategies developed by the countries.

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Chapter 6. RESULTS AND CONCLUSIONS

All results and conclusions obtained under the project are based on “what if” scenarios. So, summarizing the findings of the research project, the hypothesis about economic, political and physical feasibility to trade U.S. grain for Russian oil is true under the presence of the main following factors:

- American-Russian supply-demand situations for oil trade. In particular, roadblocks to the development of a market economy place Russia in a situation where its budget strongly depends on natural resources sold outside the country. At the same time, the United States imports more than a half of the oil used in the country, and the trend is increasing.
- Russia’s unstable agricultural production. Russia has sufficient harvest during the past three years in contrast to several years before that. Therefore, Russia’s need to import grain from overseas can vary from year to year. Nevertheless, Far East regions of Russia most likely will import grain despite the presence of Russia’s grain, because of inefficiency in Russia’s internal transportation system. So, Russia’s grain imports may be limited to the grain needs only of Russia’s Far East regions for years when Russia has a good harvest.
- Favorable international political environment for economic partnership. This political environment in general can be affected by the Iraq war and interest group factors mentioned later in this chapter. This is especially relevant to the oil trade. In particular, Presidents Vladimir Putin and George W. Bush discussed possibilities of replacement of Arabian oil by Russian oil on the American petroleum market during the summit in

Moscow in 2002. As a result of the summit, the Presidents announced strategic alliance between the countries in the energy field, which includes the support of collaborative projects.

- Economic and not political basis for international trade strategies of oil companies both in the USA and Russia. Private companies, both in the USA and Russia, have no restrictions to initiate a business contact and negotiate trade agreements for oil or grain international trade. UKOS, LUKOIL, Exxon-Mobil, ChevronTexaco and some other companies have initiated trade agreements dealing with purchasing operations as well as investments and final product delivery.

The hypothesis that there is economic, political and physical feasibility to trade U.S. grain for Russian oil is false in the presence of the following factors:

- Direct opposition between the countries on the Iraq wars. Such political disagreements can negatively impact the general political environment and any economic projects between the countries.
- Russia's internal interests groups. Industrial or political elites that have conflicting economic interests can impact Russia's foreign policy and internal legislation through the creation of barriers to trade.
- Insufficient foreign investments in Russia's oil industry. The lack of investment is caused by instability in Russia's legislation and can decrease Russia's oil production.
- Russia's insufficient ship inventory and the lack of deep ports. Russia's additional transportation channels, such as railroads and pipelines also have limited capabilities. The

lack of investments in the development of these transportation channels can limit transportation or increase transportation costs of oil and grain shipments both from and to Russia.

- Incompatibility of national quality standards of both countries. Differences in classification of products, quality parameters, specifications, quality control methods, terminology, and units of measurements form standardization issues.

Analysis of what particular factors can play a significant role assumes consideration of the dynamic character of both the economic and political environments. During the period of the political disagreements over the latest Iraq war, political factors overshadowed economic factors. However, in the absence of such political factors, economics will be the dominant factor for foreign trade.

Analysis of Russia's possible national strategies helps to estimate what factors may occur in the future. For Russia's oil international trade, the following factors can have an impact:

- Russia's government can return to a policy of government control and monopoly of oil export. This can be accomplished by simply rescinding licenses issued to oil companies.
- Russia's government can create a federal oil reserve by controlling the amount of oil sold in and from the country.³
- Russia's government can create a federal grain reserve to control grain export and use the grain during the low harvest years.
- Federal grain subsidies can be applied for railroad transportation costs and port developments.²

The above-mentioned national strategies are under development and reflect the increasing role of Russia's government in export–import operations. However, the implementation of the national strategies will depend on Russia's internal political and economic environments.

In conclusion the researchers believe that there is indeed potential basis for the trade of U.S. grain for Russian oil. The research question has proven to be more complex than first envisioned by the researchers.¹

The motivation to pursue this research project arose from recognition of several premises, including the following:

1. U.S. grain prices are low compared to historical levels, lower even than when the former Soviet Union was importing large volumes of grain from the U.S. Today's U.S. grain prices are low by any comparison, whether in inflation-adjusted dollars or in unadjusted dollars. The research has confirmed this premise.
2. World prices of crude oil have risen sharply during the period of static or lowering grain prices. Oil is in short supply in the United States and the U.S. imports substantial quantities of oil.
3. Since the end of the Cold War era, political differences between the United States and Russia have moderated, pointing to the possibility of increased trade between the countries.

This research project has confirmed the verity of the above-listed premises.

Logic would suggest that grain/oil trade would increase between the countries due to the above-mentioned premises. However, there are other, more negative, factors to consider.

1. Although it is true that prices for principal grains are low in the U.S., they are also low in Russia and other foreign countries. Modern developments in agriculture have demonstrated to the world that grain can be produced more efficiently than ever. Technological capability, in terms of tractors, implements, fertilizer, and other crop-enhancing materials and equipment, in which the U.S. formerly excelled, is now available in general to many countries of the world, and to Russia in particular.
2. Oil is in short supply in the United States, but supplies are even more precious in Europe and many other countries in the world. It may make more sense for Russia to export crude oil to its neighbors in Europe than to the more logistically distant United States.
3. Breakup of the former Soviet Union. The collapse of the Soviet Union in 1992 had a dramatic impact upon political factors and would seem to be a positive development in the progress toward the trade of U.S. grain for Russian oil. However, the now-separate republics of the former Soviet Union have different needs for both grain and oil. In the former Soviet Union, grain could be imported through Baltic ports, such as Tallin, Estonia, and distributed throughout the Soviet Union. But now Estonia is a separate republic and does not need to import grain for the benefit of Russia. The convenience of minimal trade barriers between the

various large republics of the former Soviet Union gave the Union power and efficiency. Today, however, foreign countries are forced to deal with smaller, separate republics.

4. Transportation costs and related loading and unloading costs are significant. Even if the commodity supply/demand scenario would favor exchange of the commodities in question between the United States in Russia, would that benefit be great enough to overcome the transportation and logistics costs of getting the commodities back and forth such great distances.

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Chapter 7. RECOMMENDATIONS FOR IMPLEMENTATION AND FUTURE RESEARCH

One of the purposes of this research project is to draw attention of specialists to the existing problems as well as opportunities for U.S. – Russia grain-for-oil economic partnerships. Based on the purpose, the spread of information about the project and its findings is among the critical activities under the project. For this purpose, the project's web-site is being created.

The projects' findings were presented during a lecture at the University of Pittsburgh and a presentation at the University of Arkansas.

Interviews with specialists from the U.S. Departments of Commerce, Transportation and Agriculture were a two way information exchange. The specialists involved in the foreign trade issues on a daily basis not only provided the project with useful information, but also received some new perspectives on the grain-for-oil trade.

Future research may address the following issues:

- The needs in grain and oil reserves located in the Far East regions of Russia. Present transportation of the commodities is fulfilled mainly through Western regions. Feasibility of the usage of Far East transportation facilities (ports, railroads) instead of using the Baltic Sea and the Atlantic Ocean needs to be analyzed.
- Role of Russia's local authorities in projects of domestic and international oil companies.