SPECIAL FOCUS

Potential Near-Term Implications of the Conflict in the Middle East for Commodity Markets: A Preliminary Assessment

The latest conflict in the Middle East has heightened geopolitical risks for commodity markets, in an already uncertain global environment. Markets' response has been muted so far, which is consistent with baseline forecasts that the conflict will have only a limited impact on commodity prices. In addition, current conditions in oil markets are notably different from supply shocks in the past, which implies the conflict could have a more moderate effect on markets. Nonetheless, history suggests that an escalation of the conflict in the region could trigger substantial oil supply disruptions. Accordingly, there are many possible effects on oil and other commodity markets should the conflict expand. In particular, a major escalation could cause an initial surge in oil prices, with disruptive knock on effects on other commodity markets. The degree of the surge and the extent of the disruptions would depend on the scale and duration of the conflict.

Introduction

The attacks on Israel in early October and the ensuing conflict have led to substantial loss of life and to a grave humanitarian crisis of increasing proportions. Beyond these tragic outcomes, the latest conflict in the Middle East has significantly heightened geopolitical risks in the region, with potentially large global repercussions. Because the region accounts for a substantial share of the global energy supply, these risks are acute for energy markets, particularly for oil.

Commodity markets so far have responded calmly to the onset of the conflict (figures SF.1.A-D). This is consistent with the assumptions underlying the baseline forecast for oil, as presented in the energy section of this report, which was finalized after the outbreak of the latest conflict. Having reached an average of almost $100 per barrel (bbl) in 2022, oil prices are expected to average $84/bbl this year. This forecast implies that prices will average about $90/bbl in the current quarter. The year-over-year oil price decline for 2023 is predicated on lower demand because of weak global growth. These forecasts highlight the expectation that the conflict will have a limited impact on commodity prices—assuming no escalation.

Nevertheless, historical precedent suggests that escalating conflict in the region could substantially disrupt commodity supply. Although neither Israel nor Gaza is a major energy producer, an escalation of the conflict and its spread to the wider region could lead to large increases in the prices of oil and other commodities. Historical precedent also indicates this could have destabilizing implications for the global economy. Moreover, spillovers to food prices could exacerbate food insecurity in conflict-afflicted areas in the region and around the world.

Against this backdrop, this Special Focus presents a preliminary assessment of the potential near-term implications of the latest conflict in the Middle East for oil and other commodity markets, with a focus on the initial impact on the supply and price of oil. In particular, it aims to answer the following questions:

- How did oil markets react to previous conflicts in the Middle East?
- How do current oil market conditions differ from those in earlier episodes of conflict?
- What are the possible near-term implications of an escalation of the conflict for energy markets?
- What are the possible near-term implications of an escalation of the conflict for other commodity markets?

How did oil markets react to previous conflicts in the Middle East?

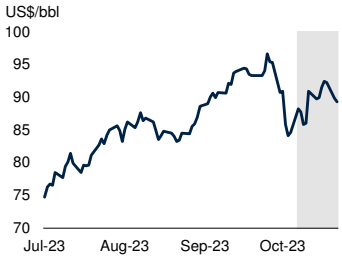
Since the early 1970s, a series of significant geopolitical events, often marked by military conflicts, have exerted a pronounced influence on oil supply, resulting in spikes in oil prices and heightened volatility (figure SF.1.E; Baffes and Nagle 2022; Huntington 2018).

Note: This Special Focus was prepared by a team led by Carlos Arteta, John Baffes, and Ayhan Kose, and included Paolo Agnolucci, Jeetendra Khadan, Dawit Mekonnen, Valerie Mercer-Blackman, Shane Streifel, and Guillermo Verduzco.

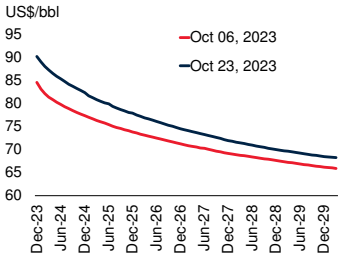
FIGURE SF.1 Commodity prices and geopolitical conflict

Commodity market responses to the onset of the latest conflict have so far been generally modest, and prices are expected to decline in 2024 under the baseline forecast. Nevertheless, similar geopolitical events since the early 1970s, often marked by military conflicts, have been associated with higher oil prices and heightened volatility.

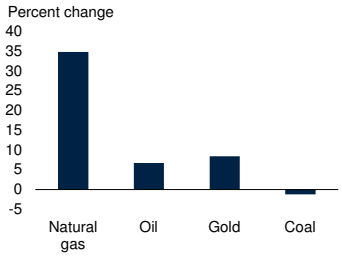
A. Daily prices of Brent crude oil



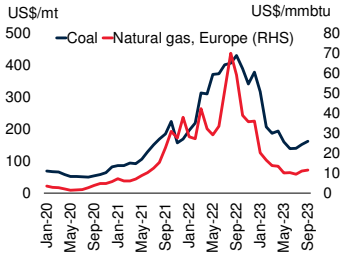
B. Brent future prices before and after the attacks on Israel



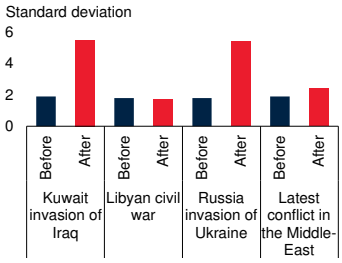
C. Price changes in selected commodities since the onset of the conflict (October 6, 2023)



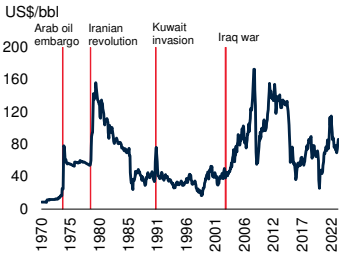
D. Coal and natural gas prices



E. Oil price volatility before and after conflicts



F. Real oil prices



Sources: Bloomberg; International Energy Agency; World Bank.

A. Daily price data of Brent crude oil, last observation is October 23, 2023. Shaded area indicates post conflict period.

B. Brent futures prices on the day before (October 6, 2023) the conflict and the latest observation (October 23, 2023).

C. Commodity price changes on October 23, 2023 compared to October 6, before the conflict. Natural gas refers to the European benchmark.

D. Monthly data, last observation is September 2023.

E. 30-day volatility in Brent crude oil prices, before and after geopolitical events. For the latest conflict in the Middle East, the period "after" consists of data from October 9 to October 23, 2023 (11 days).

F. Monthly Brent crude oil prices deflated by U.S. Consumer Price Index (CPI), 100 = January 2022.

- The first major disruption resulted from **the Arab oil embargo**, which was directed at nations that supported Israel during the Yom Kippur War. The embargo—which ran from October 1973 to March 1974—led to the removal of 4.3 million barrels per day (mb/d) from the global oil market, equivalent to approximately 7.5 percent of global supply in 1973. During the embargo, the Organization of the Petroleum Exporting Countries (OPEC) quadrupled official prices from $2.70/bbl in September 1973 to $13/bbl in January 1974. The episode is often called the first oil price shock. Although the embargo lasted only five months, real oil prices remained elevated and never returned to pre-embargo levels (figure SF.1.F). The repercussions of the first oil price shock were severe. It led to a spike in global inflation and played a major role in triggering the 1975 global recession (Kose and Terrones 2015). The episode also resulted in numerous policy initiatives, including the establishment of the International Energy Agency (IEA).

- The second major disruption to the global oil market occurred during **the Iranian revolution**, which started in late 1978. Up to 5.6 mb/d of oil were withdrawn from the global market during a six-month period. This episode, which led to a more than doubling of oil prices, is referred to as the second oil price shock. The sharp increase in prices triggered a significant reduction in oil demand and global economic activity and contributed to a sharp increase in global inflation.

- The **Iran-Iraq war** (September 1980 to August 1988) caused another disruption to the global oil market. Both countries halted exports, and 4.1 mb/d of oil were removed from global markets. Although prices rose approximately $7/bbl, or 20 percent, from September to November 1980, they soon retreated because of growing surplus capacity within OPEC alongside falling demand (Looney 2003).

- **The Iraqi invasion of Kuwait** in August 1990 resulted in a removal of 4.3 mb/d from the global market, causing prices to double by

October 1990. In response to the invasion, OPEC gradually raised production, while the IEA helped coordinate the release of a substantial amount of emergency oil stocks. When the Gulf War started in mid-January 1991, and it became apparent that the Western alliance would be successful in removing Iraqi forces from Kuwait, prices collapsed.

More recent conflicts in the region associated with oil supply disruptions, such as the Libyan civil war (2011), attacks on Saudi oil facilities (September 2019), and sanctions against Iran, have triggered somewhat less severe and more short-lived price spikes (Yang et al. 2022). The availability of supply from other sources mitigated the impact of these disruptions.

How do current oil market conditions differ from previous episodes of conflict?

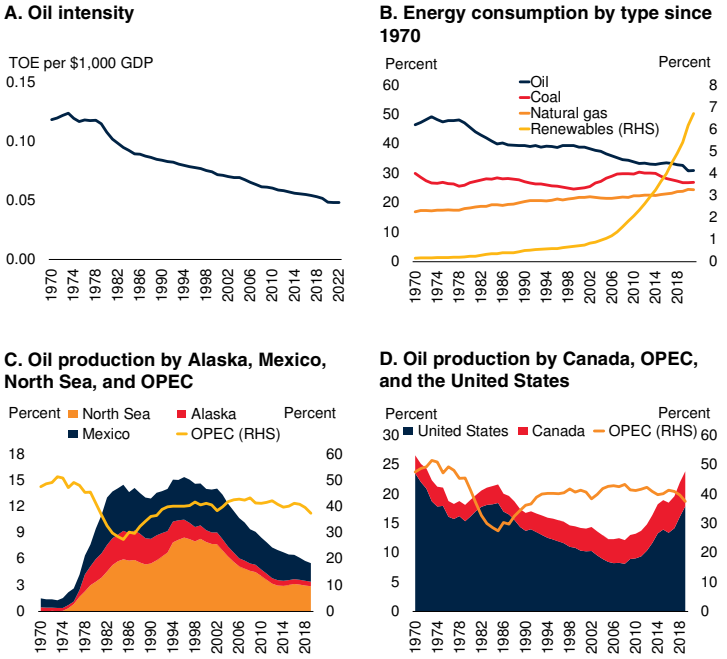
Current market conditions differ markedly from those surrounding the oil price shocks detailed above in several dimensions: the global economy is less reliant on oil; there is a more diversified base of oil suppliers; several countries have strategic stocks of oil; futures markets help price discovery and hedging; and the IEA helps formulate responses to energy price shocks. These features of current energy markets suggest that any escalation of the latest conflict in the Middle East would have more moderate effects than what would have ensued during a similar episode in the past.

Reduced oil dependence. The global economy's reliance on oil has diminished considerably since the 1970s. For instance, oil intensity (that is, the amount of oil required to produce one unit of GDP) declined from 0.12 tons of oil equivalent (toe) in 1970 to 0.05 toe in 2022 (figure SF.2.A). Most of the reduction is the result of efficiency improvements in the transport sector and the substitution of other energy sources for oil. The ongoing green transition also implies diminishing reliance on fossil fuels, resulting in slower demand growth for oil (figure SF.2.B). Although oil demand is expected to grow by an estimated 6 percent by 2028 (reaching nearly 106 mb/d), oil consumption is likely to peak around 2030 as the efficiency of energy use improves, the growing use of electric vehicles reduces transport fuel consumption, and the diffusion of renewable technology-based energy supplies substitutes for fossil fuels (IEA 2023b).

Diversification of supply sources. Unlike the 1970s, when the global oil market relied heavily on a few producers, especially in the Middle East, oil supplies now come from many sources. For example, following the second oil shock, new sources of supply emerged—in the North Sea, Mexico, and Alaska (figure SF.2.C). Similarly, the high prices during 2010-14 saw an increase in

FIGURE SF.2 Differences between current oil market conditions and earlier conflicts

Current market conditions differ markedly from those that accompanied conflict-induced oil price shocks of previous decades. The reliance of the global economy on oil has lessened considerably since the 1960s. The ongoing green transition implies diminishing reliance on fossil fuels. Oil supplies now come from more diversified sources.



Sources: BP Statistical Review; Energy Institute; International Energy Agency; World Bank.
Note: OPEC = Organization of the Petroleum Exporting Countries.
A. Oil intensity defined as consumption over GDP for each year. Last observation is 2022. TOE = tons of oil equivalent.
B. Energy consumption as share of total primary energy consumption. Last observation is 2021.
C.D. Crude oil production as a share of global crude oil production. North Sea includes Norway and the United Kingdom.

supply from higher-cost sources—Canadian oil sands, U.S. shale oil, and biofuels. These three added an estimated 5.6 mb/d during 2010-14 (figure SF.2.D).[1]

Strategic reserves. Following the oil crises of the 1970s, several large oil-importing countries set up strategic reserves for emergencies. These are held in crude oil and products form; some are under complete state control, while others are held or pledged by private entities.[2] The United States established the world largest Strategic Petroleum Reserve (SPR) in 1975 to mitigate possible supply disruptions. It can have reserves of more than 700 million barrels of oil (MMbbl), equivalent to five weeks of domestic oil consumption or one week of global oil consumption. Following a peak of 727 MMbbl in 2010, the U.S. SPR dropped to 350 MMbbl in September 2023, after several releases, most recently during the oil price spike that followed the Russian invasion of Ukraine. Some other countries also established similar inventory schemes, mainly as part of the IEA International Energy Programme. For example, Japan holds strategic and commercial oil reserves in both crude oil and oil products with a combined storage capacity of over 850 MMbbl, and the Republic of Korea has one with almost 400 MMbbl. Government stocks and international joint oil stockpiling account for 29 percent and 35 percent, respectively, of the storage capacity of these countries, while the remaining capacity relates to commercial facilities, including those obligated or pledged for emergency purposes.[3]

Development of oil futures markets. Oil prices once were officially set both on the supply side (by the oil companies) and on the demand side (by governments). When OPEC nationalized oil company assets in the 1970s and began setting official prices, active spot markets were developed as companies became buyers of crude oil. The introduction of futures contracts—the West Texas Intermediate (WTI) contract in the United States (a domestic benchmark) in 1983 and the Brent contract (an international benchmark) in 1988—marked a significant change in the oil market. Additional oil futures contracts were subsequently launched, including the latest one in China, at the Shanghai International Futures Exchange (Yu, Yang, Webb 2022). These contracts—perhaps the most liquid of commodity contracts, some trading up to more than 10 years ahead—enable market participants to engage in price discovery and hedging.

Establishment of the IEA. The IEA, an intergovernmental organization with 31 member countries, was founded under the aegis of the OECD shortly after the first oil price shock. It provides policy recommendations, analysis, and comprehensive data on the global energy sector. During several episodes, the IEA has played a key role, including establishing rules on reducing the reliance of its members on oil as well as coordinating the release of emergency reserves by its members during crises (IEA 2023a). These episodes included the invasion of Kuwait and the attack on the Saudi oil facilities. The IEA also helped attenuate market concerns during other events—for example, when oil prices turned negative early in the COVID-19 pandemic.

What are the possible near-term implications of an escalation of the conflict for energy markets?

The modest impact of the latest conflict in the Middle East on energy markets so far is consistent with the baseline forecasts presented in this report. Energy prices are expected to decline 29 percent in 2023 and a further 5 percent in 2024, as subdued global growth dampens demand. Under the baseline, oil prices are projected to average $90/bbl in the current quarter, and $84/bbl in 2023 as a whole, down from $100/bbl in 2022 (figure SF.3.A). Production cuts by OPEC+,

[1] In 1970s, oil producers in the Middle East accounted for an average of 34 percent of global oil supplies (their peak share was 37.4 in 1974). Today, their share is 29.5 percent.

[2] Strategic reserves, usually held by oil importers, complement spare capacity by oil exporters. Currently there is an estimated spare capacity of over 5 mb/d. As a result, a shortfall in the oil market could in principle be offset by increased production from the countries holding such capacity.

[3] There are also numerous oil-sharing pacts overseen by the IEA—including agreements between Japan, New Zealand, and the Republic of Korea; the United States and Israel; and France, Germany, and Italy. Outside the IEA, there are also strategic reserves, notably in China with an estimated reserve of more than 900 MMbbl.

expected to be in place until the end of 2023, have mostly been offset by supply increases from other sources, resulting in a muted impact on oil prices. As production cuts by the major producers of OPEC+ are removed and global activity slows, including a continued deceleration in China, oil prices are expected to edge down to an average of $81/bbl in 2024.

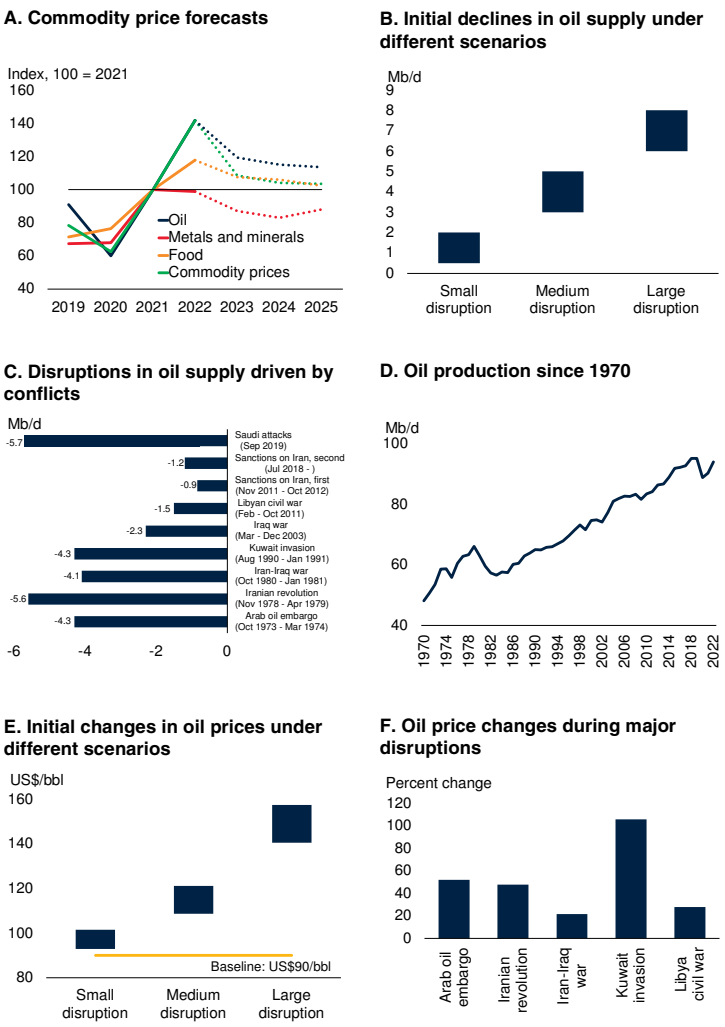
An escalation of the conflict could result in substantial energy supply disruptions, posing a major risk to these baseline projections. To assess the potential implications of such an escalation for oil and other energy markets, three risk scenarios are considered, each reflecting the severity of the impact on supply: small disruption, medium disruption, and large disruption scenarios (figure SF.3.B). These scenarios do not speculate about the potential triggers of the escalation of the conflict and the ensuing supply disruptions, because the situation is fluid and previous episodes were driven by a variety of factors. However, these scenarios do take into account similarities with previous geopolitically-driven supply disruptions. Additionally, while these scenarios are based around declines in oil supply, anticipated supply disruptions could also raise prices even in the absence of actual declines in production.

Specifically, each scenario considers *a range of possible initial supply declines* in light of earlier episodes and presents a corresponding range for *the initial impact on prices.* The assessments of the initial price impact are based on the elasticities estimated from the empirical relationship between supply disruptions and price changes in earlier episodes.[4] This simple calculation aims to provide a sense of the range of possible initial changes in oil supply and corresponding initial spikes in prices rather than attempting to produce alternative price forecasts under different scenarios over a given period. The wide range of possible outcomes reflects uncertainty about the

[4] In the medium disruption scenario, the impact on the price was obtained by using the supply shock impulse response functions (IRF) reported by Caldara, Cavallo, and Iacoviello (2019). In the other scenarios, the estimates were informed by the within-month price impact observed in a few historical episodes. For a broader discussion of the impact of supply shocks on oil prices, see Baumeister and Peersman (2013) and Boer, Pescatori, and Stuermer (2023).

FIGURE SF.3 Implications of risk scenarios

Under the baseline forecast, the conflict will have a limited impact on commodity prices. Under a small oil supply disruption scenario, prices would initially increase between 3 and 13 percent above the baseline of $90/bbl. However, under scenarios that involve more widespread supply disruptions, initial changes in prices could be larger. In a large disruption scenario, prices could initially increase up to 75 percent above the baseline. Historical precedent highlights that depending on the duration and scale of any escalation, substantial disruptions, and soaring prices are possible.



Sources: Bloomberg; BP Statistical Review; Energy Institute; International Energy Agency; World Bank.
A. Forecasts as of October 26, 2023.
B. Range of initial supply disruptions under three scenarios.
C. Oil supply disruptions during geopolitical events as defined by International Energy Agency (IEA 2014), except "Sanctions on Iran" and "Saudi attacks".
D. Last observation is 2022.
E. Range of initial prices of Brent crude oil in response to supply disruptions under three scenarios.
F. Changes in average monthly oil prices three months after the onset of geopolitical events.

underlying source of disruption, the extent to which supply would fall in the affected countries, and the extent to which other oil producers would quickly step in to fill the drop in supply.

The initial spikes in prices often reversed rapidly in earlier episodes. For example, there was only a brief uptick in oil prices during September–November 1980, following the outbreak of the Iran-Iraq war in September 1980. Similarly, the price spike after Iraq's invasion of Kuwait in August 1990 was short-lived, subsiding as soon it became apparent in early 1991 that Kuwait would be liberated by Western forces. However, a few episodes, such as the first and second oil shocks, involved sharper and more lasting disruptions that resulted to more persistent increases in prices. Recognizing that the path of prices following a shock would depend to a significant degree on inherently unpredictable geopolitical contingencies, the scenarios presented below focus exclusively on the initial price impact of oil market disruptions.

- **Small disruption scenario.** This scenario assumes that global oil supply is reduced by 0.5 mb/d to 2 mb/d (0.5 and 2 percent of 2023 supply), depending on geopolitical developments. This decline is comparable to the supply change observed during the Libyan civil war in 2011 (nearly 2 percent decline in global supply at the time) (figures SF.3.C and SF.3.D). Under this scenario, oil prices would initially increase by 3 to 13 percent ($3/bbl to $12/bbl) above the 2023Q4 baseline of $90/bbl.

- **Medium disruption scenario.** Historical precedent suggests the possibility of wider disruptions, however (figures SF.3.E and SF.3.F). Depending on how much the conflict escalates, the medium disruption scenario assumes that global oil supply is reduced by 3 to 5 mb/d (approximately 3 to 5 percent of 2023 supply). This reduction would be comparable with the loss of 3 percent of global oil supply during the Iraq war in 2003. Under this scenario, oil prices would initially increase by about 21 to 35 percent ($19/bbl to $31/bbl) above the baseline forecast in 2023Q4.

- **Large disruption scenario.** In this scenario, the crisis is assumed to morph into a regional conflict that sharply disrupts oil supply. Global oil supply would fall by 6 to 8 mb/d (approximately 6 to 8 percent of 2023 supply). This scenario is comparable to the initial disruption associated with the Arab oil embargo in 1973, which resulted in a loss of nearly 7.5 percent of the global oil supply at that time. Under this scenario, oil prices would initially increase by 56 to 75 percent ($50/bbl to $67/bbl) above the 2023Q4 baseline.

Although not modeled here, disruptions in oil supplies can have a cascading effect on the prices of other energy commodities. This effect is most pronounced in the natural gas market, particularly in Europe and Asia, where a significant portion is traded in the form of liquified natural gas (LNG).[5] Natural gas prices are very susceptible to transportation disruptions, implying that any surge in oil prices would swiftly translate into higher LNG costs.

What are the possible near-term implications of an escalation of the conflict for other commodity markets?

Although the baseline projections assume the conflict will have minimal impact on non-energy commodities, the risk scenarios presented above have potentially significant near-term implications for other commodity prices. Supply disruptions affect other commodities mainly through higher energy prices, which raise production costs of food and metals. By increasing global uncertainty, the conflict could also raise the price of gold, often considered a safe haven asset.

[5] European natural gas prices surged 35 percent since October 6 in response to multiple developments, including a shutdown of a gas field off the Israeli coast on security reasons, an explosion at an interconnector in the Baltic Sea, overall concerns about the escalation of the conflict in the Middle East, and ongoing worries about the availability of natural gas during winter, notably in Europe.

Food prices. A sustained oil price spike would raise food prices by increasing production and transportation costs for both food and fertilizers, as happened during earlier oil price spikes.[6] Fertilizer prices could also increase if the prices of natural gas and coal were to rise markedly or if the conflict spread to affect the world's largest exporters of nitrogen-based fertilizers in the region.

The conflict has already exacerbated food insecurity in Gaza: In 2022, 1.2 million people in Gaza (53 percent of the population) were food insecure (figure SF.4.A). Recent developments resulted in the entire population in Gaza (2.3 million people) needing immediate humanitarian assistance. An escalation of the conflict could have wider regional implications. About 34 million people in Lebanon, the Palestinian territories, Yemen, and Syria already were acutely food insecure before the latest hostilities.

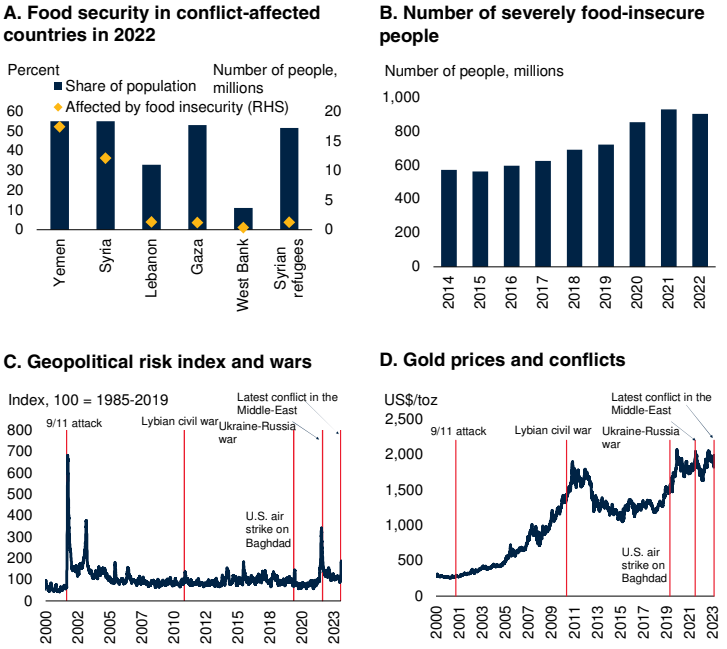
More generally, conflict situations exacerbate food insecurity by disrupting market access, destroying infrastructure, reducing incentives to invest, and rendering contracts unenforceable and property rights insecure. They also reduce farm and labor productivity and shift the orientation of agricultural production from markets to subsistence, and displace people from their homes and villages, leaving them in dire humanitarian conditions without basic access to food, water, and shelter. Beyond the direct impact of the conflict on the affected populations, an escalation would worsen already high global food insecurity (figure SF.4.B). The number of severely food-insecure people globally has risen from 624 million in 2017 to an estimated 900 million in 2022 (FAO 2023).

Prices of industrial metals. Disruptions to energy markets can raise production costs of energy-intensive metals such as aluminum and zinc—especially those produced in European smelters, many of which have not fully recovered from the rise in natural gas prices that followed Russia's invasion of Ukraine. Higher oil prices could also result in increased transportation costs for minerals, such as iron ore, a key input to steel production.

Gold prices. Gold has a unique status among assets, because its price often increases with rising geopolitical concerns. The conflict has already heightened global uncertainty (figure SF.4.C). Although the initial impact has been moderate, an escalation of the conflict would likely exacerbate such uncertainty, which would lead to reduced

FIGURE SF.4 Food insecurity and geopolitical risks

A further escalation of the conflict in the Middle East could have severe implications for already high food insecurity, both in areas afflicted by conflict directly and at the global level. While geopolitical risk has so far not substantially increased, gold prices, often viewed as a barometer of global uncertainty, have risen.



Sources: Bloomberg; Caldara and Iacoviello (2022); Food and Agriculture Organization of the United Nations; World Bank.

A. Food insecurity measured using International Food Security Phase Classifications (IPC): (1) minimal/none, (2) stressed, (3) crisis, (4) emergency, and (5) catastrophe/famine. Bars represent the number of people who face a crisis or more severe (IPC3+) food insecurity in selected countries in the Middle East. Diamonds represent the share of people who face critical or more severe (IPC3+) food insecurity in these countries.

B. Global number of people facing food insecurity at a severe level, based on *The State of Food Security and Nutrition in the World 2023* report, page 21, Table 4.

C. Geopolitical risk index (GPR) reflects automated text-search of electronic articles from 10 newspapers, related to adverse geopolitical events in each newspaper for each month. A higher index is related to lower investment, stock prices, and employment.

C.D. Daily data. Last observation is October 23, 2023. Red vertical lines show adverse geopolitical events.

[6] High energy prices would increase the cost of production due to high fuel prices (in response to higher oil prices) and higher fertilizer prices (in response to higher natural gas and coal prices, used as inputs to fertilizer production). Estimates suggest that a 10-percent increase in energy prices is associated with about 0.2 to 0.3 percent increase in food prices and a 3.3 to 5.5 percent increase in fertilizer prices (Baffes 2007, 2010).

risk appetite and lower consumer and investor confidence. The potential impact of these developments can be seen in movements in the price of gold, which has increased over 8 percent since the onset of the conflict. Previous conflicts and other episodes of geopolitical uncertainty have also been accompanied by gold prices (figure SF.4.D). In the event of a more widespread conflict in the Middle East, gold prices would likely increase from already high levels as investors shift to safe-haven assets (Bilgin et al. 2018).

Conclusions

The relatively muted effect of the latest conflict in the Middle East on oil and energy markets so far aligns with baseline forecasts in this report, which expect weaker global demand to result in a decline of 29 percent in energy prices this year and a further 5 percent fall in 2024. These projections assume that a contained conflict will have a minimal impact on commodity prices. Moreover, as a result of notable changes in the overall conditions of oil and other energy markets and improvements in the global economy's resilience to energy price shocks over the past few decades, the overall impact of the latest conflict could be smaller than what occurred in comparable episodes in the past.

Nonetheless, an escalation of the conflict is a major risk to commodity markets because the region has a substantial share of the global oil supply. Historical precedents of military conflicts in the Middle East point to the possibility of significant disruptions in oil markets, with associated surges in prices. The ultimate impact of any escalation would likely depend on the magnitude and duration of oil supply disruptions that followed. While a risk scenario involving a small decline in oil supply may lead to only a modest increase in oil prices, risk scenarios featuring more widespread disruptions could result in substantial dislocations in oil markets, with initially sharp increases in prices. Disruptions to energy supplies and spikes in energy prices would affect other commodities through higher production costs, raising food and metals prices. In particular, as food prices increase, global food insecurity, already on the rise, could reach new heights.

The global economy is now in a better position to cope with energy price shocks than in previous decades. However, the latest conflict is coming on the heels of another recent major geopolitical disruption—Russia's invasion of Ukraine in early 2022—which had dislocating effects on commodity markets and on the broader global economy that persist. The continuation and escalation of either or both conflicts would raise the specter of dual and compounding shocks to commodity markets that could test the resilience of the already fragile global economy.

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