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Global Economic Effects of Covid-19: In Brief

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Overview

Since the World Health Organization (WHO) first declared Covid-19 a world health emergency in January 2020, the virus has been detected in over 100 countries and almost all U.S. states.[1] The infection has sickened more than 150,000 people, with fatalities.

On March 11, the WHO announced that the outbreak was officially a pandemic, the highest level of health emergency.[2] During that time, it has become clear that the outbreak is negatively impacting global economic growth.[3] The virus is affecting a broad swath of economic activities, from tourism, medical supplies and other global value chains, consumer electronics, and financial markets to energy, food, and a range of social activities, to name a few. Without a clear understanding of when the effects may peak economic forecasts must necessarily be considered preliminary. Efforts to reduce social interaction to contain the spread of the virus are disrupting the daily lives of most Americans.

On March 2, 2020, the Organization for Economic Cooperation and Development (OECD) released its revised economic outlook and suggested that global economic growth could decline by 0.5% in 2020 to 2.4% if the economic effects of the virus peak in the first quarter of 2020[4] (see **Table 1)**. If the effects of the virus do not peak in the first quarter, which now seems unlikely, the OECD estimates that global economic growth in 2020 could be reduced by half, or 1.5%.

Concerns over economic and financial risks have pushed investors to search out safe-haven investments such as the benchmark U.S. Treasury 10-year security, which experienced a historic drop in yield to below 1% on March 3, 2020 (the price and yield of a bond are inversely related).[5] The yield dropped again to historic levels on March 6, 2020, and March 9, 2020, as investors moved out of stocks and into bonds due to concerns over declines in major stock indices and expectations that the Federal Reserve would lower interest rates for a second time in March 2020.[6] In overnight trading on March 8, 2020, and again on March 11, 2020, March 13, 2002, and March 15, 2020, U.S. stock market indices moved sharply, triggering automatic circuit breakers designed to halt trading if the indices rise or fall by more than 5% when markets are closed.[7] Financial markets from the United States to Asia and Europe are volatile as investors are concerned that the virus is creating a global issue with few metrics to indicate how prolonged and expansive the economic effects may be.[8] The virus is also affecting global politics as world

[1] Mapping the Spread of the Coronavirus in the U.S. and Worldwide, Washington Post Staff, *The Washington Post*, March 4, 2020. https://www.washingtonpost.com/world/2020/01/22/mapping-spread-new-coronavirus/?arc404=true.

[2] Bill Chappell, "Coronavirus: COVID-19 Is Now Officially A Pandemic, WHO Says," *National Public Radio*, March 11, 2020, https://www.npr.org/sections/goatsandsoda/2020/03/11/814474930/coronavirus-covid-19-is-now-officially-a-pandemic-who-says.

[3] Mapping the Spread of the Coronavirus.

[4] *OECD Interim Economic Assessment: Coronavirus: The World Economy at Risk*, Organization for Economic Cooperation and Development. March 2, 2020. http://www.oecd.org/economic-outlook/#resources.

[5] Levisohn, Ben, The 10-Year Treasury Yield Fell Below 1% for the First Time Ever. What That Means, *Barrons*, March 3, 2020. https://www.barrons.com/articles/the-10-year-treasury-yield-fell-below-1-for-the-first-time-ever-what-that-means-51583267310.

[6] Smith, Colby, Richard Henderson, Philip Georgiadis, and Hudson Lockett, Stocks Tumble and Government Bonds Hit Highs on Virus Fears, *The Financial Times*, March 6, 2020. https://www.ft.com/content/9f94d6f8-5f51-11ea-b0ab-339c2307bcd4.

[7] Georgiadis, Philip, Adam Samson, and Hudson Lockett, Stocks Plummet as Oil Crash Shakes Financial Markets, *The Financial Times*, March 9, 2020. https://www.ft.com/content/8273a32a-61e4-11ea-a6cd-df28cc3c6a68.

[8] Samson, Adam and Hudson Lockett, Stocks Fall Again in Worst Week Since 2008 Crisis, *The Financial Times*,

leaders are cancelling international meetings[9] and some nations reportedly are stoking conspiracy theories that shift blame to other countries.[10]

The challenge for policymakers is to implement targeted policies that address what are expected to be short-term problems without creating distortions in economies that can outlast the impact of the virus itself. Policymakers are being overwhelmed by the quickly changing nature of the crisis that has compounded a health issue with what could become a global trade and economic crisis whose potential effects on the global economy are rapidly growing. In addition, many policymakers are constrained in their response to the crisis, with little flexibility for monetary and fiscal support, given the broad-based synchronized slowdown in global economic growth, especially in manufacturing and trade, which had developed prior to the viral outbreak.

Table 1. OECD Economic Outlook Forecast, March 2020

Percent change in Real GDP Growth

	2019	2020			2021
		November projections	Difference from November	November projections	Difference from November
World	2.9	2.4	-0.5	3.3	0.3
G20	3.1	2.7	-0.5	3.5	0.2
Australia	1.7	1.8	-0.5	2.6	0.3
Canada	1.6	1.3	-0.3	1.9	0.2
Euro area	1.2	0.8	-0.3	1.2	0.0
Germany	0.6	0.3	-0.1	0.9	0.0
France	1.3	0.9	-0.3	1.4	0.2
Italy	0.2	0.0	-0.4	0.5	0.0
Japan	0.7	0.2	-0.4	0.7	0.0
Korea	2.0	2.0	-0.3	2.3	0.0
Mexico	-0.1	0.7	-0.5	1.4	-0.2
Turkey	0.9	2.7	-0.3	3.3	0.1
United Kingdom	1.4	0.8	-0.2	0.8	-0.4
United States	2.3	1.9	-0.1	2.1	0.1
Argentina	-2.7	-2.0	-0.3	0.7	0.0
Brazil	1.1	1.7	0.0	1.8	0.0
China	6.1	4.9	-0.8	6.4	0.9
India	4.9	5.1	-1.1	5.6	-0.8
Indonesia	5.0	4.8	-0.2	5.1	0.0

February 28. https://www.ft.com/content/4b23a140-59d3-11ea-a528-dd0f971febbc.

[9] Taylor, Adam, Teo Armus, and Rick Noak, Live updates: Coronavirus Turmoil Widens as U.S. Death Toll Mounts; Xi Cancels Japan Trip. *The Washington Post*, March 5, 2020, https://www.washingtonpost.com/world/2020/03/05/coronavirus-live-updates/.

[10] Shih, Gerry, China is Subtly Stoking Coronavirus Conspiracy Theories That Blame the U.S. for Outbreak, *The Washington Post*, March 5, 2020. https://www.washingtonpost.com/world/2020/03/05/coronavirus-live-updates/.

Russia	1.0	1.2	-0.4	1.3	-0.1
Saudi Arabia	0.0	1.4	0.0	1.9	0.5
South Africa	0.3	0.6	-0.6	1.0	-0.3

Source: *OECD Interim Economic Assessment: Coronavirus: The World Economy at Risk*, Organization for Economic Cooperation and Development. March 2, 2020, p. 2.

Comparing the Current Crisis and the 2008 Crisis

Sharp declines in the stock market and broader financial sector turbulence; interest rate cuts and large-scale Federal Reserve intervention; and discussions of massive government stimulus packages have led some observers to compare the current market reaction to that experienced a little over a decade ago. There are similarities and important differences between the current economic crisis and the global financial crisis of 2008/2009. Foremost, the earlier crisis was rooted in structural weakness in the U.S. financial sector. Following the collapse of the U.S. housing bubble, it became impossible for firms to identify demand and hold inventories (across many sectors (construction, retail, etc). This led to massive oversupply and sharp retail losses which extended to other sectors of the U.S. economy and eventually the global economy. Moreover, financial markets across countries were linked together by credit default swaps. As the crisis unfolded, large numbers of banks and other financial institutions were negatively affected, raising questions about capital sufficiency and reserves. The crisis, then quickly engulfed credit-rating agencies, mortgage lending companies and the real estate industry broadly. Market resolution came gradually with a range of monetary and fiscal policy measures that were closely coordinated at the global level. These were focused on putting a floor under the falling markets, stabilizing banks, and shoring up investor confidence to get spending started again. Starting in September 2007, The Federal Reserve cut interest rates from over 5% in September 2007 to between 0 and 0.25% before the end of the 2008. Once interest rates approached zero, the Fed turned to other so-called "unconventional measures" including targeted assistance to financial institutions, including encouraging Congress to pass the Troubled Asset Relief Program (TARP) and the Term Asset Backed Security Loan Facility (TALF) to prevent the collapse of the financial sector and boost consumer spending. Other measures included forced bank capitalizations (or bank nationalizations in other countries), swap arrangements between the Federal Reserve and the European Central Bank and smaller central banks, and so-called "quantitative easing" to boost the money supply. On a global level, the United States and other countries tripled the resources of the IMF (from $250 billion to $750 billion) and coordinated domestic stimulus efforts.

Unlike the 2008 crisis, the current crisis began as a supply shock. As the global economy has become more interdependent in recent decades, most products are produced as part of a global value chain (GVC), where an item such as a car or mobile device consists of parts manufactured all over the world, and involving multiple border crossings before final assembly. The earliest implications of the current crisis came in January as plant closures in China and other parts of Asia led to interruptions in the supply chain and concerns about dwindling inventories. As the virus spread from Asia to Europe, the crisis switched from supply concerns to a broader demand crisis as the measures being introduced to contain the spread of the virus (social distancing, travel restrictions, cancelling sporting events, closing shops and restaurants, and mandatory quarantine measures) prevent most forms of economic activity from occurring. Thus, unlike the 2008 crisis response, which involved liquidity and solvency-related policy measures to get people spending again, the current crisis is related to the amount of operating capital in the economy. While larger firms may have sufficient capital to wait out a crisis, many aspects of the economy (such as restaurants or retail operations) operate on very tight margins and would likely not be able to pay employees after closures lasting more than a few days. Many people will also need to balance child care and work during quarantine or social distancing measures. During this type of crisis, while monetary policy measures play a part -- and the Federal Reserve has once again cut rates to near zero -- they cannot compensate for the physical interaction that the global economy is dependent upon. As a result, fiscal stimulus will likely play a relatively larger role in this crisis in order to prevent personal and corporate bankruptcies during the peak crisis period. Efforts to coordinate U.S. and foreign economic policy measures will also have an important role in mitigating the scale and length of any global economic downtown.

Estimated Economic Effects

The economic situation remains highly fluid. Uncertainty about the length and depth of the virus-related economic effects are fueling perceptions of risk and volatility in financial markets and

corporate decisionmaking. In addition, uncertainties concerning the virus and the effectiveness of public policies intended to curtail its spread are adding to market volatility.

The OECD also estimates that increased direct and indirect economic costs through global supply chains, reduced demand for goods and services, and declines in tourism and business travel mean that, "the adverse consequences of these developments for other countries (non-OECD) are significant."[11] Global trade, measured by trade volumes, slowed in the last quarter of 2019 and was expected to decline further in 2020 as a result of weaker global economic activity associated with the viral outbreak, which is reducing economic activity in various sectors, including ports and the shipping industry.[12]

In addition, the OECD argues that China's emergence as a global economic actor marks a significant departure from previous global health episodes. China's growth in combination with globalization and the interconnected nature of economies through supply chains and foreign investment magnify the cost of containing the spread of the virus through quarantines and restrictions on labor mobility and travel.[13]

Initially, the economic effects of the virus were expected to be a short-term supply issue as factory output fell because workers were quarantined to reduce the spread of the virus through social interaction. Concerns have grown, however, that the virus-related supply shock is creating a more prolonged demand shock as reduced activity by consumers and businesses lead to a lower rate of economic growth. As demand shocks unfold, businesses experience a decline in activity, reduced profits, and potentially escalating and binding credit and liquidity constraints. If the economic effects persist, contagion issues can spread the economic effects widely and affect a broader group of firms and households. This potentially can lead to liquidity constraints and credit market tightening in global financial markets, with negative fallout effects on economic growth. Such liquidity and credit market issues present policymakers with a different set of issues than addressing supply-side economic issues. Essentially, while businesses are attempting to address worker and output issues at the firm level, national leaders are attempting to implement fiscal policies to assist workers and businesses that are facing financial strains, and central bankers are adjusting monetary policies to address mounting credit market issues.

In many cases, national fiscal policies that might be employed to address demand issues are already constrained by high government debt levels; similarly, recent monetary policies have generally been accommodative, which leaves central banks little room for additional cuts in interest rates. In addition, in the current environment, even traditional policy tools, such as monetary accommodation, apparently are not being processed by markets in a traditional manner, with equity market indices displaying heightened, rather than lower, levels of uncertainty following the Federal Reserve's cut in interest rates. Such volatility is adding to uncertainties about what governments can do to address weaknesses in the global economy.

Before the Covid-19 outbreak, the global economy was struggling to regain a broad-based recovery as a result of the lingering impact of growing trade protectionism, trade disputes among major trading partners, falling commodity and energy prices, and economic uncertainties in Europe over the impact of the UK withdrawal from the European Union. Individually, each of these issues presented a solvable challenge for the global economy. Collectively, however, the

[11] Ibid., p. 2.

[12] Ibid., p. 4.

[13] Goldin, Ian. Coronavirus Shows How Globalization Spreads Contagion of All Kinds, *The Financial Times*, March 2, 2020. https://www.ft.com/content/70300682-5d33-11ea-ac5e-df00963c20e6.

issues weakened the global economy and reduced the available policy flexibility of many countries, especially among the leading developed economies. In this environment, Covid-19 could have an outsized impact. While the level of economic effects will eventually become clearer, the response to the virus could have a significant and enduring impact on the way businesses organize their work forces, global supply chains, and how governments respond to a global health crisis.[14]

Policy Response

In response to growing concerns over the global economic impact of the virus, G-7 finance ministers and central bankers released a statement on March 3, 2020, indicating they will "use all appropriate policy tools" to sustain economic growth.[15] The Finance Ministers also pledged fiscal support to ensure health systems could sustain efforts to fight the outbreak.[16] Following the G-7 statement, the U.S. Federal Reserve (Fed) lowered its federal funds rate by 50 basis points, or 0.5%, to a range of 1.0% to 1.25% due to concerns about the "evolving risks to economic activity of the coronavirus."[17] At the time, the cut was the largest one-time reduction in the interest rate by the Fed since the financial crisis of 2008.

In a sign of growing strains in financial markets, the Federal Reserve announced on March 12, 2020 that it will supply liquidity to the financial system by providing $5 trillion through a series of funding operations that will add to current monthly funding operations that are targeted at increasing reserves in the banking system and reducing stress in short-term funding market and in trading U.S. Treasury securities. Corporate bond markets halted activity on March 11, 2020 as companies drew on revolving credit facilities from banks to ensure they had enough cash on hand to sustain their operations during a prolonged slump in economic activity and potential credit tightening by banks.

In addition, banks and financial institutions that deal in trading U.S. Treasury securities had begun to pull back from facilitating trades to protect themselves from market volatility, increasing costs to traders who profit from the difference between buying Treasury securities and then selling futures contracts.[18] The Federal Reserve reportedly will provide $1 trillion in short-term lending to banks to sustain lending between banks, because credit markets had begun to freeze up. In addition, the Federal Reserve is being asked by parts of the financial system to assist with the commercial paper (CP) market, which is used by firms to raise cash be selling short-term debt. Banks have become reluctant to acquire the securities over concerns that markets that trade

[14] Rowland, Christopher and Peter Whoriskey, U.S. Health System is Showing Why it's Not Ready for a Coronavirus Pandemic, *The Washington Post*, March 4, 2020. https://www.washingtonpost.com/business/economy/the-us-health-system-is-showing-why-its-not-ready-for-a-coronavirus-pandemic/2020/03/04/7c307bb4-5d61-11ea-b29b-9db42f7803a7_story.html.

[15] the G-7 is comprised of Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. *Statement of G-7 Finance Ministers and Central Bank Governors*, March 3, 2020, https://home.treasury.gov/news/press-releases/sm927, Long, Heather, G-7 Leaders Promise to Help Economy as Coronavirus Spreads, But They Don't Announce Any New Action, *The Washington Post*, March 3, 2020. https://www.washingtonpost.com/business/2020/03/03/economy-coronavirus-rate-cuts/.

[16] Giles, et, al, Finance Ministers Ready to Take Action.

CRS Insight IN11235, *COVID-19: Potential Economic Effects*[17] *Federal Reserve Releases FOMC Statement*, March 3, 2020, https://www.federalreserve.gov/newsevents/pressreleases/monetary20200303a.htm.

[18] Rennison, Joe, and Colby Smith, What is Causing Such Fear in the U.S. Treasuries Market?, *The Financial Times*, March 13, 2020. https://www.ft.com/content/efa431c8-6471-11ea-b3f3-fe4680ea68b5.

in CP will be frozen.[19] The Fed also indicated that it will provide a series of $500 billion injections of funds into the repo (repurchase) market, where investors borrow cash in exchange for high-quality collateral like Treasury securities.[20]

In an additional step, the Federal Reserve cut interest rates by 100 basis points (1.0%) on March 15, 2020 to a range of 0% to 0.25%, because it determined that "….The coronavirus outbreak has harmed communities and disrupted economic activity in many countries, including the United States. Global financial conditions have also been significantly affected.[21]" The Federal Reserve announced that it was providing an additional $700 billion in asset purchases (Treasury securities and mortgage-backed securities), expanding repurchase operations, extending dollar swap lines with foreign banks (Canada, the UK, Japan and Europe, including the Swiss National Bank), and opened its discount window to commercial banks and urged banks to use their own capital and liquidity buffers to ease household and business lending. In its statement, the Federal Reserve announced that it was prepared to use its "full range of tools to support the flow of credit to households and businesses…." The coordinated central bank actions were intended to calm global financial markets after a week of greater than usual volatility.

In terms of a fiscal stimulus, the House passed H.R. 6074 on March 5, 2020, to appropriate $8.3 billion in emergency funding to support efforts to fight Covid-19; President Trump signed the measure on March 6, 2020. Other countries have indicated they will also provide assistance. Congress also is considering other possible measures, including contingency plans for agencies to implement offsite telework for employees, financial assistance to the shale oil industry, paid sick leave, a reduction in the payroll tax,[22] and an extension of the tax filing deadline.[23] On March 11, 2020, President Trump announced a restriction on all travel from Europe to the United States for 30 days, directed the Small Business Administration (SBA) to offer low-interest loans to small businesses, and directed the Treasury Department to defer tax payments penalty-free for affected businesses.[24]

On March 13, President Trump declared a state of emergency, freeing up disaster relief funding to assist state and local governments in addressing the effects of the virus. The President also announced additional testing for the virus, a website to help individuals identify symptoms of the virus, increased oil purchases for the Strategic Oil Reserve, and a waiver on interest payments on student loans.[25] The White House and House Democrats announced they had reached agreement on a package of measures that is intended to provide tens of billions of dollars for paid sick leave,

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[19] Rennison, Joe and Colby Smith, Investors Call for Fed Help in 'Frozen' Commercial Paper Market, *The Financial Times,* March 16, 2020. https://www.ft.com/content/34213560-677b-11ea-a3c9-1fe6fedcca75.

20 Smith, Colby, and Brendan Greeley, Fed to Pump Trillions of Dollars into Financial Markets, *The Financial Times*, March 12, 2020. https://www.ft.com/content/7b231b2c-6483-11ea-a6cd-df28cc3c6a68.

[21] *Federal Reserve Issues FOMC Statement*, March 15, 2020 https://www.federalreserve.gov/newsevents/pressreleases/monetary20200315a.htm.

[22] Armus, Theo, Federal, State Officials Attempt to Fight Virus Through Social Distancing, Stimulus Package, *The Washington Post*, https://www.washingtonpost.com/world/2020/03/11/coronavirus-live-updates/.

[23] Sevastopulo, Demetri, US Treasury Considers Tax Filing Extension to Ease Virus Impact, *The Financial Times*, March 11, 2020. https://www.ft.com/content/c65a6e40-639f-11ea-b3f3-fe4680ea68b5.

[24] McAuley, James, and Michael Birnbaum, Europe Blindsided by Trump's Travel Restrictions, With Many Seeing Political Motive, *The Washington Post*, March 12, 2020. https://www.washingtonpost.com/world/europe/europe-blindsided-by-trumps-travel-restrictions-with-many-seeing-political-motive/2020/03/12/42a279d0-6412-11ea-8a8e-5c5336b32760_story.html.

[25] Fritz, Angela and Meryl Kornfield, President Trump Declares a National Emergency, Freeing $50 Billion in Funding, *The Washington Post*, March 13, 2020. https://www.washingtonpost.com/world/2020/03/13/coronavirus-latest-news/.

unemployment insurance, food stamps, and other measures.[26] For additional information about the impact of Covid-19 on the U.S. economy see.[27]

The International Monetary Fund (IMF) is providing funding to poor and emerging market economies that are short on financial resources.[28] If the economic effects of the virus persist, countries may need to be proactive in coordinating fiscal and monetary policy responses, similar to actions taken by of the G-20 following the 2008-2009 global financial crisis.

Other countries have followed the Federal Reserve:

- The Bank of Canada and the Reserve Bank of Australia cut their benchmark interest rates. Canada announced on March 11, 2020 a $750 million fund to combat and mitigate the effects of the virus, including expanding eligibility for employment insurance (EI) and EI sick leave benefits, relaxing workshare requirements, increased testing, surveillance, and monitoring and assistance to other, more vulnerable, countries.[29] The Bank of Canada announced on March 13, 2020 a 0.5% cut to 0.75% in its Bank Rate interest rate.[30] Canada also announced on March 13, 2020 that it would impose travel restrictions, including prohibiting cruise ships from docking. Australia reportedly is considering a $6.5 billion stimulus that would provide direct payments to citizens and wage subsidies to workers and tax breaks for businesses.[31] The Reserve Bank of Australia is also engaging in additional money market operations to increase liquidity.[32]
- Norway's central bank cut its key interest rate on March 13, 2020 by 0.5% to 1.0%, provided loans to the banking system, and eased its countercyclical capital reserve requirements on financial institutions.[33]
- Italy has imposed country-wide travel restrictions, directed that all stores except food and pharmacies close, and was set to inject around $30 billion into its economy; it announced plans to place a moratorium on debt payments, including mortgages, and it closed schools and museums.[34]

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[26] Werner, Erica, Mike DeBonis, Paul Kane, and Jeff Stein, White House, House Democrats Reach Deal on Coronavirus Economic Relief Package, Pelosi Announces, *The Washington Post*, March 13, 2020. https://www.washingtonpost.com/us-policy/2020/03/13/paid-leave-democrats-trump-deal-coronavirus/.

[27] CRS Insight IN11235, *COVID-19: Potential Economic Effects*, by Marc Labonte.

[28] Politi, James, IMF Sets Aside $50bn for Coronavirus-hit Countries, *The Financial Times*, March 4, 2020, https://www.ft.com/content/83c07594-5e3a-11ea-b0ab-339c2307bcd4.

[29] "Trudeau Announces $1 Billion Fund to Respond to COVID-19," CBC News. https://www.cbc.ca/news/politics/liberals-support-workers-businesses-covid-19-1.5493454.

[30] Bank of Canada Lowers Overnight Rate Target to 0.75%, Bank of Canada, March 13, 2020. https://www.bankofcanada.ca/2020/03/bank-of-canada-lowers-overnight-rate-target-to-%c2%be-percent/.

[31] Australian PM Considering Cash Handout as Part of Fiscal Stimulus, *Reuters*, March 9, 2020. https://www.reuters.com/article/us-health-coronavirus-australia-budget-c/australia-pm-considering-cash-handout-as-part-of-fiscal-stimulus-sky-news-idUSKBN20W0CR

[32] *Statement by the Council of Financial Regulators – March 2020*, The Reserve Bank of Australia, March 16, 2020. https://www.cfr.gov.au/news/2020/mr-20-01.html.

[33] Norway Central Bank Slashes Rates, Pumps Money Into Banks, *The Edge Markets*. https://www.theedgemarkets.com/article/norway-central-bank-slashes-rates-pumps-money-banks.

[34] How Countries Around the World are Battling Coronavirus, *The Financial Times*, March 10, 2020. https://www.ft.com/content/151fa92c-5ed3-11ea-8033-fa40a0d65a98; Arnold, Martin and Guy Chazan, Christine Lagarde Calls on EU Leaders to Ramp up Coronavirus Response, *The Financial Times*, March 11, 2020.

- Iran has closed schools, universities, religious seminaries, gyms, entertainment venues, Friday prayers, most public events, and parliament. The country has reserved hospitals only for those suspected of being infected with the virus; it is disinfecting streets and public transport daily and checking on every household across the country.[35] On March 11, 2020, Iran requested $5 billion in funding from the IMF to respond to the Covid-19 crisis.[36]
- Israel announced that it would appropriate $2.8 billion to prevent the spread of Covid-19, asked foreign nationals to leave the country, and asked anyone coming into the country to self-quarantine for 14 days.[37]
- South Korea has engaged in an extensive public testing campaign, including of asymptomatic individuals, and has extended school holidays into March. The government appropriated $10 billion to support anti-viral activities.[38]
- The European Central Bank (ECB) announced that it was ready to take "appropriate and targeted measures," if needed. With interest rates already low, however, it indicated that it could expand its program of providing loans to EU banks, or buying debt from EU firms, and possibly lowering its deposit rate further into negative territory in an attempt to shore up the Euro's exchange rate.[39] ECB President-designate Christine Lagarde called on EU leaders to take more urgent action to avoid the spread of coronavirus triggering a serious economic slowdown. The European Commission indicated that it was creating a nearly $30 billion investment fund to address Covid-19 issues.[40] On March 12, 2020, the ECB decided to: (1) expand its longer-term refinance operations (LTRO) to provide low-cost loans to Eurozone banks to increase bank liquidity; (2) extend targeted longer-term refinance operations (TLTRO) to provide loans at below-market rates to businesses, especially small and medium-sized businesses, directly affected by Covid-19; (3) provide an additional €120 billion (about $130 billion) for the Bank's asset purchase program to provide liquidity to firms.[41] On March 13, 2020, financial market regulators in the UK, Italy, and Spain intervened in stock and bond markets to stabilize prices after historic swings in indexes on March 12, 2020.[42] In addition, the ECB announced that it would do

https://www.ft.com/content/44eac1f2-6386-11ea-a6cd-df28cc3c6a68.

[35] Ibid.

[36] Hendrix, Steve, Iran Seeks Emergency IMF Funding for Coronavirus Crisis, *The Washington Post*, March 12. 2020. https://www.washingtonpost.com/world/europe/europe-blindsided-by-trumps-travel-restrictions-with-many-seeing-political-motive/2020/03/12/42a279d0-6412-11ea-8a8e-5c5336b32760_story.html.

[37] Egash, Ruth, Netanyahu Announces $2.8 Billion Aid Package to Stabilize Economy as Virus Spreads, *The Washington Post*, March 11, 2020. https://www.washingtonpost.com/world/2020/03/11/coronavirus-live-updates/.

[38] Ibid.

[39] US Fed's Coronavirus Rate Cut is First Move in a Dance With Markets, *The Financial Times*, March 4, 2020. https://www.ft.com/content/83c07594-5e3a-11ea-b0ab-339c2307bcd4, Giles, Chris, Martin Arnold, Sam Jones, and Jamie Smyth, Finance Ministers 'Ready to Take Action' on Coronavirus, *The Financial Times*, March 3, 2020. https://www.ft.com/content/b86f7d92-5d38-11ea-b0ab-339c2307bcd4.

[40] Arnold, Martin and Guy Chazan, Christine Lagarde Calls on EU Leaders to Ramp up Coronavirus Response, *The Financial Times*, March 11, 2020. https://www.ft.com/content/44eac1f2-6386-11ea-a6cd-df28cc3c6a68.

[41] *Monetary Policy Decisions*, The European Central Bank, March 12, 2020. https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.mp200312~8d3aec3ff2.en.htm.

[42] Stafford, Philip and Adam Samson, European Regulators Intervene in Bid to Stabilize Stock and Bond Prices, *The Financial Times*, March 13, 2020. https://www.ft.com/content/77f57d4c-6509-11ea-a6cd-df28cc3c6a68.

more to assist financial markets in distress, including altering self-imposed rules on purchases of sovereign debt.[43] Germany's Economic Minister announced on March 13, 2020, that Germany would provide unlimited loans to businesses experiencing negative economic activity (initially providing $555 billion) and tax breaks for businesses.[44] Recent forecasts indicate that the economic effect of Covid-19 could push the Eurozone into an economic recession in 2020.[45]

- The Bank of England announced on March 11, 2020 that it would adopt a package of four measures to deal with any economic disruptions associated with Covid-19. The measures include: an unscheduled cut in the benchmark interest rate by 50 basis points (0.5%) to a historic low of 0.25%; reintroduce the Term Funding scheme for Small and Medium-sized Enterprises (TFSME) that provides banks with over $110 billion for loans at low interest rates; lower banks' countercyclical capital buffer to zero percent, which is estimated to support over $200 billion of bank lending to businesses; and freeze banks' dividend payments.[46] The UK Chancellor of the Exchequer proposed a national budget on March 11, 2020 that includes nearly $35 billion in fiscal spending to counter adverse economic effects of the viral crisis and proposes that statutory sick leave be boosted by about $2.5 billion in funds to small and medium businesses to provide up to 14 days of sick leave for affected employees. Part of the fiscal spending package includes open-ended funding for the National Health Service (NHS), $6 billion in emergency funds to the NHS, $600 million hardship fund to assist vulnerable people, and tax cuts and tax holidays for small businesses in certain affected sectors.[47]
- The Bank of Japan, with already-low interest rates, interjected $4.6 billion in liquidity into Japanese banks to provide short-term loans and twice that amount into exchange traded funds to aid Japanese businesses. The Japanese government also pledged to provide wage subsidies for parents forced to take time off due to school closures.[48]
- According to a recent CRS In Focus,[49] China's economic growth could go negative in the first quarter of 2020 and fall below 5% for the year, with more serious effects if the outbreak continues. In early February, China's central bank pumped $57 billion into the banking system, capped banks' interest rates on loans for major firms, and extended deadlines for banks to curb shadow lending. The central bank has been setting the reference rate for China's currency stronger

[43] Arnold, Martin, ECB Enters Damage-Limitation Mode With Pledge of More Action, *The Financial Times*, March 13, 2020. https://www.ft.com/content/f1cbd4f8-650f-11ea-b3f3-fe4680ea68b5.

[44] Loveday, Morris and Louisa Beck, Germany Announces "Bazooka" Economic Plan to Mitigate Coronavirus Hit, *The Washington Post*, March 13, 2020. https://www.washingtonpost.com/world/2020/03/13/coronavirus-latest-news/.

[45] Lagarde to Confront Coronavirus Crisis at ECB Policy Meeting, *The Financial Times*, March 8, 2020. https://www.ft.com/content/79a280c6-5fb5-11ea-b0ab-339c2307bcd4.

[46] Romei, Valentina, Coronavirus fallout: Bank of England launches 4 key measures, *The Financial Times*. https://www.ft.com/content/4e60c08e-6380-11ea-b3f3-fe4680ea68b5.

[47] Payne, Sebastian and Chris Giles, Budget 2020: Sunak Unveils £30bn Stimulus to Counter UK Coronavirus Shock, *The Financial Times*. https://www.ft.com/content/f7b27264-6384-11ea-a6cd-df28cc3c6a68.

[48] Harding, Robin and Hudson Lockett, BoJ Spurs Asia Markets Rebound With Vow to Fight Coronavirus, *The Financial Times*, March 2, 2020. https://www.ft.com/content/9fa91e06-5c3b-11ea-b0ab-339c2307bcd4.

[49] For additional information about China's response, see: CRS In Focus IF11434, *COVID-19: U.S.-China Economic Considerations*, by Karen M. Sutter and Michael D. Sutherland.

than its official close rate to keep it stable. On March 13, 2020, The People's Bank of China announced that it would provide $78.8 billion in funding, primarily to small businesses, by reducing bank's reserve requirements.[50]

Multilateral Response

International Monetary Fund

The IMF announced that it is making available about $50 billion for the global crisis response.[51] For low-income countries, the IMF is providing rapid-disbursing emergency financing of up to $10 billion (50% of quota of eligible members) that can be accessed without a full-fledged IMF program. Other IMF members can access emergency financing through the Fund's Rapid Financing Instrument (RFI). This facility could provide about $40 billion for emerging markets facing fiscal pressures from COVID-19. Separate from these resources, the IMF has a Catastrophe Containment and Relief Trust (CCRT), which provides eligible countries with up-front grants for relief on IMF debt service falling due. The CCRT was used during the 2014 Ebola outbreak, but is now underfunded, according to IMF Managing Director Kristolina Georgieva with just over $200 million available against possible needs of over $1 billion. [52] On March 11, 2020, the United Kingdom announced that it will contribute £150 million (about $170 million) to the CCRT. To date, the United States has not contributed to the CCRT.[53]

World Bank and Regional Development Banks

The World Bank announced that it is making up to $12 billion in financing ($8 billion of which is new) immediately available to help impacted developing countries.[54] This support comprises up to $2.7 billion in new financing from the International Bank for Reconstruction and Development (IBRD), the World Bank's market-rate lending facility for middle-income developing countries and $1.3 billion from the International Development Association (IDA), the World Bank's concessional facility for low-income countries. In addition, the Bank is reprioritizing $2 billion of the Bank's existing portfolio. The International Finance Corporation (IFC), the Bank's private-sector lending arm is making available up to $6 billion. According to the Bank, support will cover a wide range of activities including strengthening health services and primary health care, bolstering disease monitoring and reporting, training front line health workers, encouraging community engagement to maintain public trust, and improving access to treatment for the poorest patients.

Several years ago, the World Bank introduced pandemic bonds, a novel form of catastrophe financing.[55] The Bank sold two classes of bonds worth $320 billion in a program designed to

[50] Weinland, Don, China's Central Bank Launches $79bn Stimulus for Virus-hit Companies, *The Financial Times*, March 13, 2020. https://www.ft.com/content/deb56f86-6515-11ea-b3f3-fe4680ea68b5.

[51] International Monetary Fund, IMF Makes Available $50 Billion to Help Address Coronaviris, March 4, 2020.

[52] International Monetary Fund, *United Kingdom Boosts IMF's Catastrophe Relief Fund with £150 million*, March 11, 2020.

[53] Ibid.

[54] World Bank, *World Bank Group Announces Up to $12 Billion Immediate Support for COVID-19 Country Response*¸ March 3, 2019.

[55] Anna Gross, "Critics take aim at 'failure' of bond designed to fight disease," *Financial Times*, March 10, 2020, https://www.ft.com/content/a6239e12-5ec7-11ea-b0ab-339c2307bcd4.

provide financing to developing countries facing an acute epidemic crisis if certain triggers are met. Once these conditions are met, bondholders no longer receive interest payments on their investments, the money is no longer repaid in full, and funds are used to support the particular crisis. In the case of Covid-19, for the bonds to be triggered, the epidemic must be continuing to grow 12 weeks after the first day of the outbreak. Critics have raised a range of concerns about the bonds, arguing that the terms are too restrictive and that the length of time needs to be shortened before triggering the bonds.[56] Others stress that the proposal remains valid – shifting the cost of pandemic assistance from governments to the private sector, especially in light of the failure of past efforts to rally donor support to establish multilateral pandemic funds.

The Asian Development Bank (ADB) has approved a total of $4 million to help developing countries in Asia and the Pacific.[57] Of the total, $2 million is for improving the immediate response capacity in Cambodia, China, Laos, Myanmar, Thailand, and Vietnam; $2 million will be available to all ADB developing member countries in updating and implementing their pandemic response plans. The ADB also provided a private sector loan of up to $18.6 million to Wuhan-based Jointown Pharmaceutical Group Co. Ltd. to enhance the distribution and supply of essential medicines and protective equipment.

Estimated Effects on Developed and Major Economies

Among most developed and major developing economies, economic growth at the beginning of 2020 was tepid, but still was estimated to be positive. Countries highly dependent on trade—Canada, Germany, Italy, Japan, Mexico, and South Korea—and commodity exporters are now projected to be the most negatively affected by the slowdown in economic activity associated with the virus.[58] In addition, travel bans and quarantines are taking an especially heavy economic toll on China, South Korea, and Italy, where viral outbreaks have so far been most prevalent. The OECD notes that production declines in China have spillover effects around the world given China's role in producing computers, electronics, pharmaceuticals and transport equipment, and as a primary source of demand for many commodities.[59]

In early January 2020, before the coronavirus outbreak, economic growth in developing economies as a whole was projected by the International Monetary Fund (IMF) to be slightly more positive than in 2019. This outlook was based on progress being made in U.S.-China trade talks that were expected to roll back some tariffs and an increase in India's rate of growth. Growth rates in Latin America and the Middle East were also projected to be positive in 2020.[60] These projections likely will be revised downward due to the slowdown in global trade associated with Covid-19, lower energy and commodity prices, and other secondary effects that could curtail growth. Commodity exporting countries, in particular, likely will experience a greater slowdown

[56] Ibid.

[57] Asian Development Bank, *ADB Approves Another $2 Million to Help Asia and the Pacific Tackle Coronavirus*, February 26, 2020.

[58] *OECD Interim Economic Assessment,* p. 7.

[59] Ibid, p. 5.

[60] *Tentative Stabilization, Sluggish Recovery? World Economic Outlook Update*, January 20, 2020, The International Monetary Fund. https://www.imf.org/en/Publications/WEO/Issues/2020/01/20/weo-update-january2020.

in growth than forecasted in earlier projections as a result of a slowdown on trade with China and lower commodity prices.

Other Affected Sectors

Public concerns over the spread of the virus have led to self-quarantines, reductions in airline and cruise liner travel, the closing of such institutions as the Louvre, and the rescheduling of theatrical releases of movies, including the sequel in the iconic James Bond series (titled, "No Time to Die").[61] School closures, so far in China, Japan, South Korea, Italy, India, and some U.S, States are affecting at least 290 million children worldwide, challenging parental leave policies.[62] Other countries are limiting the size of public gatherings.

Some businesses are considering new approaches to managing their workforces and work methods. These techniques build on, or in some places replace, such standard techniques as self-quarantines and travel bans. Some firms are adopting an open-leave policy to ensure employees receive sick pay if they are, or suspect they are, sick. Other firms are adopting paid sick leave policies to encourage sick employees to stay home and are adopting remote working policies.[63] Concerns remain, however, that some U.S. workers will continue going to work when they are sick, since not all U.S. employers provide paid sick leave. Microsoft and Amazon have instructed all of their Seattle-based employees to work from home until the end of March 2020,[64]

The drop in business and tourist travel is causing a sharp drop in scheduled airline flights by as much as 10%; airlines are estimating they could lose $113 billion in 2020 (an estimate that could prove optimistic given the Trump Administration's announced restrictions on flights from Europe to the United States),[65] while airports in Europe estimate they could lose $4.3 billion in revenue due to fewer flights.[66] Industry experts estimate that nearly airlines will be in bankruptcy by May 2020 under current conditions as a result of travel restrictions imposed by a growing number of countries.[67] The loss of Chinese tourists is another economic blow to countries in Asia and elsewhere that have benefitted from the growing market for Chinese tourists and the stimulus such tourism has provided.

The decline in industrial activity has reduced demand for energy products such as crude oil, causing prices to drop sharply, which negatively affects energy producers, renewable energy producers, and electric vehicle manufacturers, but generally is positive for consumers and

[61] Rosenberg, Alyssa, Coronavirus Shut Down Mona Lisa and James Bond. We Can't Let it Isolate Us, *The Washington Post*, March 4, 2020. https://www.washingtonpost.com/opinions/2020/03/04/coronavirus-shut-down-mona-lisa-james-bond-we-cant-let-it-isolate-us/.

[62] Taylor, Adam, Teo Armus, Rick Noak, Coronavirus Turmoil Widens as U.S. Death Toll Mounts; Xi Cancels Japan Trip, *The Washington Post*, March 5, 2020,

[63] Hill, Andrew and Emma Jacobs, Coronavirus May Create Lasting Workplace Change, *The Financial Times*, February 27, 2020. https://www.ft.com/content/5801a710-597c-11ea-abe5-8e03987b7b20.

[64] Armus, Teo, Live updates: Coronavirus Turmoil Widens as U.S. Death Toll Mounts; Xi Cancels Japan Trip, *The Washington Post*, March 5, 2020, https://www.washingtonpost.com/world/2020/03/05/coronavirus-live-updates/.

[65] Taylor, Adam, Airlines Could Suffer up to $113 Billion in Lost Revenue Due to Coronavirus Crisis, IATA Says, *The Washington Post*, March 5, 2020. https://www.washingtonpost.com/world/2020/03/05/coronavirus-live-updates/.

[66] Airlines Slash Flights to Cut Costs as Coronavirus Hits Travel Demand, *The Financial Times*. https://www.ft.com/content/c28b5790-62c6-11ea-a6cd-df28cc3c6a68.

67 Smyth, Jamie Smyth, Andrew Edgecliffe-Johnson, Peggy Hollinger, Myles McCormick, David Keohane, and Richard Milne, Most Airlines Face Bankruptcy by End of May, Industry Body Warns, *The Financial Times*, March 16, 2020.

businesses. Saudi Arabia is pushing other OPEC (Organization of the Petroleum Exporting Countries) members collectively to reduce output by 1.5 million barrels a day to raise market prices. U.S. shale oil producers, who are not represented by OPEC, support the move to raise prices.[68] An unwillingness by Russia to agree to output reductions added to other downward pressures on oil prices and caused Saudi Arabia to engage in a price war with Russia that has driven oil prices below $50 per barrel, the estimated break-even point for most oil producing countries.[69] In 2019, low energy prices combined with high debt levels reportedly caused U.S. energy producers to reduce their spending on capital equipment, reduced their profits and, in some cases, led to bankruptcies.[70] Reportedly, in late 2019 and early 2020, bond and equity investors, as well as banks, reduced their lending to shale oil producers and other energy producers that typically use oil and gas reserves as collateral.[71]

Disruptions to industrial activity in China reportedly are causing delays in shipments of computers, cell phones, toys, and medical equipment.[72] Factory output in China, the United States, Japan, and South Korea all declined in the first months of 2020.[73] Reduced Chinese agricultural exports, including to Japan, are leading to shortages in some commodities. In addition, numerous auto producers are facing shortages in parts and other supplies that have been sourced in China. Reductions in international trade have also affected ocean freight prices. Some freight companies argue that they could be forced to shutter if prices do not rebound quickly.[74] Disruptions in the movements of goods and people reportedly are causing some companies to reassess how international they want their supply chains to be.[75] According to some estimates, nearly every member of the Fortune 1000 is being affected by disruptions in production in China.[76]

Conclusions

The quickly evolving nature of the Covid-19 crisis creates a number of issues that make it difficult to estimate the full cost to global economic activity. These issues include, but are not limited to:

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[68] Brower, Derek, Cash-Strapped US Shale Producers Pray for OPEC Aid, *The Financial Times*, March 3, 2020. https://www.ft.com/content/9161e62c-5cb1-11ea-b0ab-339c2307bcd4.

[69] Strauss, Delphine, Why There Are no Winners From the Oil Price Plunge This Time, *The Financial Times*, March 10, 2020. https://www.ft.com/content/da2b0700-622c-11ea-b3f3-fe4680ea68b5; Mufson, Steve and Will Englund, Oil Price War Threatens Widespread Collateral Damage. *The Washington Post*, March 10, 2020. https://www.washingtonpost.com/climate-environment/oil-price-war-threatens-widespread-collateral-damage/2020/03/09/3e42c9e2-6207-11ea-acca-80c22bbee96f_story.html.

[70] Texas Oil Groups: Panhandling Ahead, *The Financial Times*, January 20, 2020.

[71] Ibid.

[72] Hille, Kathrin, Alistair Gray, and Patrick McGee, Coronavirus delays PC and smartphone shipments for weeks, *The Financial Times*, March3, 2020. https://www.ft.com/content/72742872-5c31-11ea-b0ab-339c2307bcd4.

[73] Newmyer, Tory, The Finance 202: Stocks Stage Major Comeback, but Manufacturing Report Points to Continued Coronavirus Pain, *The Washington Post*, March 3, 2020. https://www.washingtonpost.com/news/powerpost/paloma/the-finance-202/2020/03/03/the-finance-202-stocks-stage-major-comeback-but-manufacturing-report-points-to-continued-coronavirus-pain/5e5d84a6602ff10d49ac081f/?itid=hp_hp-cards_hp-card-politics%3Ahomepage%2Fcard-ans.

[74] Lynch, David J., Economic Fallout From China's Coronavirus Mounts Around the World, *The Washington Post*, February 13, 2020. https://www.washingtonpost.com/business/economy/economic-fallout-from-chinas-coronavirus-mounts-across-the-globe/2020/02/13/7bb69a12-4e8c-11ea-9b5c-eac5b16dafaa_story.html?itid=lk_inline_manual_12

[75] Ibid.

[76] Ibid.

- How long will the crisis last?
- How many workers will be affected both temporarily and permanently?
- How many countries will be infected and how much economic activity will be reduced?
- When will the economic effects peak?
- How much economic activity will be lost as a result of the viral outbreak?
- What are the most effective monetary and fiscal policies at the national and global level to address the crisis?
- What temporary and permanent effects will the crisis have on how businesses organize their work forces?
- Many of the public health measures taken by Italy, Taiwan, South Korea, Hong Kong, China, etc. have sharply impacted their economies (plant closures, travel restrictions, etc.). How are the tradeoffs between public health and the economic impact of policies to contain the spread of the virus being weighed?

Appendix. Select Measures Implemented or Announced by Major Economies in Response to COVID-19

United States	*Federal Reserve* March 3: Cut the target range for the federal funds rate by 0.5 percentage point. March 12: Expanded reverse repo operations, adding $1.5 trillion of liquidity to the banking system. March 15: Cut the target range for the federal funds rate by a full percentage point to a range of 0.00% to 0.25% and restarted quantitative easing with the purchase of at least $500 billion in Treasury securities and $200 billion in mortgage-backed securities. *Congress* March 5: Passed, and the President signed, a bill providing $8.3 billion in emergency funding for federal agencies to respond to the coronavirus outbreak (H.R. 6074: Coronavirus Preparedness and Response Supplemental Appropriations Act 2020). March 13: The House of Representatives passed a coronavirus response package (H.R. 6201: Families First Coronavirus Response Act). The Senate is expected to follow this week. *Trump Administration* March 13: President Trump declared a state of emergency, allowing the Federal Government to distribute up to $50 billion in aid to states, cities, and territories.
Australia	March 12: The government announced a AU$17.6 billion ($11.4 billion) stimulus package that includes support for business investment, cash flow assistance for small and medium sized business and employees, and household stimulus payments.
Canada	*Bank of Canada* March 13: Lowered its benchmark overnight rate to 1.25% from 1.75% in response to the epidemic. *Canadian Government* March 11: Unveiled CA$1 billion ($750 million) in funding for vaccine research and health measures. March 13: Announced CA$10 billion ($7.5 billion) credit package to help businesses, particularly small and medium-sized enterprises, struggling due to the pandemic.
China	*People's Bank of China (PBOC)* February 3: Expanded reverse repo operations by $174 billion; added another $71 billion on February 4.

	February 16: Cut the one-year medium-term lending facility rate by 10 basis points. February 20: Cut the one-year and five-year prime rates by 10 and 5 basis points, respectively. March 13: Lowered bank reserve requirements, freeing up about $79 billion to be lent out. *PRC Government* February: Asked banks to extend the terms of business loans and commercial landlords to reduce rents. March: Earmarked $15.9 billion to fight the epidemic.
European Union	*European Commission* March 11: Announced a 37 billion euro ($41 billion) "Corona Investment Fund" that would use "spare" money from the EU budget to help businesses, health-care systems, and sectors in need; additionally, the EU's own investment fund will guarantee 8 billion euros ($8.9 billion) of loans to 100,000 small- and medium-sized enterprises and affected companies may be able to delay the payment of their existing loans. *European Central Bank (ECB)* March 12: Announced that it would provide banks with loans at a rate as low as minus 0.75%, below the-0.5% deposit rate, increase bond purchases by 120 billion euros ($135.28 billion) this year (with a focus on corporate debt), and allow euro zone banks to fall short of some key capital and cash requirements (in order to keep credit flowing to the economy).
France	March 12: The government pledged more generous guarantees on loans made to small businesses, more cash for firms struggling to hold on to workers, and a solidarity fund to help companies cushion the blow from the coronavirus outbreak; it also announced that the government would be ready to increase funds available to help companies reduce workers' hours, instead of laying them off.
Germany	March 13: Pledged to provide unlimited liquidity assistance to German companies hit by the pandemic. (The measure envisages a massive expansion of loans provided by KfW, the state development bank, and will allow companies to defer billions of euros in tax payments.) The Bundestag also expanded the *Kurzarbeit* or short-time work scheme, under which companies that put their workers on reduced hours can receive state support. The government also indicated that it would boost investments by €3.1 billion per year between 2021 and 2024.
Hong Kong	February 26: The government announced a HK$120 billion ($15.4 billion) relief package as part of its 2020-2021 budget, including a payment of HK$10,000 ($1,200) to each permanent resident of the city 18 or older, paying one month's rent for people living in public housing, cutting payroll, income, property, and business taxes, low-interest, government-guaranteed loans for businesses, and an extra month's worth of payments to people collecting old-age or disability benefits.

India	*Reserve Bank of India* March 12: Announced a $2 billion injection into the foreign-exchange market to support the rupee. March 13: Announced a plan to add liquidity through short-term repurchase operations. *Government of India* March 15: Pledged $10 million towards South Asian Association for Regional Cooperation (SAARC) "coronavirus emergency fund."
Italy	March 11: The government announced two packages worth 25 billion euros ($28.3 billion): A package worth 12 billion euros will provide extra funding for the health system as well as a mix of measures to help companies and households, including freezing tax and loan payments and boosting unemployment benefits to ensure no jobs were lost. The remainder will be a reserve to pay for any further measures. The government also indicated that payments on mortgages will be suspended across Italy. ABI, Italy's banking lobby, said lenders would offer debt moratoriums to small firms and households grappling with the economic fallout from the virus.
Japan	*Bank of Japan* March 16: Announced that it would (1) double its upper limit of annual purchases of exchange traded funds to 12 trillion yen ($112.46 billion) and of real-estate investment trusts to 180 billion yen ($1.7 billion) per year, (2) expand its upper limit of its corporate bond balance and commercial paper balance by 1 trillion yen ($9.5 billion) each, and (3) start a lending program for commercial banks, providing them with one-year loans in exchange for corporate collateral worth 8 trillion yen ($75.6 billion). *Japanese Government* February 13: Unveiled a set of measures worth 15.3 billion yen ($140 million) to fight the spread of coronavirus; secured 500 billion yen ($4.7 billion) for emergency lending and loan guarantees at the Japan Finance Corporation and other institutions for small businesses hit hard by the virus outbreak. March 10: Unveiled a second package of measures totaling 430.8 billion yen ($4.1 billion) in spending to cope with the fallout of the coronavirus outbreak (focusing on support to small and mid-sized firms) and boosted to 1.6 trillion yen ($15.1 billion) its special financing for small- and mid-size firms hit by the virus, up from 500 billion yen.
Mexico	February 13: The Bank of Mexico cut its key rate by 25 basis points to 7.0%.
Saudi Arabia	March 15: The Saudi Arabian Monetary Authority announced that it had prepared a 50 billion riyal ($13.32 billion) package to help small and medium-sized enterprises cope with the economic impacts of coronavirus.
Singapore	February 18: The government announced around $4.5 billion in financial packages to help contain the coronavirus outbreak, including $575 million to fight and contain the

	disease, mainly through healthcare funding, and 4 billion in economic stimulus measures to manage its impact on businesses, jobs and households.
South Korea	March 3: Announced a 11.7 trillion won ($9.8 billion) stimulus package that includes funding for medical institutions and quarantine efforts, assistance to small- to medium-sized businesses struggling to pay wages to their workers, and subsidies for child care.
Spain	March 12: The government announced additional support for the health system and a 14 billion euro ($15.6 billion) stimulus package for the economy.
Taiwan	February 25: The government approved a T$60 billion ($2 billion) package to help cushion the impact of the coronavirus outbreak on its export-reliant economy, including loans for small businesses, subsidies for hard-hit tour agencies, tax cuts for tour bus drivers, and vouchers to spend on food in night markets. March 12: The president announced that an additional T$40 billion ($1.33 billion) from the Employment Stabilization Fund and the Tourism Development Fund would be available to stimulate Taiwanese economy.
United Arab Emirates (UAE)	March 15: The Central Bank of the UAE announced a 100 billion dirham ($27 billion) stimulus package to deal with the economic effects of the coronavirus pandemic; it will also ease regulatory limits on loans.
United Kingdom	*Bank of England* March 11: Cut its benchmark interest rate by half a percentage point, to 0.25%, revived a program to support lending to small and midsize businesses, and reduced bank capital requirements to further boost credit. *UK Government* March 11: Announced a stimulus package totaling 30 billion pounds ($39 billion). It will include 7 billion pounds ($8.6 billion) available to support the labor market, 5 billion pounds ($6.1 billion) to help the health-care system, and 18 billion pounds ($22 billion) to support the UK economy, bringing the total fiscal stimulus to 30 billion pounds ($39 billion). (Among the specific measures, there will be a tax cut for retailers, cash grants to small businesses, a mandate to provide sick pay for people who need to self-isolate, subsidies to cover the costs of sick pay for small businesses, and expanded access to government benefits for the self-employed and unemployed.)

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