

ANALYSIS
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The Russia-Ukraine Military Conflict: Two Possible Scenarios

Introduction

As Russian troops invade Ukraine, we use two scenarios to examine the potential implications for the global economy. Our scenarios, created using the Moody's Analytics global model, have different geopolitical narratives. In the Limited Disruption scenario, Russia invades Ukraine and a cease-fire is agreed to within a short period. In the Lengthy Military Conflict scenario, a long confrontation between Russian troops and Ukrainian military results in high humanitarian and economic costs. In both scenarios, we examine the economic consequences of invasion, international sanctions, and pressures on oil and gas supply.

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The political situation

Russian troops have invaded Ukraine from several directions in recent days following weeks of international tension and speculation about Russian President Vladimir Putin's objectives. Recently, Russia recognized the independence of the entire Donbas region in eastern Ukraine, suggesting at first, that Russia's ambitions were limited to independence of the eastern provinces. Russia, however, followed this up by sending troops into Ukraine from different directions and launched a full invasion of the country (see Chart 1).

Chart 1: Ukraine and Its Provinces



Source: Moody's Analytics

Russian threats on Ukrainian sovereignty are not new. Ever since the inception of the modern nation of Ukraine, Russia has attempted to influence its domestic and foreign policy. Russia is opposed to closer ties between Ukraine and the European Union and vehemently objects to Ukraine ever joining NATO. Ukraine's ambition to seek closer ties with the EU in the last decade ultimately ended with Russia invading Crimea in 2014. Russia also supported separatist movements in the Donetsk and Luhansk provinces in the east of the country, which resulted in roughly a third of the region declaring themselves as independent of Ukraine. Shortly after the creation of the breakaway states and, with the encouragement of France and Germany, the separatist groups signed the Minsk Protocol, which sought to bring peace to the region and reintegrate the breakaway states into Ukraine in return for local elections and decentralization. The terms of the Minsk Protocol were never fulfilled.

Putin's intentions are now clear—a takeover of Ukraine to permanently bring it under Russian control and prevent it from seeking a closer economic alliance with the EU or joining NATO. This aggression by Russia will come at a high humanitarian and economic cost for Ukraine.

Sanctions

The immediate international response has been to extend the existing sanctions by imposing further restrictions on the ability of Russian individuals and entities to engage economically with the rest of the world. Russia has been subject to an international sanctions regime since its 2014 invasion of Crimea. These sanctions, imposed by the U.S., the EU, and other countries, have resulted in travel bans, freezing of assets, and restrictions on imports and exports in various sectors. Russian banks and some corporates in the oil and gas sector have had their access to U.S. and other international capital markets heavily restricted. In recent years, the U.S. has sought to sanction corporations and even vessels engaged in laying gas pipelines, which has hampered the progress of the two new pipelines Russia has built to deliver gas to Europe: Nord Stream 2 and TurkStream 2.

In recent weeks, the U.S. and the EU have stressed the need for a unified and sweeping response to any Russian invasion of Ukraine. The U.S. has identified a number of potential weapons in its sanctions armory. These include:

- » Sanctions on officials including President Putin, the prime minister, foreign minister, minister of defense, and various senior defense personnel.
- » Mandatory sanctions on financial institutions with a minimum of three institutions facing sanctions out of a list that includes the largest Russian banks.
- » Sectoral sanctions on sectors that affect the interest of United States national security. The list of potential sectors includes oil and gas extraction and production; coal extraction, mining and production; and minerals extraction and processing.
- » Nord Stream 2, the new pipeline built to carry Russian gas to Europe, which has yet to commence operating, has been singled out for special attention. The U.S. proposes to consider all available and appropriate measures to prevent the Nord Stream 2 pipeline from becoming operational.

- » Exclusion of Russian organisations from access to SWIFT, the accepted international financial messaging system. The U.S. could sanction SWIFT itself and it could also require SWIFT to report on efforts to terminate services for sanctioned Russian financial institutions.

The latest wave of sanctions announced by the U.S. and the EU are in line with intentions stated a few weeks ago. Sanctions on individuals are not just aimed at specific individuals but now extend to apply a ceiling on deposits in EU financial institutions. Russian financial institutions and corporates have been sanctioned, as have important Russian public institutions such as the National Wealth Fund, the Finance Ministry, and the central bank. Germany recently announced that it would delay certification of the Nord Stream 2 pipeline and, under current circumstances, it appears likely that this delay will be indefinite.

Of the sanctions currently enacted, some may not be much of a deterrent. The country has more than \$600 billion of foreign exchange reserves and runs a current account surplus thanks to its exports of oil and gas. In addition, given that Russia has been subject to Western sanctions since 2014, it is less dependent on the West than it used to be. Putin may feel that Russia is well placed to weather sanctions.

Other sanctions, especially those that could still be enacted, could be much more damaging, even though they may be difficult to impose and may invite retaliation. Denying Russia access to SWIFT, a messaging system designed to facilitate international financial transfers, is being contemplated and is likely to be highly damaging. Russia has developed its own internal financial messaging system, but this system is not used internationally. Oil and gas companies are likely to face payment difficulties if this sanction is implemented. However, this measure may be politically difficult to enforce—SWIFT is an international organization, headquartered in Belgium and governed by European law. Blocking Nord Stream 2 permanently will also damage the Russian economy, as re-routing the gas to other markets is not straightforward, but such a move also endangers Europe's energy security. Much depends on the evolution of the current situation, but more damaging sanctions are still on the table.

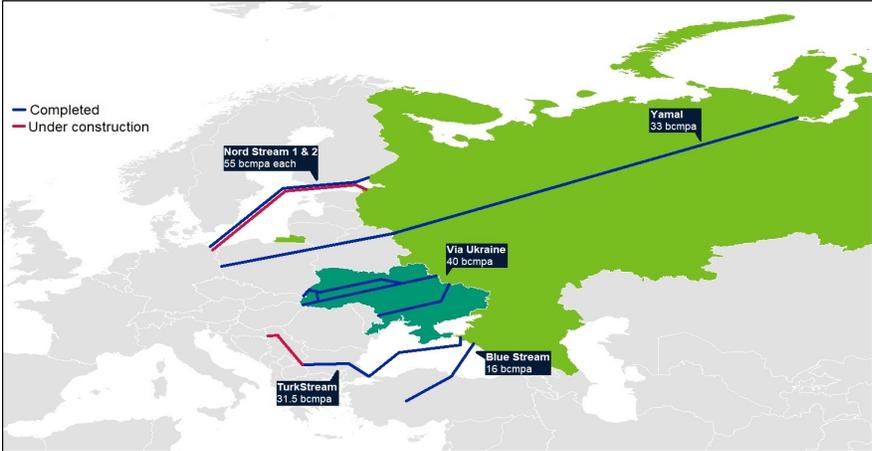
European energy security

The European Union gets its gas from a number of sources, with pipeline gas from Russia, Norway and the Netherlands meeting most of Europe's gas needs. In addition, there is pipeline supply from North Africa and some capacity for sourcing liquefied natural gas from the global market. Geographical proximity and an extensive network of pipelines have made the EU overly reliant on Russian supply, with more than a third of EU gas consumption being met by Russia (see Chart 2). The EU also sources approximately a quarter of its oil from Russia, once again relying on a network of oil pipelines.

Russia's difficult relationship with Ukraine has led to occasional cuts in gas supply, such as in 2006 and again in 2009. Disputes with Ukraine over the payment of gas transit fees were cited as the reason for terminating supply in these two instances, but it was European countries at the end of the pipelines that were immediately affected. The EU has attempted to improve its gas security since then but continues to remain heavily dependent on Russia. With long-term contracts in place in global gas markets and with regional, pipeline-driven supply, it is

Chart 2: Europe's Reliance on Russian Gas

Pipelines' capacity, bil cubic meters per yr, bcmpa



Note: Official Ukrainian pipeline capacity is more than twice the figure in Chart 2, but reduced flow for several years has meant that effective capacity is closer to 40 bcmpa.

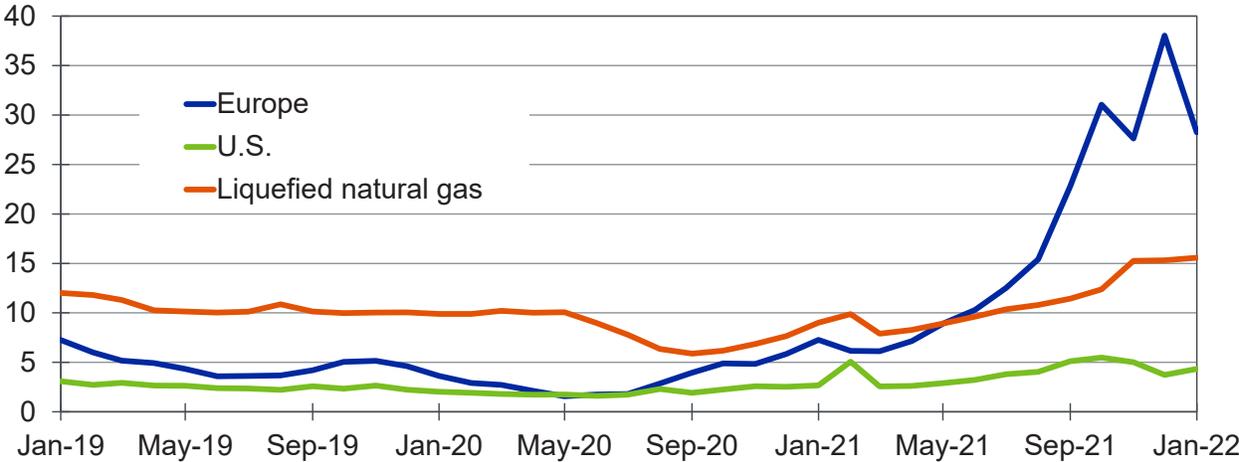
Sources: AGSI, Moody's Analytics

not straightforward for the EU to diversify away from Russia, and it certainly is not achievable in the short term.

The European price of gas rose in 2021, supported by strong global price pressures as economic activity kick-started, and as a result of regional factors such as the maintenance-related outage in Norway. In the last few months of the year, however, price concerns increasingly centered around the flow of Russian gas. These concerns peaked in December when Russia briefly stopped supplying gas through one of the major pipelines, resulting in a sharp spike in European gas prices (see Chart 3). While this was a brief episode and specific price features of the European gas market are likely to have played a significant role in creating this spike rather than any deliberate interruption by Russia, there have been clear signs of reduced flow from Russia over the last few months. The

Chart 3: Gas Prices Rose in 2021

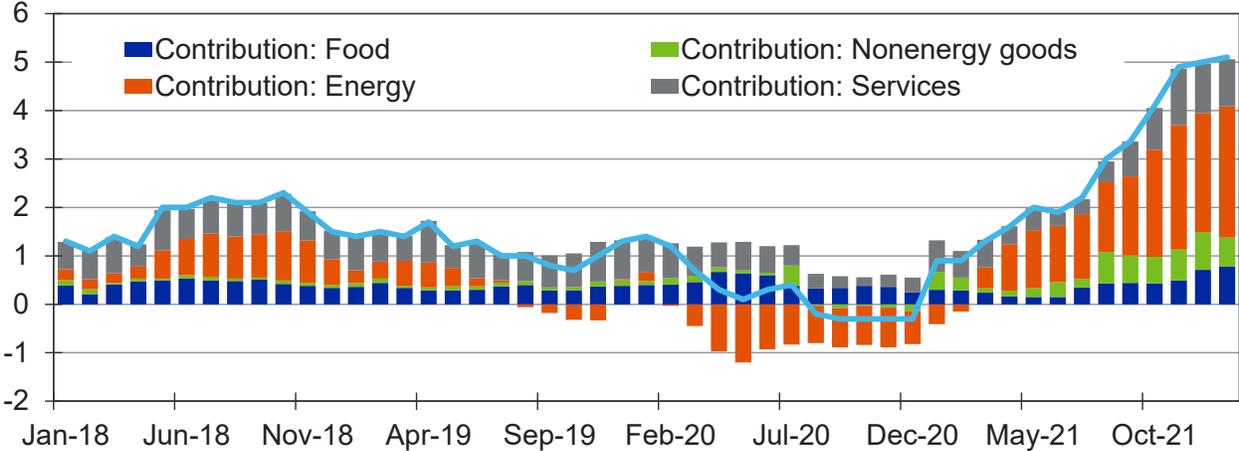
Gas prices, \$ per mmBTU



Sources: World Bank, Moody's Analytics

Chart 4: Euro Zone Inflation Driven by Energy Prices

Euro zone HICP, % change yr ago; contributions, ppts



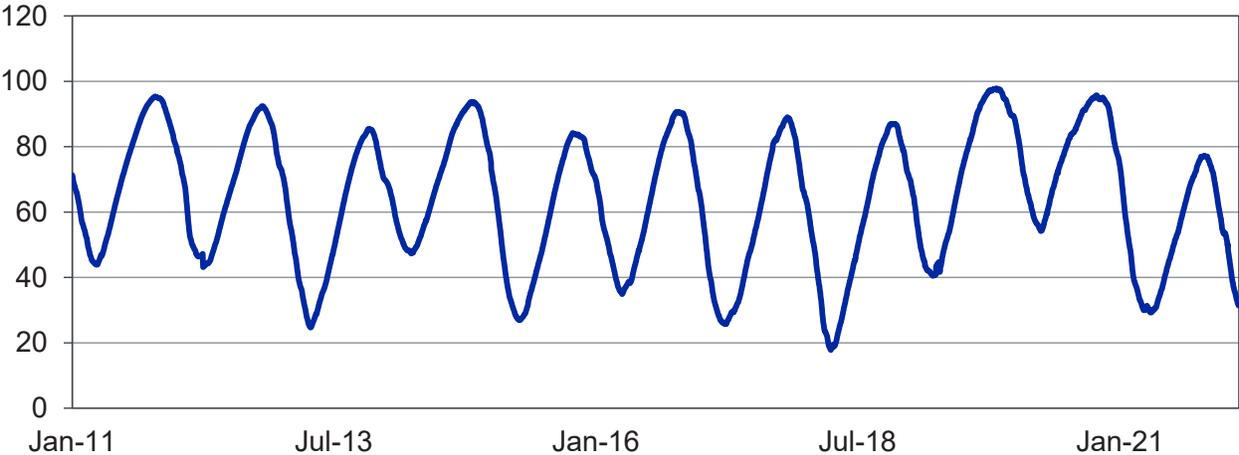
Sources: Eurostat, Moody's Analytics

EU has sought to compensate by increasing LNG imports in recent weeks. European gas prices have risen since the start of the invasion. Inflation in the euro zone has been significantly affected by the recent increase in gas prices (see Chart 4).

Europe is considerably concerned that Russian gas supply may be disrupted as a result of the conflict in Ukraine either as a result of damaged pipelines or due to a deliberate restriction imposed by Russia. There are several options in the short term for smoothing such disruptions in supply, the main one being the use of Europe's gas storage reserves. However, Europe's reserves are not sufficient to ride out supply shortages. European gas in storage plays an important role in smoothing gas consumption, especially over the winter months, and reserves follow a cyclical pattern—they are depleted over the winter and filled over the summer (see Chart 5). It is possible that Europe-

Chart 5: European Gas in Storage Facilities

Percentage of full storage



Sources: AGSI, Moody's Analytics

an gas reserves will fall to 20% of storage capacity or below by the time winter comes to an end. If gas supplies cannot be ramped up in 2022, or if Russian supply is disrupted, the gas position next winter could be stretched even more, leaving Europe vulnerable to supply disruption for some time.

In an emergency situation, where normal storage reserves are exhausted, Europe can go a bit further by drawing down on so-called cushion reserves, which is the gas needed in underground storage to maintain the pressure in reserves, but the additional volume provided is slight. Other options for managing supply disruptions from Russia include increasing supply from other pipeline sources, substituting coal for gas in electricity generation, turning on mothballed nuclear power plants, and increasing LNG supply. These solutions together provide some hope that even if Russian supplies cease altogether, Europe will be able to cope, at least for a short period. A long-term disruption to Russian gas supply is much harder to deal with. Global gas markets are much more regionalized than oil markets and suppliers are bound by long-term commitments. Higher gas prices in Europe will result in greater diversion of LNG to Europe, but there are capacity constraints in terms of how much gas the world is able to supply and how much throughput Europe can take given the existing volume at ports and LNG gasification facilities. Long-term disruption in gas supply from Russia will require Europe to implement a multipronged diversification strategy, including increasing its ability to source and process LNG and making a stronger push into renewables. Such a strategy will take a few years to implement, leaving it vulnerable to any significant reduction in Russian supply.

Russia-Ukraine military conflict scenarios

We have created two economic scenarios using different political narratives and have used the Moody's Analytics global model to analyse the economic implications. The current political environment is fluid and there are a number of different ways in which the situation might evolve. These scenarios should be seen as bookmarks that guide our thinking in terms of assessing baseline and tail risks rather than as specific predictions.

We have assigned probabilities to our two scenarios, Limited Disruption and Lengthy Military Conflict, which are 55% and 30%, respectively. This reflects not only the high uncertainty we face but also our view that risks are firmly skewed to the downside. We also note that we now view our February baseline as an upside scenario and attach a probability of 15% to it.

Scenario 1: Limited Disruption (Probability: 55%)

Our first scenario envisages a limited disruption arising from the invasion of Ukraine with a ceasefire implemented within a short period. The U.S., the EU and other countries declare sanctions against Russian individuals, corporates and financial institutions, which limits their ability to engage with the international economy. Sanctions are also levied against certain sectors, notably the mining, production and transportation of fossil fuels and defence-related trade.

Mindful of its energy security, the EU weighs its options carefully, but indefinitely delays the approval of Nord Stream 2. Russia responds by continuing with its current strategy of reduced gas

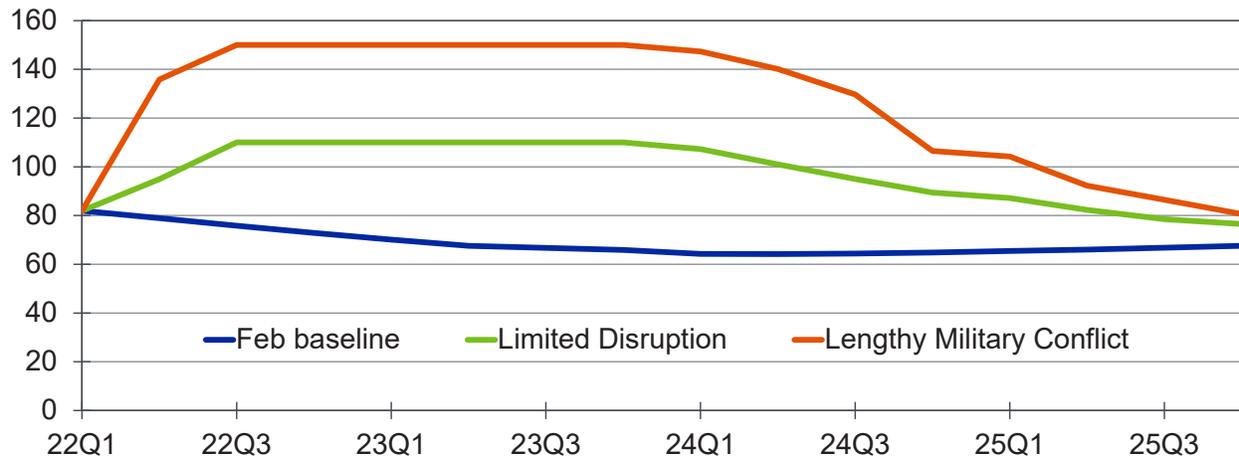
supplies to Europe and maintaining pressure on global gas markets. Short-term reductions to Russian oil and gas supply occur. Europe seeks to compensate by replacing lost Russian gas with LNG from other parts of the world, and financial markets, concerned about the possibility of further conflict, maintain a high risk premium on oil and gas.

In the short run, Europe meets its energy needs due to a combination of measures including increased LNG supplies, coal to gas switching, and drawing on storage. In the medium term, an increase in Russian supply and greater LNG capacity in Europe return gas prices to the baseline.

Oil prices rise mildly with Brent reaching \$110 per barrel (see Chart 6) while the European gas price is more affected, reaching \$35 per million BTUs (see Chart 7). Global inflation pressures in-

Chart 6: Oil Prices Rise in Scenarios

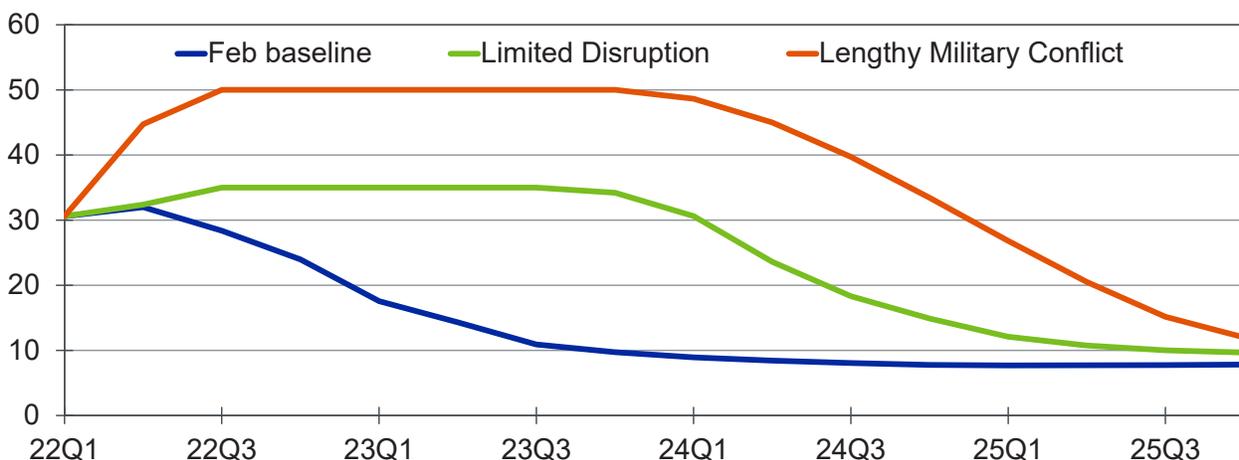
Brent crude, \$ per bbl



Source: Moody's Analytics

Chart 7: Natural Gas Prices Rise in Scenarios

Avg import border price in Europe, \$ per mmBTU

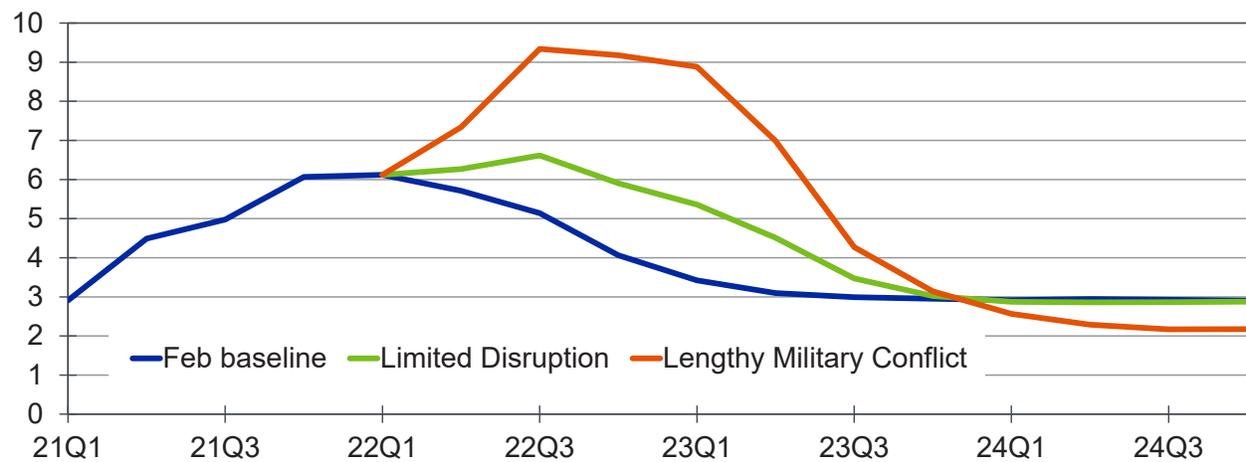


Source: Moody's Analytics

crease as a result, with Europe bearing the brunt of the impact (see Chart 8). The Federal Reserve, concerned with the negative implications of inflation, continues with its tightening policy and even the European Central Bank is convinced of the need to tighten and raises rates by the end of 2022. Inflation squeezes disposable incomes and consumer sentiment weakens, leading to a moderation in global growth (see Chart 9).

Chart 8: Global Inflation Rises Further

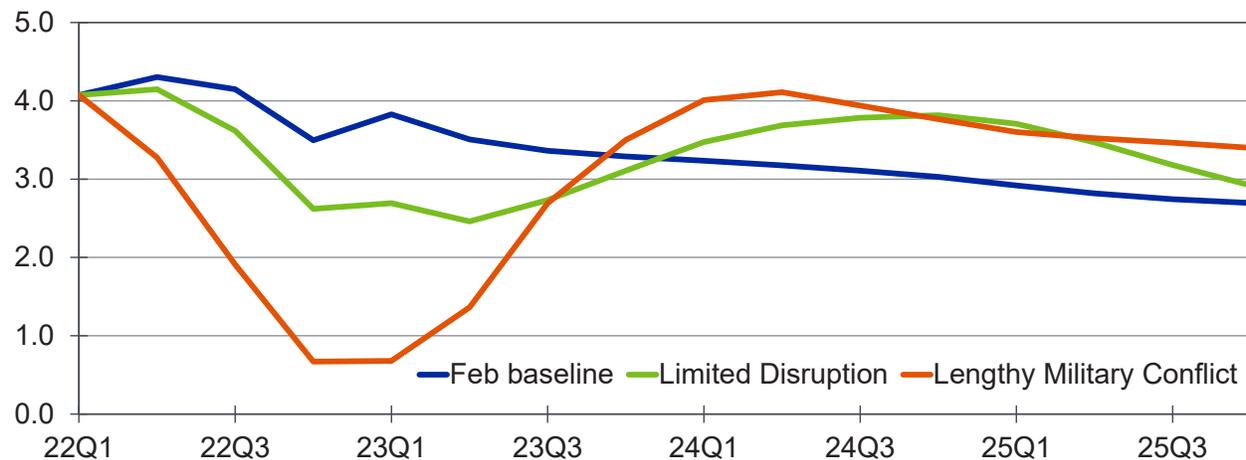
CPI, % change yr ago



Source: Moody's Analytics

Chart 9: Global GDP Weakens

GDP, % change yr ago



Source: Moody's Analytics

Scenario 2: Lengthy Military Conflict (Probability: 30%)

Our second scenario is a much darker scenario, with the invasion of Ukraine turning into a protracted conflict. This results in a humanitarian disaster in Ukraine and prompts a united and strong sanctions response by the U.S. and the EU. This is followed by subsequent retaliation by Russia through a reduction in oil and gas supplies to Europe.

In this scenario, Russian troops take over the capital city, Kyiv, and install a new administration. Bitter conflict ensues as the Ukrainian military puts up stiff resistance in parts of the country. The human and economic costs are high as fighting leads to civilian casualties, destruction to economic infrastructure, and shortages of basic commodities, though economic institutions in the country continue to function. There is a strong sense of unity amongst the NATO alliance, which leads to a rapid buildup of NATO troops in the region in a bid to deter Russia from invading surrounding nations. The EU, alarmed by what it sees as the re-emergence of Cold War fault lines, joins the U.S. in condemning Russia and in imposing stiff sanctions. In addition to the sanctions imposed in the Limited Disruption scenario, further sanctions result in Russian corporates and financial institutions being barred from using the international payments system SWIFT, and with sanctions on individuals extended to Putin himself. The EU agrees to sanctions on Nord Stream 2 that prevent the pipeline from ever coming into operation. Russian oil and gas companies face payment difficulties as a result of exclusion from SWIFT, which naturally reduces the volume of oil and gas Russia wishes to supply. In addition, Russia acts to further reduce supply to Europe in order to put pressure on the EU. The price of Brent crude averages \$150 per barrel as a result, while European gas prices reach \$50 per million BTUs (see Charts 6 and 7). There is no quick resolution to this standoff and the EU is forced to build out a medium-term energy security strategy that seeks to weaken its traditional reliance on Russia.

There is a flight to quality in global asset markets as risky assets correct sharply and the U.S. dollar benefits from haven flows. The EU bears the brunt of the pain from the commodity price shock, given the more regional impact of gas shortages on energy price inflation. European governments attempt to support households through subsidies and tax cuts, but their actions do not prevent the region from experiencing a significant inflationary shock. The squeeze on disposable income leads to a global recession (see Chart 9), with the euro zone affected the worst. Monetary policy diverges across major economies. In the U.S., the Fed remains committed to tackling inflation and embarks on a more aggressive rate hiking cycle while the European Central Bank, acknowledging the extraordinary nature of the crisis in Europe, goes into wait-and-see mode. The ECB also increases its asset purchase programme to assist governments as they provide fiscal support. The energy supply situation takes several quarters to resolve and oil and gas prices ultimately settle at a new equilibrium above the baseline, while Russia, one of the world's largest producers of oil and gas, becomes even more isolated politically and economically.

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