The Effectiveness of Sanctions on Russia

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To all the brave men and women fighting in Ukraine.

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Abstract: This paper will examine the effect of sanctions on Russia in response to its invasion of Ukraine. It is limited in scope by only examining direct costs as indirect costs are ongoing and change rapidly. These costs will be examined at a later date. The paper will examine Russia's fiscal balance, inflation rate, exchange rate, and international reserves. A preliminary conclusion is that the impact of the sanctions will contribute to significant deterioration of fiscal conditions.

Introduction

When analyzing any conflict it is necessary to not only analyze its effects on the nation but on key stakeholders as well. In this paper the author will first explain Putin's rise to power out of necessity of a "strongman" figure to guide Russia out of a turbulent time. Reform was urgently needed if Russia was to ever develop economically. Putin would focus on consolidating his power to improve his chances of reform. He would quickly discover that consolidation of power came much easier than reform. Thus Putin's focus on showcasing power became necessary for him to stay in power. This power is exemplified by invasions and meddling in neighboring countries such as Ukraine.

The author's paper finds that Russia's direct machinery cost is approximately $750 million a day. Russia boasted a current account surplus of $1.3 billion a day in January 2022 prior to the invasion and the implementation of sanctions. Following the implementation of sanctions, Russia's economic and financial situation became extremely constrained. These sanctions have been devastating to the Russian economy, however, they are unlikely to stop the invasion of Ukraine. The author finds a full oil and gas embargo by the EU enough to end the conflict. Sanctions have created a grim outlook for Russia's economy and have weakened Putin's hold on power.

Chapter 1 Putin's Rise to Power

At the turn of the twenty-first century, Russia was not in good shape. It was widely acknowledged that the lack of structural reform in the country since its transition from communism left its economy particularly vulnerable to external shocks(Tompson 2002), which inevitably came. The Asia crisis combined with fiscal weakness led to a financial collapse in Russia in 1998, and thus it should not be a surprise that Western investors began to pay particular attention to the progress of structural reforms in the country. Of note, structural reforms are needed in areas such as corporate governance, monopolies, judicial, tax, land, banking, as well as the system of housing and subsidies.(Hanson 1999) Failures in these reforms cost the annual budget dearly, and led to massive unsustainable growth in state debt.[3] (insert chart)

Vladimir Putin came to power at this time as a ¨strong man¨ leader to save the country. because in order for Russia to have any chance at serious development it would have to address these issues. Its long term growth prospects depended on its ability to create privatization and market competition, encourage entrepreneurship as opposed to rent seeking, and create a more investment-friendly environment. Putin's rise created the opportunity and the hope that these problems in Russia would be addressed. The economic recovery that Putin inherited created a perfect opportunity to tackle these problems in a favorable economic environment. However, this opportunity was simultaneously a risk that the economic recovery would destroy the sense of urgency around reform, and hence the stakes were extremely high.

The range of structural reforms was virtually incomprehensible. Everything from utilities to the tax code needed to be reformed, and, in turn, each reform had its own technical, financial, and political problems. Passing the legislature was often the easy part. Implementation and enforcement proved far more difficult. Russia´s energy company EES, for example, is the perfect example of this. Restructuring EES required over one hundred shareholder meetings, and each constituted a legal, commercial, and political battleground. (Tompson 2002) However failure to reform would lead to later problems for the nation such as the energy shortages that hit eastern Russia in 2001, which Putin himself acknowledged was the result of incompetence and corruption. (Kremlin 2001)

A very large obstacle to reform is that it is seeking to enhance a public good. Everyone shares in the benefit of structural reform. The benefits come in the form of economic performance and come in the very long term. The costs are often up front and paid by specific actors who have significant vested interests in keeping the status quo for their own bottom line of finance and/or power. For instance, while breaking up a monopoly is usually good for society at large, it is typically detrimental to the owner of the monopoly's bottom line.

The task becomes all the more difficult when it has to be done in a country with a very weak rule of law. In the 1990s, Russia was a scary place to make enemies. Indeed, ironically, political stability was a major achievement of Putin. Thus, structural reform must be achieved without jeopardizing this larger objective of political and social pact stability, which is like trying to move a yacht without making a wake. Normally, the sheer size of the task is too much for one person or party to achieve, meaning progress requires decades of building and maintaining political coalitions against people pursuing antagonistic vested interests.

Consolidation of Power

Knowing that he could never win people's approval through the process of reforming in order to develop, Putin started focusing on consolidating his power.[1] He started by appointing no fewer than seventeen ex-KGB agents to senior positions in his administration. These

[1] Authors have argued that Putin's consolidation of power was necessary inorder to facilitate change. They argue that given the vastness of the problem, Putin's consolidation of power improves the chances of reform.

appointments are preliminary examples of Putin's desire to create a government run by those that wanted to strengthen the Kremlin's rule(Solomon 2006.) He then called for a "dictatorship of law" to ensure an "effective vertical chain of authority"(Ross 2003) because Putin disliked the freedom that regional governors had under Yeltsin. The Constitution of 1993 established a Federation of republics, territories, regions, federal cities, autonomous regions, and autonomous areas. (Constitution of Russia, Article 66) Each region is given the right to self governance through "referendums, elections, and forms of expression of their will, through elected and other bodies of local self-government."(Constitution of Russia, Article 131) Putin destroyed these rights through the creation of federal super districts and revoked local leaders' right to participate in the Federal Council, effectively centralizing his rule.

Putin next created laws that gave him the right to remove popularly elected local leaders and dissolve their legislation. (Solomon 2006) Accordingly, he then removed eighty-six popularly elected local leaders and replaced them with his own, hand-picked appointees. As a consequence of these actions, local leaders soon realized if they dissent from Putin they would face criminal charges, as such was the fate of the governors of Atlai, Yaroslavl, and Kursk. (Myers 2004) In recent years, notable opposition leaders such as Alexie Navalny faced far worse consequences, when he was poisoned. [2]Thus, in sum these practices created the facade of democracy, but Putin's consolidation of power ensured that the real power was within the Kremlin.

Just as Putin focused on consolidating his power within the government, he also focused on enhancing his control over his citizens by erasing civil liberties. The most glaring and important of these are the freedom of the press, andPutin's own campaign officials declared that

[2] It has been common practice for the Kremlin to try to assassinate opposition leaders like Navalny through methods such as poisoning.

he has the right to “control the media to achieve national accord and punish critics.” (Cohen 2000) Admittedly, Putin’s authoritarian tactics can be rather creative as well. When one independent television station, NTV, criticized the administration's policy towards Chechnya, the largely government owned Gazprom called in the loans it had made to NTV. (Gewertz 2006)

Just as with speech, freedom of assembly and expression is limited in Russia. Protestors in Russia are given harsh sentences for even the slightest public voicing of their dissenting opinions. As if comically, it is common for protestors holding blank signs, be detained and sentenced.(Nicholson 2022) Russia is known for using coercion by threatening detention, to keep people from protesting.(Human Rights Watch 2006)

People hoped that Putin’s two term limit would be enough to stop him. However the constitution of Russia only prevents the president from serving for three consecutive terms. Putin served two consecutive terms starting in 1999. He then took a four year break and acted as prime minister during that period. He then proceeded to serve another two terms. Having been fed up with the need to take a slight step down in power for a short period of time, he amended the constitution in Russia to stay in power. Term limits would not be enough to stop Putin’s power.

Putin Choses Power

Putin realized that the process of consolidating power was far easier than the process of reform. Moreover Putin inherited an economic recovery fueled by oil prices (Hill 2004) he would continue to ride via high oil prices through 2008.

Chart 1

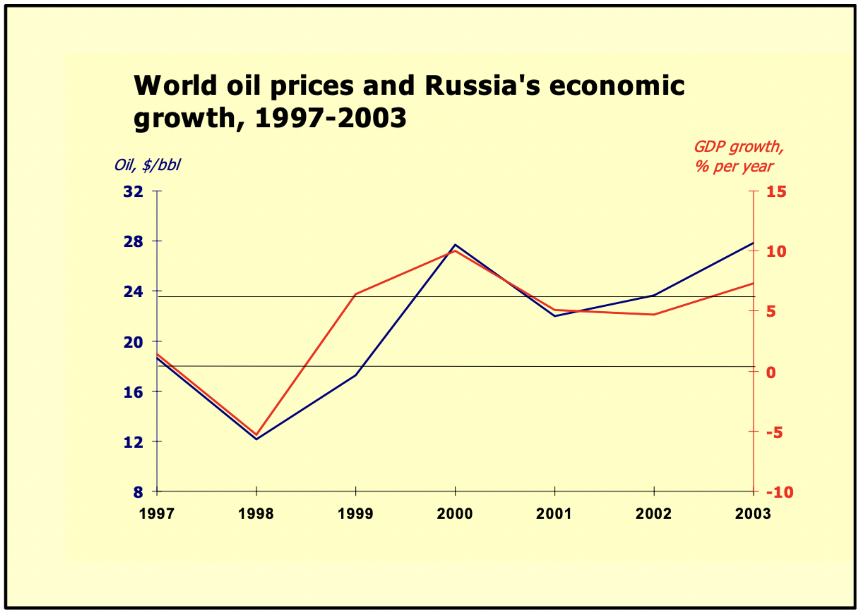

Chart 1 shows just how closely oil prices are linked with Russian GDP from the start of the century. This economic relationship downplayed any sense of urgency around reform, especially because no matter how much power he constructs around him, Putin will always face opposition. To be sure, Putin relies on a high approval rating to keep his enemies divided and explains his obsession with polls. If Putin is to abandon or at least retard the reform process he must offer the people something else to prove that he is making Russia great again. He must project power.

Crucial for the understanding of this essay, Putin has an archaic definition of the word 'power'. Putin believes power is the ability to impose your will on others, and that you project this power through conquests. As such, in recent years he has turned his attention to conquest in an attempt to recapitulate territory lost during the Yeltsin Presidency's years. This best explains why he invaded Georgia in 2008, and Ukraine starting in 2014. Putin has also enforced his sphere of influence on neighboring countries like Belarus and Kazakhstan, with the totality of these attempts at furthering his ambition of power often turning out to be very costly. For example, the conquests in Georgia cost many lives, money, and are often economic burdens for years to come.(Joja 2021)

As opposed to Putin's view of power, Daleep Singh, the Deputy National Security Advisor for International Economics under the Biden Administration and the mastermind behind the current U.S. sanctions against Russia, gives a much more modernized definition of the word 'power' in this author's estimation:

"In this century, power — strategic power is increasingly measured and exercised by economic strength, by technological sophistication, and your story — who you are, what your values are, can you attract ideas and talent and goodwill." (Press Briefing 2022)

To summarize, Putin realized that the prospect of reforming Russia was far too much for any one person or party to handle because this process would likely take decades. Reform is vital if Russia is to have any chance of serious long term economic development and diversification away from oil, yet, counterproductively, Putin simultaneously started consolidating his power in hopes it could improve his chances at reform and was far more successful and came far easier than any true nationalist reforms that carried widespread democratic prosperity. He realized that his grip on power could hold far easier via the former, and thus to stay in power, Putin must offer a narrative that shows that he is making Russia great again. Unfortunately, in his mind Putin has an antiquated definition of the word power, and thus he believes his path to political gain involves imposing his will on neighboring countries. As he is finding out, though, global economics and geopolitics is now solidly into the twenty-first century.

Chapter 2 The War

The Price of the War

War can be terribly expensive; for example, the United States spent, in total, $5.8 trillion dollars in reaction to the 9/11 attacks. (Crawford 2021) In addition, many historians argue that England was able to build its empire because it was able to finance its conquests through the Bank of England. Prior to Russia invading Ukraine the first financial question that should have been asked is “Can it pay for the war?” If Russia cannot continue to pay its soldiers and provide armor and artillery it will have no choice but to withdraw its troops.

A study from the Centre for Economic Recovery analyzed the first 4 days of Russia’s full scale invasion of Ukraine. They found that direct losses from military actions cost the Russian Federation at least seven billion dollars. This includes $4.2 billion dollars lost in machinery and another $2.7 billion dollars of potential GDP in the next forty years based on losses of human personnel (Centre for Economic Recovery 2022). The cost of a human life is estimated at approximately half a million dollars. This number is estimated as the average gross value added generated by a worker per year, multiplied by the remaining productive life expectancy of the personnel. These losses do not include the loss of Multiple Launch Rocket Systems (MLRS), drones, unarmored vehicles, battleships and boats lost during the war. It also does not include the additional personnel cost of evacuation and treatment of wounded soldiers, as well as their lost productivity. Other costs not included are lost, defunct, and destroyed firearms, ammunition, fuel, spare parts, and machinery of auxiliary military units. The cost of missiles is not included in the model as the range in price of missiles is too large for analysis. As of March 24th, Russia has launched over one thousand two hundred missiles. (Kyiv Independent 2022). The average cost of the war in the first four days is estimated at $1.75 billion dollars a day.

Through research, the author used the same model as the Centre for Economic Recovery. He updated their model with the most recent equipment losses of the Russian Federation as reported by the Armed Forces of Ukraine of Mar 31, 2022. (Kyiv Independent 2022)[3] The results were intriguing, which found that total losses amounted to twenty six billion dollars. This includes nine billion dollars of potential GDP lost based on the losses of human personnel. The average daily cost of direct losses from military action is seven hundred fifty million dollars. It is important to note that this number is highly variable and is heavily impacted by the intensity of the fighting.

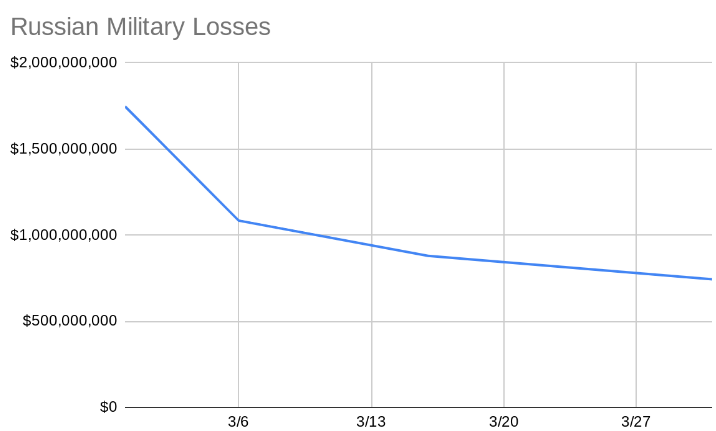

Figure three shows how the average price per day of the war has decreased dramatically.[4] It would be important to note that most material and human losses can be thought of as an "existing asset." The equipment losses are not weighing on Russia's liquidity. However if Russia plans on rebuilding its military and replacing these losses, it will have to bear these costs at potentially

[3] The author's calculations involved using the numbers of the Armed Forces of Ukraine because they provide a reasonable approximation of Russian data which are reasonably close to NATO estimates. Russia's admitted losses are unrealistically low.
[4] It is important to note that the study of the Centre for Economic Recovery suggested that the average daily price of the war could increase up to 20B. My data suggests the opposite. This trend will probably continue given the fact that Russia has pulled back troops from Kyiv.

even higher values due to potential inflation. Thus the cost of replacing them will be borne in the future. Nonetheless, Russia must be able to take in about seven hundred fifty million dollars a day to sustain this war.

Can Russia Pay for these costs?

In January 2022 Russia had a current account surplus of approximately thirty nine billion dollars, which equates to approximately $1.3 billions a day in capital inflow (Russia Central Bank 2022). It is important to note that this surplus was achieved before the deployment of any sanctions.

Russia's economy is extremely influenced by global commodity prices. For example, the value of oil surged 76% year over year and natural gas increased 131% year over year, flooding it with foreign exchange reserves. In 2021, Russia's entire current account surplus was one hundred twenty billion dollars, and with the surge in commodity prices, Russia is expected to take in three hundred and twenty billion dollars from energy exports and double its current account surplus in 2022 to two hundred and forty billion dollars (Bloomberg 2022). As a result, in the fourth quarter of 2021 alone Russia had a current account surplus of forty two billion dollars, and for 2020 as a whole it was thirty six billion dollars, and sixty five billion in 2019 (Central Bank of Russia 2022).

A country's foreign reserves are analogous to a piggy bank. Russia's central bank has been building up its reserves for years. Some have suspected that this build up in reserves was done in anticipation of an invasion. Prior to the start of the conflict Russia's total reserves totaled over six hundred forty three billion dollars. A month later their total reserves stand at six hundred and four billion dollars. Figure 4 displays the weekly size of reserves. In approximately a month of conflict, Russia has utilized forty billion dollars in reserves despite the sanction, and the author will subsequently speak about the effect of sanctions on reserves.

It seems that Russia will be able to pay for the war in Ukraine for the foreseeable future. (more after Q1 data release)

In sum, energy prices and reserves are keeping Russia's economy afloat, and it is for those reasons that sanctioning Russian oil and gas as well as its ability to use reserves are extremely important.

Financial Sanctions

The United States' first round of sanctions focused on the Russian financial system and sanctioning oligarchs. The sanctions will impose immediate and long-term effects on Russia's economy and financial system. These sanctions target two of Russia's largest financial institutions, the ability for state-owned and private entities to raise capital, and the Russian elite that is close to Putin. These actions will target eighty percent of all banking assets in Russia, and are designed to impose immediate costs on Russia, disrupt its economic activity, and isolate Russia from international finance. (Treasury 2022)

Russian Financial Institutions

The most prominent action was the sanctioning of Russia's two largest financial institutions, Sberbank and VTB bank which, combined, make up more than half of the total banking system in Russia by asset value. These banks conduct forty-six billion dollars worth of foreign exchange transactions globally, eighty percent of which are in US dollars. The majority of these transactions will now be disrupted.

Sberbank is the largest financial institution in Russia and is majority owned by the government of Russia. It holds about a third of all bank assets in Russia and the largest share of deposit savings in the country. The Office of Foreign Asset Control (OFAC) required all U.S financial institutions to close any Sberbank correspondent or payable-through accounts and to reject any future transactions involving Sberbank or its foeign financial subsidiaries. It would later add full blocking sanctions to Sberbank.[5]

VTB Bank is Russia's second largest financial institution and holds about twenty percent of banking assets in Russia. Like Sberbank, it is majority owned by the government of Russia. OFAC imposed full blocking sanctions on VTB Bank. All assets held in U.S financial institutions will be instantly frozen and inaccessible. This is one of the largest financial institutions the Treasury has ever blocked.

The OFAC has also imposed blocking sanctions on three additional Russian financial institutions: Otkritie, Novikom, and Sovcom, which ,combined, have assets worth eighty billion dollars. Otkritie is a systemically important state-owned credit institution. Sovcom is the ninth largest bank in Russia. Novikom operates in the Russian defense sector and serves as the core financial institution for the Russian defense company Rostec.

<u>Debt and Equity Financing</u>

To limit Russia's ability to finance its invasion of Ukraine, the U.S. prohibited transactions and dealings in new debt of longer than fourteen days maturity and new equity of Russian state-owned enterprises, entities that operate in the Russian financial services sector, and other entities deemed subject to prohibitions. These include companies such as Sberbank, Gazprom, Russian Agricultural Bank, Transneft, and Rostelcom.

<u>General Licenses</u>

OFAC did provide general licenses or "carve outs" for specific types of transactions to minimize unintended consequences on third parties. These licenses authorize transactions

[5] It would also impose full blocking sanctions on Russia's largest private, Alfa bank

relating to: international organizations and entities, agriculture and medical commodities and the COVID-19 pandemic, overflight and emergency landings, energy, dealings in certain debt or equity, derivative contracts, the window of transactions involving certain blocked persons, and the rejection of transactions involving blocked persons.

Targeting of Russian Elite

In the now infamous words of Joe Biden, “They share in the corrupt gains of the Kremlin policies and should share in the pain as well.” These sanctions ensure that specific individuals close to Putin pay a price. It is also used to prevent these oligarchs and their family members from moving assets and concealing their wealth. These sanctions focused on families close to Putin and the financial sector elite.[6]

Blocking of Nord Stream 2

President Biden announced in a White House address that Nord Stream 2, which was a series of natural gas pipelines in Europe from Russia into Germany, will not move forward. (White House Address 2022) . The pipeline was a massive energy project that cost eleven billion dollars, and was developed and operated by a subsidiary of Gazprom. However, the U.S has been a long time opponent of the pipeline because they feared that it increased Europe’s energy insecurity by growing reliance on Russian gas.

SWIFT Messaging System

Specific Russian financial institutions were removed from the SWIFT messaging system. They include VTB Bank, Bank Rossiya, and Bank Otkritie. The Society for WorldWide Interbank FInancial Telecommunication is analogous to the Gmail of global banking in that it is a secure communication method between financial institutions. In 2014, Alexei Kudrin, a finance

[6] Sergei Ivanovic, Ivan Sechin, Alexander Vedyakhin, Andrey Puchkov

minister close to Putin estimated that a full SWIFT cut off could reduce Russia's GDP by 5% annually.(Washington Post 2022) [7]

Central Bank Sanctioning

The most noteworthy part of the sanctions rolled out by the U.S is the sanctioning of the Central Bank of Russia. It is unprecedented to sanction the central bank of a major economy. All U.S persons are prohibited from engaging in transactions with Russia's Central Bank, the National Wealth Fund, or the Ministry of Finance. (Treasury 2/28/22) Transactions including gold are covered by these sanctions, which (Treasury 3/24) immobilizes any assets the central bank holds in the United States or by U.S persons. This action will severely limit Russia's attempt to prop up its depreciating currency.

The U.S Treasury will prohibit Russia from making debt payments with funds subject to U.S jurisdiction. This does not preclude Russian debt payments. Russia may still use funds that are outside of U.S jurisdiction. However, Russia will need to choose between draining its available funds or default on its debt.

Oil and Gas Ban

On March 8th, President Biden signed an executive order banning the import of Russian oil, liquefied natural gas, and coal to the United States. (White House 2022) In 2021, the United States imported nearly seven hundred thousand barrels per day of crude oil and refined petroleum products from Russia. The executive order also bans new U.S investment in the Russian energy sector. Americans are also prohibited from financing or enabling foreign companies that are investing to produce energy from Russia.[8]

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[7] The Washington Post also explains that there is no real alternative to SWIFT. Following the annexation of Crimea in 2014, Russia rolled out their own financial messaging system SPFS. However, this system failed to gain traction, and by2021 it only had four hundred users.

[8] To mitigate the effect on Americans, Biden committed to releasing ninety million barrels from the Strategic Petroleum Reserve for 2021.

Export Controls

In conjunction with the EU, Australia, Japan, Canada, New Zealand, the UK, and Taiwan, the United States implemented expansive export restrictions. These measures include restrictions on Russian military end users to impair Putin's military capabilities, and (White House 2022 Export) include high end technology targeting Russian defense, aerospace, and maritime sectors, primarily through denying access to semiconductors and other technologies needed for Russia's economy to diversify and modernize. This will cut off more than half of all high-tech imports going into Russia. .

Investment Ban

New Investment in the Russian Federation by a United States person is prohibited, and six hundred(White House 4/6/22) multinational businesses have already exited Russia. This action will stop new businesses that may try to step in to gain market share, and further isolate Russia from the global economy.

EU Sanctions

The EU and the rest of the G7 followed most of these sanctions. The EU did sanction the Russian central bank's coveted reserves. They implemented similar financial sanctions to the U.S., which included the blocking sanctions of VTB Bank and Sberbank. They also ensured that the selected Russian banks were removed from SWIFT. The EU and G7 sanctioned similar oligarchs and individuals as the US. Similar export controls were enacted on Russia to ensure that they could not get access to advanced technology.

The most notable exception to the United States is the crucial oil and gas ban. The EU has refrained from banning oil and gas and has only banned the import of Russian coal. [9] In

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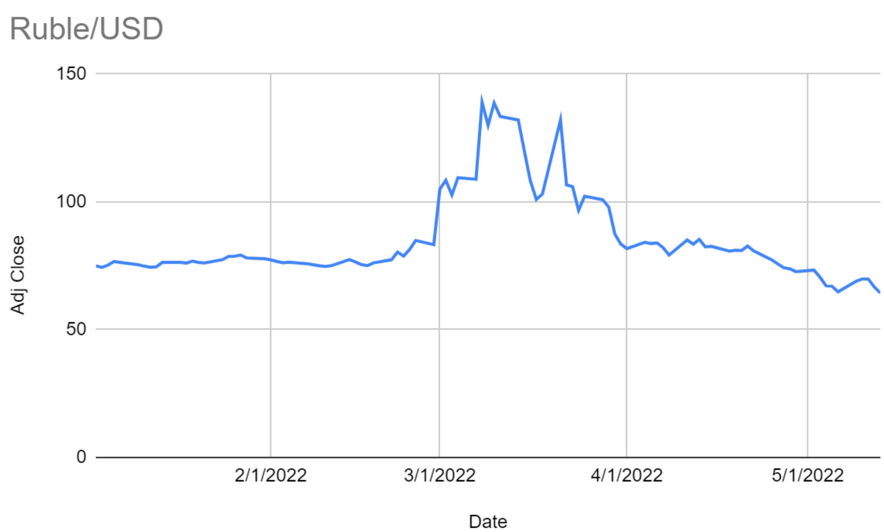
[9] Some small European countries did outright ban Russian Oil and Gas. These include Poland, Lithuania, Latvia, and Estonia

2021, the EU imported one hundred and fifty five billion cubic meters of natural gas from Russia, which accounted for forty-five percent of EU gas imports and close to forty percent of consumption. (IEA 2022)[10]

The Effect of Sanctions

The Ruble

Prior to Russia's February 24th invasion of Ukraine, the ruble had been trading at about 75 RUB/USD. Following the enactment of sanctions the Ruble depreciated toto a low of 150 RUB/USD on March 7th, and at this moment it was obvious that the sanctions were working. In President Biden's words, "The Ruble has been reduced to rubble."



Russia would react by enacting strict capital controls to stop the depreciation. Russia banned the sale of Russian stocks by foreign investors, banned the withdrawal of funds from the Russian financial system, created the need for special state approval to make payments to debt

[10] The IEA provided a 10 point plan that would cut natural gas imports from Russia by about a third within a year. They also proposed a more drastic measure that could cut imports in half but would require the utilization of coal. (IEA 2022)

holders from "unfriendly countries", and prevented its citizens from exchanging rubles for foreign currencies.

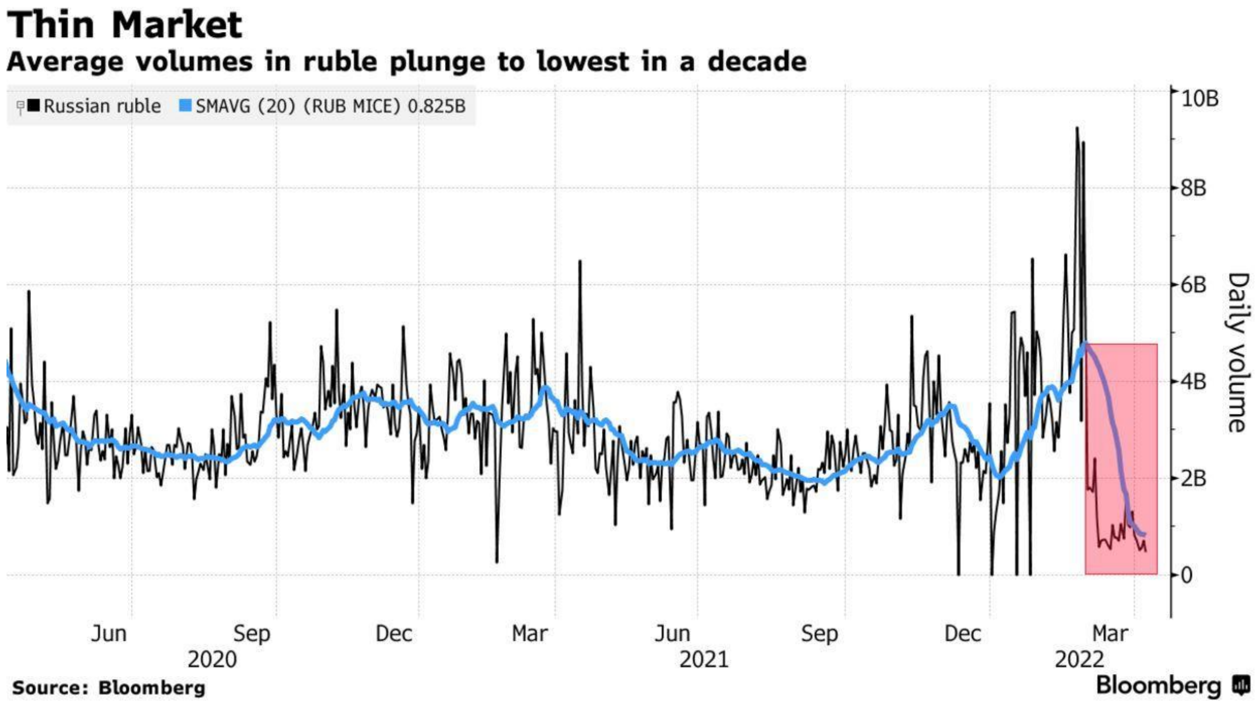
The central bank also raised its benchmark rate to 20% in the hope that this would entice investors to invest in ruble denominated assets.[11] They also forced exporters to swap 80% of their foreign currency revenues for the ruble. Russia has also thrown around the idea of forcing countries to pay for its oil and gas in rubles. European leaders have refused. [12]

Russia has toyed with the idea of enacting a quasi- gold standard. On March 25th Russia began buying gold from banks at a fixed price of 5,000 Rubles ($61) for a gram. This created a gold based exchange rate of 81 Rubles/USD. Realizing that this could create a situation where investors run to withdraw gold from the central bank, it quickly reneged on this idea a couple days later.

If you look at the Ruble/USD quote it may appear that the Ruble has recovered since it currently sits at around eighty Ruble/USD, very close to pre-invasion levels. However this is simply the result of manipulation. People are prevented from unloading the Ruble. This appreciation is artificial and not sustainable, which is made evident by the daily volume trading of the Ruble.

[11] US persons are banned from new investments in Russia anyways.

[12] EU leaders have strictly refused to pay for oil and gas in rubles. The Kremlin responded by saying that it could enact a slow adjustment process in the future. This would be a major "defensive weapon" for the Ruble.



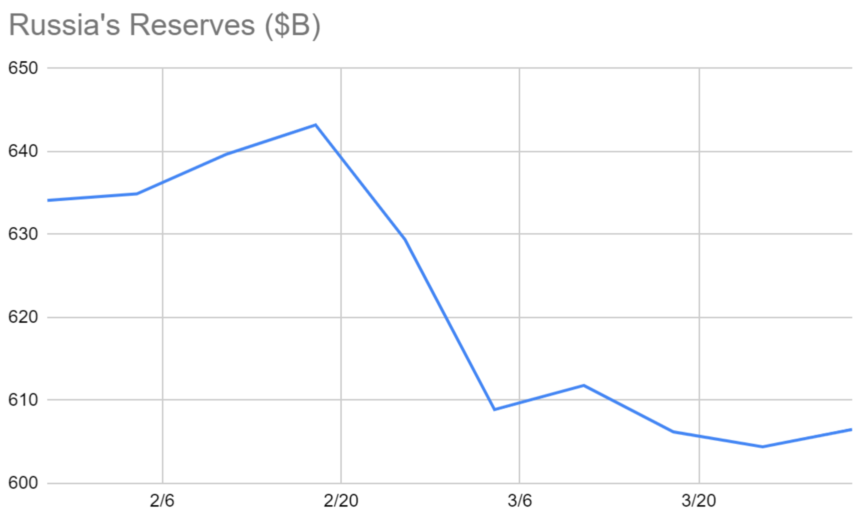
<u>Inflation</u>

Russia targets an inflation rate of four percent annually. At the start of the conflict Russia averaged a two percent inflation rate weekly. In March of 2022 it had reached almost seventeen percent year over year. Analysts expect it to reach as high as twenty percent by the end of 2022. (CBR Inflation 2022) High inflation will hurt Russian purchasing power and negatively impact investment, which the West hopes will place significant political pressure on Putin's regime.

<u>Central Bank Reserves</u>

In terms of reserves, Russia entered the conflict with 643 billion dollars in reserves, of which half, denominated in USD or Euros, (CBR Forex Report 2022)were instantly frozen with the early sanctions imposed by the EU and the United States. The only substantial reserves

Russia has left are gold (~140B) and Yuan (~80B). [13] Russia's total reserves fell from a peak of 643.2 on February 2nd to 604.4 by March 25th, representing a drop of approximately forty billion dollars over a one month period. It is important to note that reserves did slightly recover the following week to 606.5 billion dollars, and thus the author proposes using the change in weekly values of Russia's international reserves to measure the effectiveness of sanctions.



Source: CBR Weekly Reserves

[13] Buying Russian gold is restricted by G7 sanctions.

Chapter 3 Policy Implications

Russian Fossil Fuels

As long as Europe continues to buy Russian fossil fuels, Russia will be able to pay for its war in Ukraine. The author has calculated an average daily price of the war for Russia as $750 million.[14] Russia's current account surplus is about $1.3 billion a day.

In recent weeks we have seen CBR reserves increase, not decrease.

Russia faces a dichotomy. A slower invasion would decrease the daily cost of the war. This would in turn maximize its utilization of its oil and gas revenue. However a longer conflict creates challenges as well. First it gives sanctions such as export controls time to permeate throughout the economy. Secondly it increases the chance of Europe divesting itself of Russian fossil fuels. Thirdly, a prolonged conflict may also create political pressures domestically. Thus Russia must weigh this dichotomy to determine its opportune route.

A full oil and gas embargo would end this conflict swiftly. The EU pays Russia about $1.1 billion a day for its energy supplies. (Bloomberg 2022)[15] This would make it practically impossible for Russia to pay for the war. The author's findings are in line with other economists' predictions. Putin's ex chief economic advisor has publicly stated that a full oil and gas embargo would probably cease Putin's military operation within a month or two. (BBC 2022)

A full oil and gas embargo remains key to stopping Putin's military actions in Ukraine. The current implemented sanctions have had a significant effect on Russia's economy: The ruble has severely depreciated, thousands of companies have left Russia, and export controls have

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[14] The price of the war appears to be decreasing as time goes on

[15] Oil and gas make up 45% of Russia's federal budget. (IEA 2022) In 2021 Russia exported 4.7 million barrels per day to the entire world. It sold about half of these barrels to Europe. (2.4 million barrels per day) In terms of gas, Russia supplied the EU and the UK with 158 billion cubic meters in 2021.

hindered growth in key strategic industries.[16] While these sanctions are undeniably devastating to the Russian economy, they are not enough to stop the war. A full oil and gas embargo would be enough to force a withdrawal from Putin.

[16] Russia's only tank manufacturer, Uralvagonzavod, was forced to stop production due to a lack of components (Fortune 2022)

Conclusion

At the turn of the century Russia was in bad shape. The lack of structural reform left its economy particularly vulnerable to external shocks that would inevitably come. The Asia crisis combined with fiscal weakness led to a financial collapse in Russia in 1998. Going forward western investors would pay particular attention to the progress of reform in Russia. Reforms were needed in virtually every section of the government imaginable. Failures in reform cost the annual budget dearly and have led to a massive unsustainable growth of state debt in the past. If Russia were to have any chance of developing economically it would have to address these issues.

Vladimir Putin had come to power as a "strong man" leader to transform Russia. He first focused on consolidating his power in hope that this would make structural change easier. He quickly realized that consolidating power was far easier than structural reform. Going forward Putin would be more focused projecting power than conducting reforms. Putin choses to project an antiquated definition of power, the ability to enforce your will on others. Thus Putin has been focused on invading neighboring countries such as Ukraine in order to display his power.

The author's research suggests that the cost of the war in direct machinery is about $750 million daily. Russia can likely cover these expenses as it averaged $1.3 billion current account surplus daily in January 2022.[17] In February 2022 the west proceeded to impose severe sanctions on Russia. These sanctions greatly depreciated the ruble, created severe inflation, and limited Russia's access to its reserves.

As long as Europe continues to buy Russian fossil fuels, Russia will be able to fund its war in Ukraine. This creates a dichotomy for Russia. A slower invasion would decrease the cost

[17] It is important to note that this number reflects Russia's current account prior to the imposition of sanctions. This number also does not reflect the jump in commodity prices that occurred as a result of the invasion

of the war. However a longer conflict increases the effect of sanctions, gives Europe time to divest itself of Russian fossil fuels, and creates political pressures domestically. A full oil and gas embargo by the EU would likely end this conflict. The EU pays about $1.1 billion a day to Russia for its energy supplies. The author believes that without this revenue Russia could not afford to fight this war. Anything short of a full oil and gas embargo would not end this conflict.

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