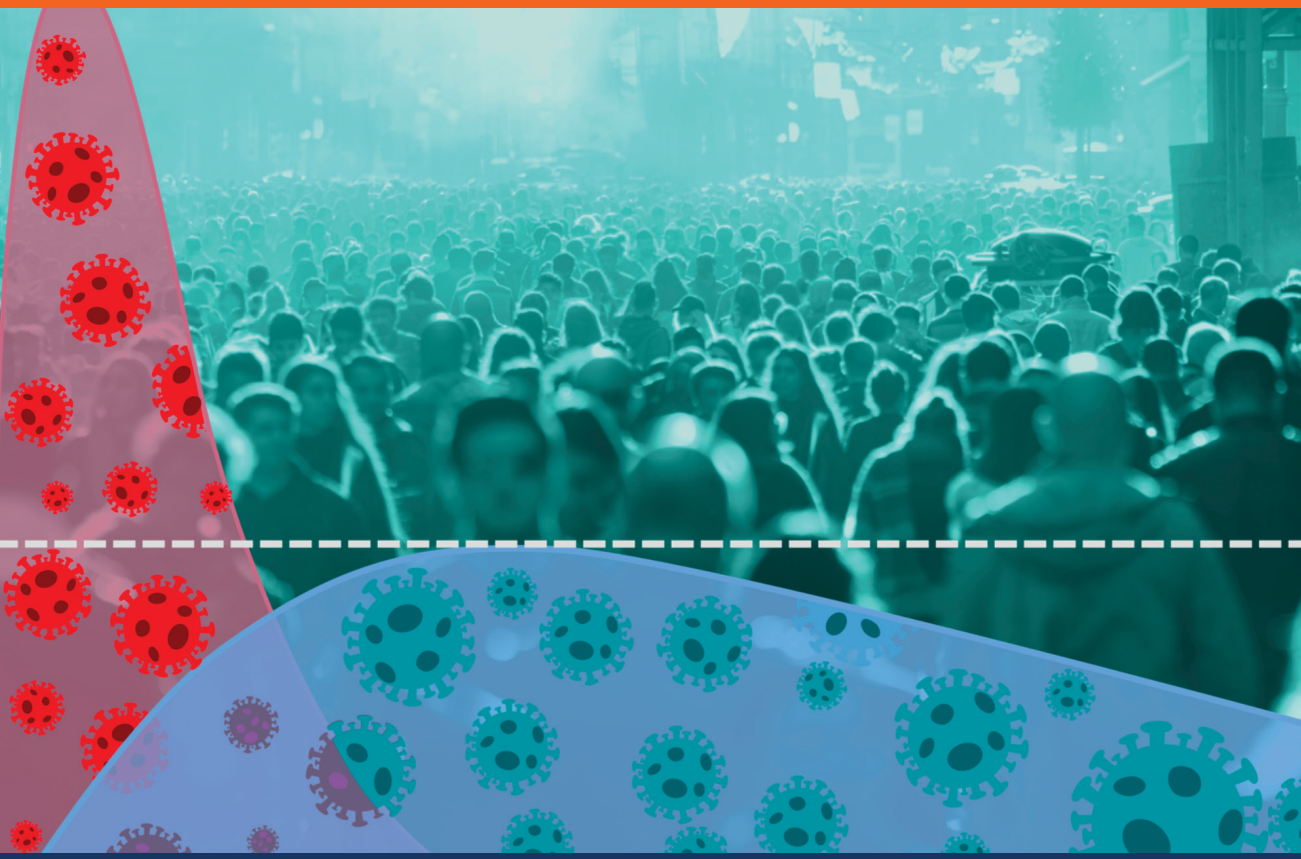
Mitigating the COVID Economic Crisis:

Act Fast and Do Whatever It Takes

Edited by Richard Baldwin and Beatrice Weder di Mauro



A VoxEU.org Book

CEPR Press

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Introduction

Richard Baldwin and **Beatrice Weder di Mauro**
Graduate Institute, Geneva and CEPR

The world has been an unusual place since we published our first VoxEU/CEPR eBook on COVID-19, *Economics in the Time of COVID-19*, on 9 March 2020. The number of COVID-19 cases and deaths have soared globally. Europe is now the centre of the pandemic but the US, given its huge population (330 million) and lack of national leadership, is on course to become the next centre. Stock markets gyrate 5 to 10% a day, sometimes up but mostly down. Other financial markets are equally volatile. Governments in Europe have imposed public health containment measures that would seem extreme in any other circumstances. Containment policies in the US are spreading without coordination or coherence as cities and states fill the leadership void. But not everything is becoming more uncertain.

The COVID-19 crisis has become more predictable in a sense. What was widely viewed as a 'Chinese problem,' and then an 'Italian problem' has become an 'everybody problem'. With few exceptions, governments initially downplay the disease until sustained community transmission takes hold. Then they impose severe social distancing policies, work and school closures and the like. This inevitably leads to almost immediate economic hardship, which then leads governments to propose increasingly bold anti-recession measures. This was the pattern in Europe and looks set to be the pattern in the US and many other nations. All this is due to the highly contagious nature of the virus, and the inexorable implications of its explosive spread during the 'acceleration phase' of the epidemic.

This eBook is an attempt to collect the thinking of leading economists on what is to be done. In addition to contributing to analysis of the rapidly evolving policy reactions, we hope this eBook will help nations get ahead of the curve – to think ahead on the medical and economic policies that will be needed. The collected wisdom of our authors also points to another critical aspect of this crisis. Without care, solutions to one set of economic problems could – for some nations – turn this economic crisis into a financial crisis, or a debt crisis, or a foreign exchange crisis, etc. Care must be taken to ensure that temporary solutions don't create long-lasting problems.

The size of the economic damage is still very uncertain, but it is certain that it will large. Governments now need to focus on mitigating that damage. This is the time to bring out the big artillery; this is not a time to be timid, but to do whatever it takes, fast.

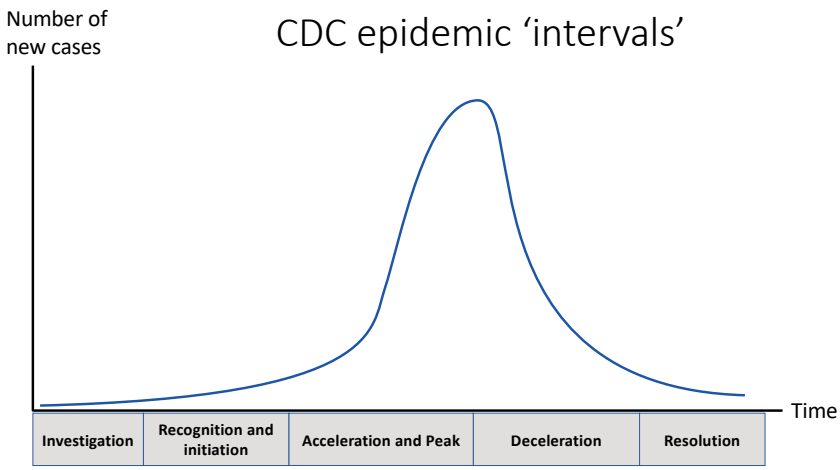
What's the problem? Medical and economic shocks

COVID-19 is a particular disease. It is highly infectious but not particularly deadly – especially for the healthy and the young. It is also unusual in that it has hit all the major economies of the world at the same time. Countries accounting for over two-thirds of the planet's output and income are engaging in containment policies that would – in normal times – seem extreme. But these aren't normal times.

COVID-19 as a medical shock to the economy

It started in China with the first death on 9 January 2020, but spread quickly. The first case outside China was confirmed on 13 January (in Thailand). All the G7 economies saw their first cases by the end of the month (except Canada, whose first case was on 7 February). By the end of February (Italy) or early March, all the G7 nations had entered the accelerating phase of their 'epidemiological curve' (Figure 1 plots the number of new cases per day against time).

Figure 1 Intervals, or phases, in an archetypical epidemiological curve



Source: CDC.gov, www.cdc.gov/flu/pandemic-resources/national-strategy/intervals-framework-508.html

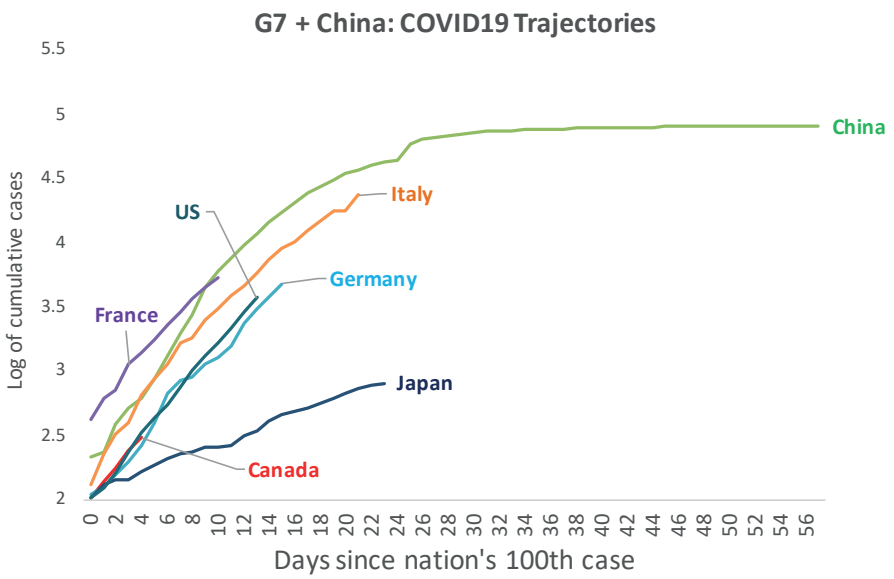
The epidemiological curve, which is widely used by public health officials, is not an exponential curve but looks like one during the accelerating phase.[1]

> *It started in China with the first death on 9 January, but spread quickly… All the G7 economies saw their first cases by the first week of February. By early March, all the G7 nations had entered the accelerating phase.*

'Epi charts' are noisy given the inherent medical randomness and measurement and reporting problems. The size of the medical shock is easier to see in a different curve, call it the COVID trajectory chart (Figure 2). This plots the log of the cumulative number of cases on the vertical axis and, on the horizontal axis, the days since each country reached the (somewhat arbitrary) threshold of having 100 cases. The 'log scale' means that a straight line in this chart indicates the number of cases (cumulative) is rising at a constant growth rate. Given the nature of the epi curve, the slope is steeper during the acceleration phase and then flattens for nations moving into their deceleration phase. The relationship between the epi curve and the trajectory curve is illustrated in Box 1.

As is clear from Figure 2, China and all the G7 nations have followed a similar progression once the disease is entrenched; Japan is the sole exception among the G7.

Figure 2 Progression of COVID-19 in G7 economies and China



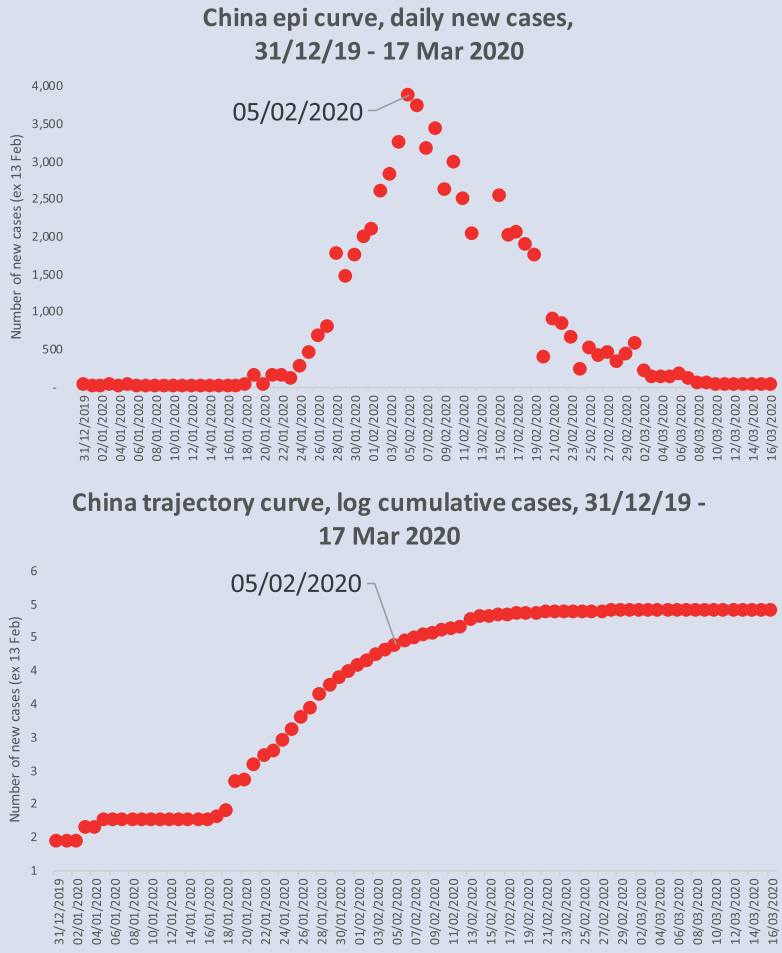
Source: Authors' elaboration based on ECDC online data (download 17 March 2020).

1 See https://www.cdc.gov/training/QuickLearns/epimode/

Box 1 Epi curves and trajectory curves

The epi curve plots the growth of cases, i.e. the number of new cases per day. The trajectory curve shows the cumulative cases, and, to make the growth path clearer, it plots the logarithm of the cumulative number of cases. How do the two curves relate to each other?

Figure 3 China's epi and trajectory curves



Source: Authors' elaboration of ECDC online data. ECDC.euopa.eu.

Figure 3 shows the two curves for China – a country that has worked its way past the decelerating phase. Put simply, the epi curve is the daily change in the number of cases, while the trajectory curve shows the cumulative cases. Since the epi curve is hump-shaped, the trajectory curve has a 'lazy-S', or logistics shape.

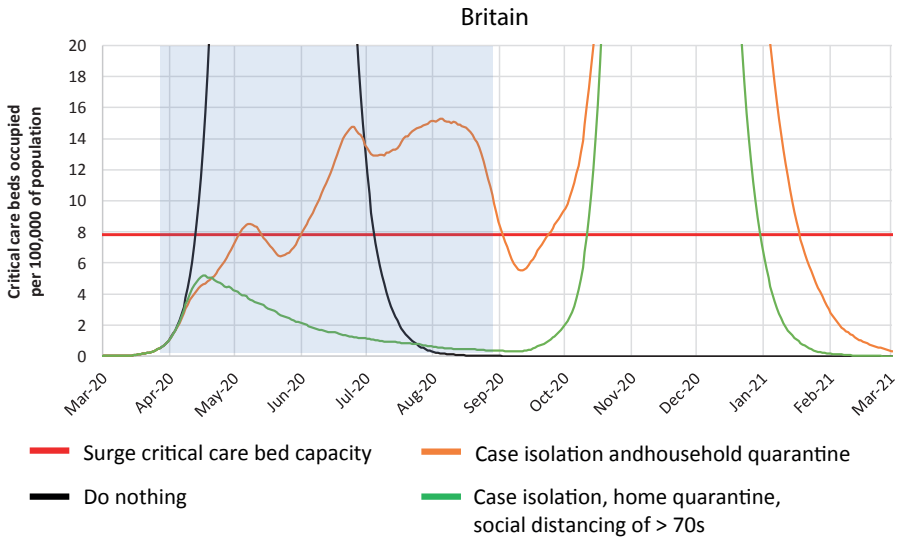
What Figure 2 shows is that COVID-19 follows a fairly predictable path, by and large. The shock hit China in January, Italy four weeks later, Germany and France five weeks later, and Britain the week after that. For weeks, some governments pretended that this was someone else's problem, but as of 17 March 2020, all of them know what is coming down the tracks unless they take extreme containment measures immediately.

While the curves look similar at this macro level, containment policies have had a major impact on slowing the disease in the countries that practiced them. This shows clearly in Japan's trajectory. Singapore and Hong Kong (not shown) have also managed to avoid explosive growth so far. Surely there are lessons here, public health lessons, but we stick to the economic aspects. From that angle, it is useful to note that the public health containment policies are inseparable from the economic impact.

A second wave?

There is a danger of subsequent waves of infection, as was the case with the Spanish Flu that hit most nations in three waves from 1918 to 1920. A recent simulation study of COVID-19 by epidemiologists at Britain's Imperial College suggests as much. Using simulation analysis, the team at Imperial projected the epi curve for Britain and the US without any containment policies and with various combinations of public health measures.

Figure 4 Imperial College simulations of COVID-19 epi curves under various containment strategies



Source: Ferguson et al. (2020).

The black line in Figure 4 shows the likely path of the epidemic with no public health controls in place – as measured by the number of hospitalisations. The coloured lines illustrate possible paths with different control measures in place. The red line shows the hospital bed constraint. The study presents an equivalent figure for the US (not shown here).

The Chinese government is clearly worried about a second outbreak (see the chapters by Yi Huang et al. and by Shang-Jin Wei). China took it as an affront when the US, Australia, and others blocked travellers from China; now the restrictions may appear in the opposite direction. As Shang-Jin Wei writes in his chapter: "Now with the appearance of ineffective controls of the virus in some of these countries, the Chinese may not be eager to resume these flights any time soon."

Singapore is also worried about another outbreak. It had managed to keep the cases below 100 for almost a month – using rigorous testing, tracking and isolating. But the island state has seen an acceleration recently. Many of these are imported cases from the new epicentres. In reaction, the Singapore government increased travel restrictions this week and imposed a mandatory 14-day stay-at-home period for returning citizens. Importantly, the government is openly communicating about the possibility that this shock may not be as transitory as many first thought based on China's experience. The public health policies may remain in place for a long time. It is preparing the population that there may be no return to normality for a year. The Foreign Minister, speaking on CNBC, put it this way: "We should assume the worst, even if we are hoping for the best."

Slowing the spread of the disease

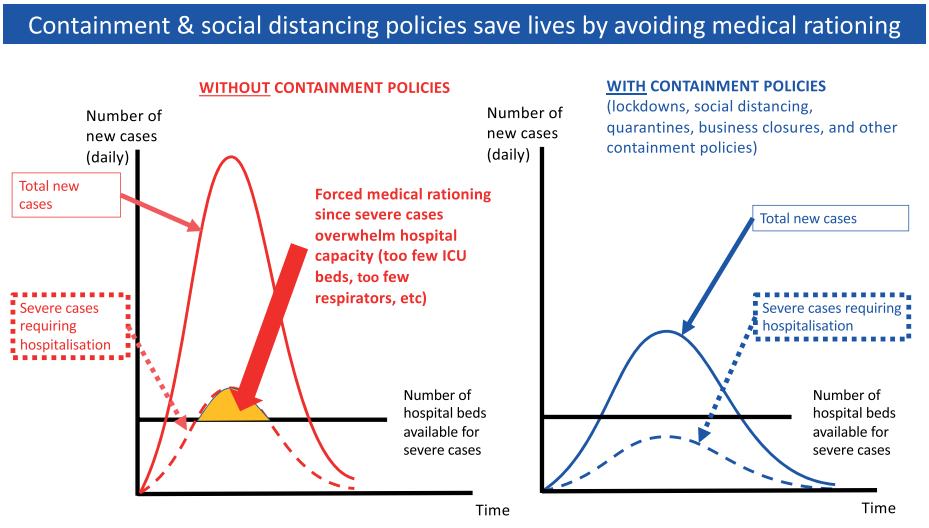
Controlling the epidemic means 'flattening the epidemiologic curve'. This is done by slowing the rate of infection by, for example, reducing person-to-person contact overall via work and school closures, and travel bans ('social distancing'). This was the approach taken in Wuhan and it is now being taken in Europe and the US. Another approach is to identify and remove infected people from the population by quarantining them.

The social distancing policies are purposefully inducing an economic slowdown. A pandemic like COVID-19 would have a sharp impact on economic output for obvious reasons. But the containment policies worsen the economic recession, and this is on purpose.

What are governments thinking when they do this? The point is simple: a flatter curve saves lives. Here's the logic. Given there are no 21st century tools to fight the virus, the key is to 'flatten the epi curve' to avoid bottlenecks in the healthcare system that result in suboptimal treatment (and thus more deaths). During the acceleration phase, the number of people needing hospitalisation grows in leaps and bounds – so fast that it can overwhelm a nation's healthcare system. This is happening right now in Italy, and it happened in Wuhan.

The desire to reduce the sort of 'wartime triage' going on in hospitals today is why Italy is now taking what may seem to many like extreme measures. Only they are not extreme compared to the nightmare alternative of overwhelmed hospitals unable to provide the care people need to survive the disease. By reducing the frequency with which people who are infectious meet people who are susceptible, containment policies lower the speed at which the disease spreads. This, in turn, slows the flow of people showing up for hospitalisation. The goal is to keep the flow of daily severe cases to within the capacity of the hospital system for new admissions. This 'flatten the curve' point is illustrated schematically in Figure 5.

Figure 5 Epi curve flattening saves lives by avoiding hospital overloads

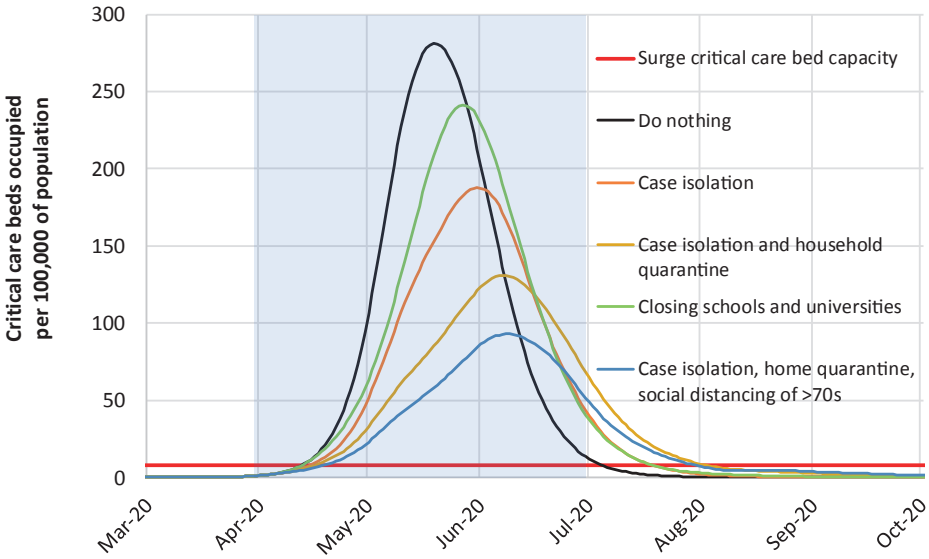


Source: Based on Baldwin (2020c)

The left panel shows what the epi curve might look like if no containment policies are undertaken. The number of new cases spikes – along with the number of severe cases needing hospitalisation. In the case of Italy and China, the spike in hospitalisations swamped capacity. The results were tragic. The right panel illustrates how flattening the epi curve might avoid this sort of tragedy.

The bad news is that some epidemiologist estimate that hospitals will be overwhelmed even with containment policies (Figure 6). The chart show simulated epi curves simulated by Imperial College's COVID-19 Response Team (https://www.imperial.ac.uk/news/196234/covid19-imperial-researchers-model-likely-impact/). Looking at the uncontrolled case (black line) and various combinations of containment policies (coloured curves), they find that even the "optimal" mitigation policies "would still result in an 8-fold higher peak demand on critical care beds over and above the available surge capacity in both GB and the US".

Figure 6 Imperial College epidemiological simulations, COVID19 and hospital capacity



Source: Ferguson et al. (2020).

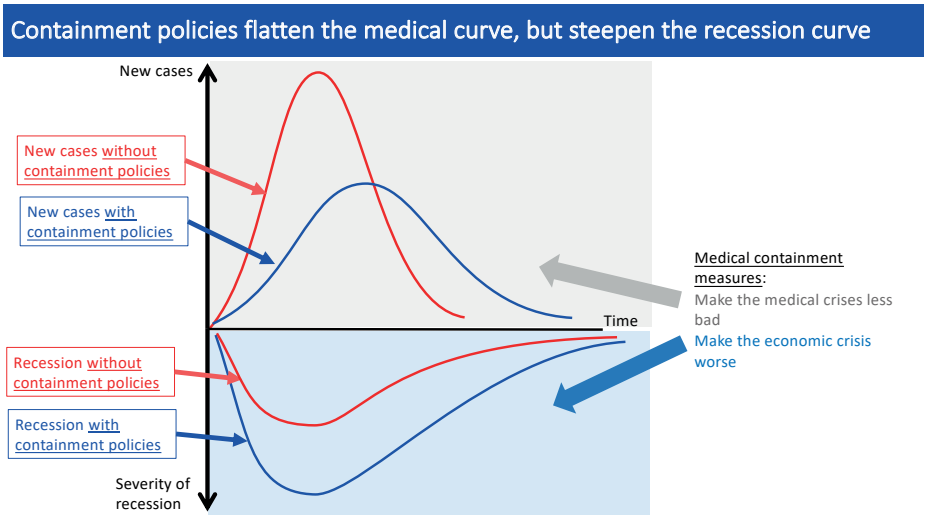
The economic recession is a public health measure

Efforts to flatten the epi curve reduce economic activity. The recession, so to speak, is a necessary public health measure. Keeping workers away from work and consumers away from consumption both reduce economic activity. This is illustrated schematically in Figure 7, which has a top panel (medical) and a bottom panel (economy).

> *Efforts to flatten the epi curve reduce economic activity. The recession, so to speak, is a necessary public health measure.*

In the top panel (the medical outcome), the red curve suggests what the epi curve would look like without containment policies; the blue curve suggests what it would look like with containment policies. The blue curve is a flatter version of the red curve due to containment policies. In short, containment policies flatten the epi curve.

Figure 7 Containment policies and epi and recession curves – flattening and steepening



Source: Author's elaboration, inspired by illustrations in the chapter by Gourinchas.

In the bottom panel (the economic outcome), the red curve illustrates the economic losses (negative growth) when there are no containment policies; the blue curve suggests the recession's evolution when containment policies are imposed. The blue curve is steeper and deeper than the red curve in the bottom panel, i.e. just the reverse of the top panel. As Pierre-Olivier Gourinchas puts it: "flattening the infection curve inevitably steepens the macroeconomic recession curve."

This unavoidable trade-off is surely behind some leaders delaying containment policies.

Three types of economic shocks from COVID-19

The COVID-19 pandemic creates all manner of economic shocks; to organise thinking about them, it is useful to put them into three bins, as we did in the last eBook (Baldwin and Weder di Mauro 2020a).

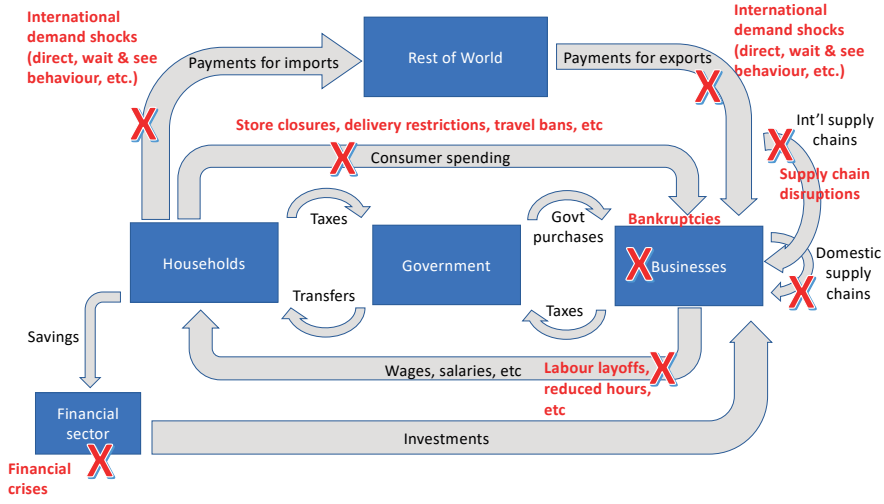
- First are the purely medical shocks – workers in their sickbeds aren't producing GDP.
- Second are the economic impacts of containment measures.
- Third are the expectation shocks.

As in the Global Crisis of 2008-09, the COVID-19 crisis has consumers and firms all around the world putting off spending; they are in wait-and-see mode.

How do the virus-linked shocks affect the economy?

Pierre-Olivier Gourinchas answers this question elegantly in his chapter: "A modern economy is a complex web of interconnected parties: employees, firms, suppliers, consumers, banks and financial intermediaries. Everyone is someone else's employee, customer, lender, etc." If one of this buyer-seller links is ruptured by the disease or containment policies, the outcome will be a cascading chain of disruptions. This point is illustrated in Figure 8.

Figure 8 COVID19's multiple strikes in the circular flow of income diagram



Source: Based on Baldwin (2020b).

The diagram is a version of the well-known circular money flow diagram that is found in most introductory economic textbooks. In simplified form, households own capital and labour, which they sell to businesses, who use it to make things that households then buy with the money businesses gave them, thereby completing the circuit and keeping the economy growing. In short, a flow disruption anywhere causes a slowdown everywhere.

The red crosses show where the three types of shocks are disrupting the economy. Starting from the far left and moving clockwise, we see households who don't get paid experience financial distress and thus slow their spending. Second, the domestic demand shocks hit the nation's imports and thus the flow of money to foreigners. While this doesn't reduce domestic demand directly, it does reduce foreign incomes and thus their spending on the nation's exports (the cross in the top-right corner). The reduction in demand and/or direct supply shocks can lead to a disruption in international and domestic supply chains (the two crosses on the right). Both lead to a further reduction in output – especially in the manufacturing sectors. The hit to manufacturing can be exaggerated by the wait-and-see behaviour of people and firms. Manufacturing is especially vulnerable since many manufactured goods are postpone-able (the cross in the bottom-right corner).

Business bankruptcies are another point of disruption. Businesses who loaded up on debt in recent years (BIS 2019) are especially vulnerable to reductions in the cashflow. The bankruptcy of the British airline Flybe is a classic example. This sort of strike can create a cascade. When creditors and workers don't get paid, they spend and invest less. Indeed, the bankruptcy of one firm can put other firms in danger. This sort of chain-reaction bankruptcy has been seen, for example, in the construction industry during housing crises. Finally, there are the labour layoffs, sick leaves, quarantines, or leaves to care for children or sick relatives directly related to containment policies or other medical necessities. Workers who lose their jobs spend less.

This sort of disruption was very much in evidence in the greatest pandemic of the 20th century – the Spanish Flu (see Box 2 based on Barro et al. 2020).

Box 2 How bad could it get? Barro on the Great Influenza Pandemic (Spanish Flu)

The so-called Spanish Flu pandemic, or Great Influenza Pandemic, circled the world from 1918 to 1920; it killed about 2% of humans (about 43 million). The pandemic came and went three times. The three waves were: (1) spring 1918 (the final year of World War I); (2) September 1918 to January 1919 (the deadliest), spread in part by troops first crowded together and then sent home; and (3) February to December 1919. Many famous people died in this pandemic – most notably for today's events, this list includes the grandfather of US President Donald Trump.

Table 1 shows the excess mortality for the world (based on data from 43 nations).

Table 1 Death totals during the Great Influenza Pandemic, 1918-1920 (millions)

	Waves			
	1918	1919	1920	Sum
43 countries estimated	23.5	8.4	2.8	34.6
Inflated to world population	26.4	9.4	3.1	39.0

Source: Barro et al (2020).

A simple extrapolation of the Spanish Flu death rates to today's pandemic – which is unlikely but helps establish an upper bound – suggests staggering mortality numbers. A death rate of 2% today would correspond to 150 million deaths. That's an unlikely outcome.

What was the economic hit? By exploiting variations in flu intensity from 1918 to 1920 across countries, Barro et al. estimate effects on GDP. The results are sobering, but not alarming. The Great Influenza Pandemic reduced real per capita GDP by 6.0% in the typical country. For comparison, they estimated the impact of World War I as negative 8.4%.

Light at the end of the tunnel

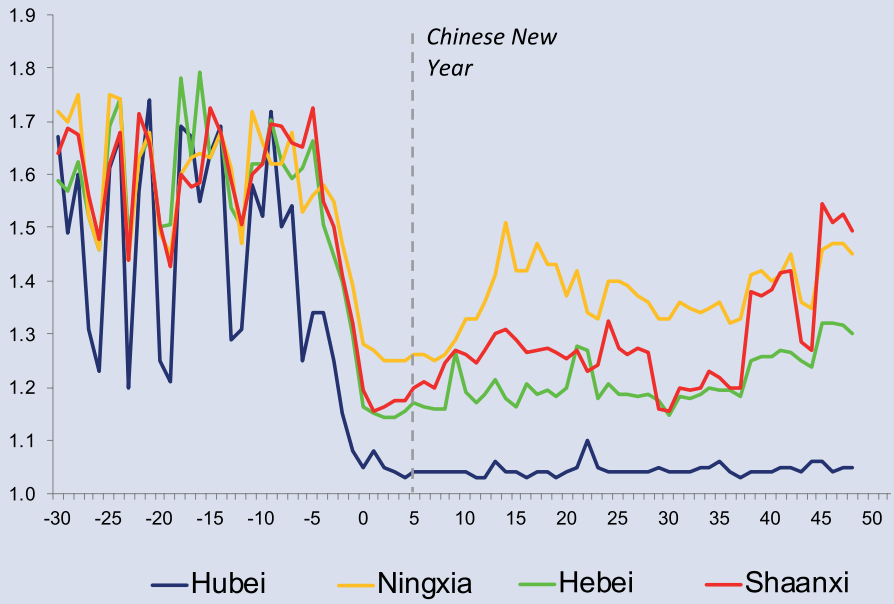
Europe and the US are heading into what many commentators are calling a steep economic downturn. Many governments, however, are viewing this as a transitory economic shock – and with good reason. An analysis of the Chinese case suggests that there is indeed light at the end of the tunnel. Box 3 provides the facts. That is the

good news; the bad news is that the first wave of this pandemic may not be the last. Reoccurrence is common phenomenon with epidemics – as we saw with the Spanish Flu (Box 2).

Box 3 China's L-shaped recovery: News from ground zero

Following 50 days of lockdown, China is slowly rebooting. The full account of the economic losses is not complete, but it is evident that the loses were larger than many analysts expected. Industrial production fell 13.5% in January and February versus a median estimate of -3%, according to Bloomberg.

Figure 9 China's traffic congestion index, 2020



Source: UBS

Things in China are far from normal, but transportation is starting to be congested again and air pollution levels are rising – both clear indicators that economic activity is resuming, as Figure 9 shows.

The recession is a medical necessity. That's a given. But governments can and should try to flatten the economic recession curve.

How can we flatten the recession curve?

The consensus among the authors in this eBook – and indeed among most leading economists who are writing on this – is quite simple. It's in the title of our eBook: "Act fast and do whatever it takes." Governments should deploy policies that 'flatten the recession curve' while avoiding long-lasting damage to our economies. Governments should do whatever it takes to 'keep the lights on' until the recession is over.

> *The consensus among the authors in this eBook – and indeed among most leading economists who are writing on this – is quite simple. It's in the title of our eBook: "Act fast and do whatever it takes."*

As Italian Finance Minister Roberto Gualtieri declared: "Nobody will lose their job because of the virus." To which we could have added: "And if someone loses her or his job, they will be guaranteed an income to support them until they find a new one", as Alberto Alesina and Francesco Gavazzi put it in their chapter. The principle indeed is analogous to Mario Draghi's famous statement during the euro area crisis that the ECB would do "whatever it takes" to save the euro. Since people believed this statement, expectations were recalibrated back to a world where the euro area would not fly apart. The switch in expectations, in turn, became self-fulfilling. This is what policymakers should be aiming for today with respect to the COVID-19 crisis.

This advice is premised on two simple points:

1. The medical shock is transitory. It will dissipate; doctors will develop a vaccine and curative treatments.

China, for example, has worked its way down the epi curve in about three months (by deploying draconian containment measures). That may be optimistic for less controlled societies, and the virus may well come back (see Box 2), but eventually the weapons of 21st century medicine – especially a vaccine – will end the pandemic.

2. The economic damage could be persistent. Without preventative measures, jobs may not be there when the recession passes, many firms might go broke, and bank and national balance sheets could be impaired.

The key is to reduce the accumulation of 'economic scar tissue' – reduce the number of unnecessary personal and corporate bankruptcies, make sure people have money to keep spending even if they are not working. A side benefit of this would be to subsidise the sort of self-quarantine that is needed to flatten the epidemiologic curve.

The 'whatever it takes' moment for economic policy

Jason Furman, who was President Obama's chief economist, adds some guiderails to the 'do whatever it takes' idea. His advice comes in six points: (1) better to do too much rather than too little; (2) use existing mechanisms as much as possible, (3) invent new programmes where necessary; (4) diversify and do not fear duplication or unintended 'winners' in the response; (5) enlist the private sector as much as possible; and (6) ensure the response is dynamic and persistent.

The basic idea is to address all the red crosses in Figure 8. Nations around the world are scrambling to put together recession curve-flattening packages to minimise the damage that this temporary shock does to the economy. The policies can be usefully grouped into six bins:

- Fiscal policies;
- Monetary policies;
- Financial regulation policies;
- Social insurance policies;
- Industry policies;
- Trade policies.

The particulars of policies in each of these can be found in the chapters of this eBook. Several of the chapters present complete plans of action. These include the multiple author pieces (Bofinger et al. and Bénassy-Quéré et al.) as well as the chapters by Christian Odendahl and John Springford, Gita Gopinath (IMF Chief Economist), Shang-Jin Wei, and Luis Garicano. Adam Posen's chapter looks at all the policy category with a special emphasis on the multilateral cooperation dimension. As he writes: "international economic policy cooperation in response to the COVID-19 pandemic is not going to be an easy sell, [but] … We should not give up on the power of concerted action..."

Another set of chapters concentrate on individual nations. Huang et al. present a comprehensive dissection of the impact of the virus on the Chinese economy, the policy reaction to date and recommendations for economic policymaking going forward. Jonathan Anderson's chapter puts the Chinese leadership's actions in the context of developments over the past few years. The chapters by Nora Lustig and Jorge Mariscal and by Furman focus on packages for the US. The chapter by Inkyo Cheong relates the experience that Korean policymakers have had to date in combating the recession and suggests what more they could do.

The chapter by Philip Lane (a Member of the Executive Board of the ECB and former governor of the Irish central bank) focuses on monetary policy. The chapter by Thorsten Beck proposes a set of measures that should be considered for banks, markets, and other financial institutions.

One of the boldest policies comes from Jordi Gali – using 'helicopter money' to pay for the 'whatever it takes' packages. His argument is simple: society has a pressing need for a massive increase in government spending, but the already stretched debt-sustainability levels of many European governments pose risks. The worse outcome would be the COVID-19 recession morphing into a COVID public debt crisis.

Fiscal policy

During the Global Financial Crisis (GFC) central banks came to the rescue, and the same happened during the euro crisis of 2011. For the COVID-19 crisis, monetary policy has not been very effective. Despite major cuts in interest rates, expectations of the depth and duration of the crisis seemed rather unaffected – at least judging from the historical drops witnessed in the financial markets.

This time, fiscal policy should be the first to the rescue because the main shock is coming from the real economy. But as with monetary policy in the GFC and euro crisis, governments should also be prepared to do 'whatever it takes'.

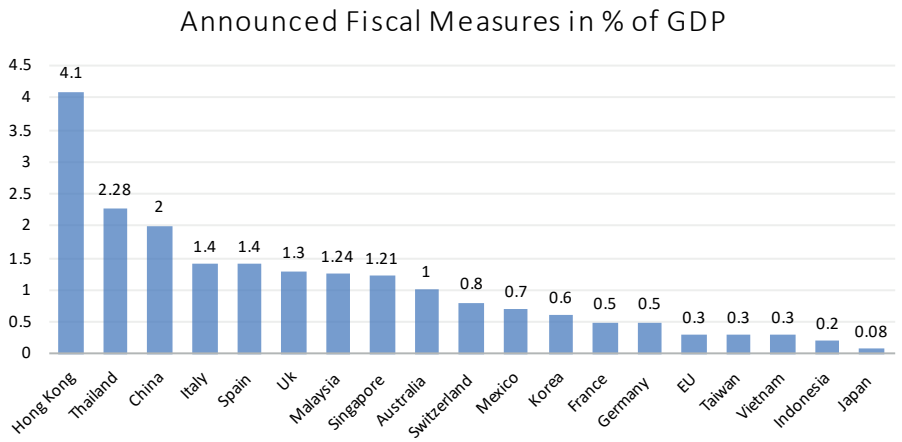
Governments have already reacted with fiscal force (Figure 10). The largest package of measures announced so far is in Hong Kong, amounting to 4% of GDP. Italy, Spain, and the UK have all put programmes of about 1.5% of GDP on the table, mostly with targeted fiscal support for households and firms. The measures include income subsidies for affected workers, tax deferrals, social security deferrals or subsidies, debt repayment holidays, and state loans or credit guarantees for companies.

The German programme of 13 March, entitled "A protective shield for employees and companies", includes unlimited loan guarantees to support firm's liquidity from the state-owned bank Kreditanstalt für Wiederaufbau (KfW).[2] The German Minister of Finance dubbed this programme a "big bazooka".

2 See https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Oeffentliche_Finanzen/2020-03-13-Schutzschild-Beschaeftigte-Unternehmen.html

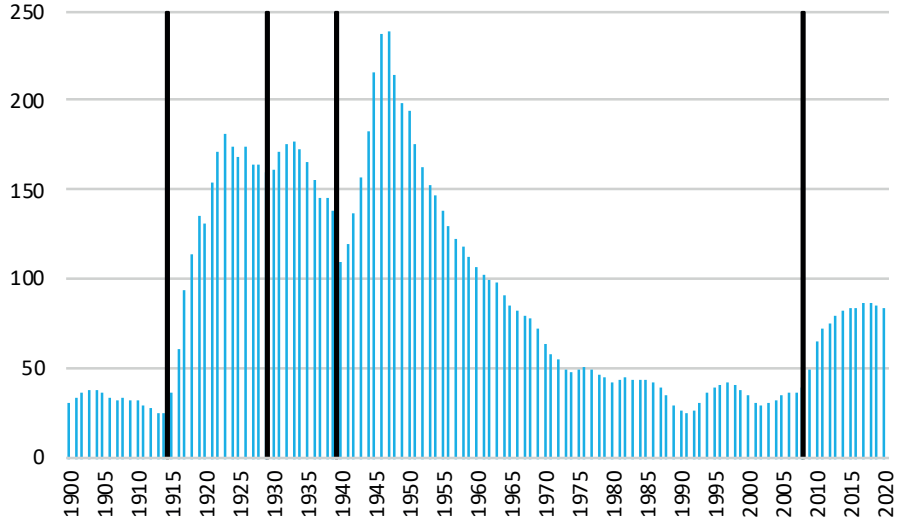
Big spending means big increases in government debt. Should we be worried? Wars, disasters, epidemics and deep recessions are textbook examples for running large fiscal deficits and accumulating debt. For instance, the UK used debt financing backed by monetisation to finance World Warr II, increasing debt to a peak of almost 250% of GDP (see Figure 11). In the chart, the vertical bars indicate the beginning of World War I, the Great Depression, World War II, and the Global Financial Crisis.

Figure 10 Fiscal measures already announced



Source: Author's Elaboration based on UBS.

Figure 11 Debt-to-GDP ratio in the UK (1900-2020)



Source: Panizza based on Bank of England

The fight to flatten the curve of medical contagion has been called a "war" by President Macron. The fight to reduce the fallout on the economy may ultimately also necessitate measures that would never be contemplated in normal times.

While fiscal policy should be on the front line, monetary policy has to first play a supporting role, guaranteeing the liquidity of the financial system (not the equity market).

Fixing Europe's roof while it is raining – focusing on today's epicentre

When Christine Lagarde was managing director of the IMF, she frequently called on European policymakers to fix the roof while the sun was shining. She was not alone with this call – to the contrary, there was a chorus of experts warning that the roof of the euro was still leaky and that the reform needed to be completed before the next rain. Now it is raining, hard.

The vengeance of the unfinished reform agenda is that the euro has no meaningful fiscal stabilisation tool and no common safe asset, it is missing a common deposit insurance, and it still suffers from the 'doom loop' (e.g. Alogoskoufis and Langfield 2018). Fighting the crisis will mean sharply higher debt levels everywhere, but in countries with already high debt levels this can trigger spiking sovereign spreads and a vicious circle. Fears of financial fragmentation and redenomination risk could lead straight back into a euro crisis and a sudden stop of capital flows. This is not something the world needs in the midst of a pandemic.

The instruments and institutions that the euro area has created over the course of the last ten years are not designed for this type of crisis. They are designed for an asymmetric shock to a single country (or a series of small countries), originating in the financial or public sector. The main protective shield of the euro is the Outright Monetary Transactions (OMT) programme, which enables the ECB to buy bonds of an individual sovereign but only if this country has agreed to enter into a European Stability Mechanism (ESM) programme of the type Ireland agreed to during the 2011 euro crisis. Such programmes entail stigma and conditionality (usually fiscal consolidation). None of this fits the present situation. This is a symmetric shock, a common shock and one that requires higher fiscal deficits.

Also, moral hazard – one of the main concerns to common European action in normal times – does not apply for a pandemic-caused disaster, which is a fully exogenous shock. Moral hazard would presuppose that countries applied insufficient fiscal discipline in order to benefit from help in a pandemic. Clearly this logic does not apply, or as Pierre Olivier Gourinchas puts it in his chapter: "After all, the RNA strand that constitutes the virus cares little about incentives, or borders for that matter."

> *This is a symmetric economic shock since it is a symmetric medical shock. The RNA strand that constitutes COVID-19 cares little about incentives; it has never heard of moral hazard, and it has crossed every border in Europe and most of them beyond. This common economic shock requires a common economic policy effort.*

There should be no debate on whether the crisis is a national problem or whether it requires EU action. The economic fallout from the crisis is clearly a European problem since Europe has a common fiscal framework and the euro area has a common currency that constrain what a country can and cannot do in response to the crisis. In addition, there are strong positive and negative externalities of the containment measures on neighbours. The lockdown in Italy did not stop the virus, but it did slow down the contagion to others and bought the rest of Europe a few weeks of (largely wasted) preparation time.

What Europe has put on the table so far will quickly prove to be insufficient. The European Commission acted rapidly by making full use of the flexibility in EU fiscal and state aid rules and mobilising the European budget. The Eurogroup welcomed the Commission's proposal for a €37 billion Corona Response Investment Initiative and to make a further €28 billion of structural funds fully eligible for meeting these expenditures. The Eurogroup also welcomed the Commission's initiative to mobilise the European Investment Bank (EIB) to support working capital lending for European firms, but they did not announce any coordinated of decisive policy actions.

A more comprehensive European approach is needed on two levels.

1. An ambitious 'Catastrophe Relief Plan' to share the burden and support the efforts of member states in combatting the pandemic;
2. A stronger 'roof' for the euro, since financial fragmentation at this point could trigger a dangerous cascade of political, economic and social effects.

This is a time for the old adage: better safe than sorry.

The EU needs an ambitious Catastrophe Relief Plan

Bénassy-Quéré et al. call for a EU-level 'Catastrophe Relief Plan' to support the combined efforts of the member states in combating the pandemic. The EU would take responsibility for managing and financing a meaningful share of the overall emergency effort, in particular to:

- Help finance the direct cost of improving hospital infrastructure (especially the number of intensive care beds) and paying for the extra workload of medical staff; and
- Help finance indirect expenditures related to public health measures, such as containment and school closures. Eligible expenditures could include security, partial unemployment schemes and support targeted at specific sectors.

Luis Garicano, in his chapter, proposes another ambitious plan. His idea is that European institutions help member states undertake their healthcare spending by increasing EU-wide healthcare spending by about 5%; that would cost around €50 billion. In addition, a financial backstop for companies, particularly small and medium-sized enterprises (SMEs), with the level of ambition of the German 'bazooka' should be provided. Assuming the level of leverage the EIB can achieve, this would require guarantees on the order or €275 billion. He also calls for a European-level Kurzarbeit programme – that is, a programme to support short-term employment protection facilities throughout member states. The main objective of these facilities would be to ensure firms have liquidity without having to fire workers. Instead of letting them go, companies would be able to reduce the hours of their workers (by 100% if needed). The state would compensate workers for (a significant part of) the lost wages.

How to finance an EU-wide bazooka

Garicano estimates the costs of such a comprehensive plan would be about €500 billion. That is a large number – large enough to raise national debt sustainability issues. How could they be financed on the European level? These are the options:

1. Reallocations within the EU budget.

The EU commission is already using this flexibility, but the amounts are limited. The EU budget is, after all, only 1% of EU GDP.

2. Cooperation among member states outside the framework of the EU budget.

This was the sort of financing that was organised during the Greek and euro crises, and the cooperation led to the creation of the European Financial Stability Facility (EFSF) and ultimately to the ESM. The drawback is that, being voluntary, it was difficult to organise due to free-rider problems. Things are more pressing now.

3. A 'pandemic bond.'

This is the best answer in the present situation – joint issuance through a pandemic bond.

A number of our authors agree that common bond issuance is the proper response to the common shock. Pierre-Oliver Gourinchas proposes that the ESM issues common bonds for two specific purposes: to finance necessary health expenditures, and to prevent economic dislocation in the affected countries. Charles Wyplosz also argues that borrowing should be undertaken collectively through jointly issued bonds, but is sceptical whether countries will be able to agree.

The euro needs a stronger roof

The second priority is to reassure markets that the euro area will remain intact. Markets need to be convinced that European institutions and instruments are available to ensure that this is the case, even if debt increases on all levels. There are two possible solutions, the first being a credible OMT programme through an ESM programme for all EU members.

The existing instrument for this purpose could be some combination of OMT (which was the mechanism underpinning Draghi's famously effective "whatever it takes" pledge) and an ESM programme that every EU member signs. As mentioned above, these instruments are not fit for purpose at the moment. At the very least, ESM conditionality would have to be amended and the stigma attached to signing up to such a programme would have to be reduced. Alternatively, countries will not choose this route in time.

The stigma problem of an ESM programme is similar to that faced during the banking crisis of 2009. Some euro area members found that accepting the aid was necessary to stabilise their economies and financial systems, but they found it carried a stigma. In the US, the problem was overcome by giving large banks no choice – the US federal government recapitalised all of them simultaneously. This eliminated individual stigma, doubts about solvency dissipated, and confidence in US banking system returned. In Europe, the stigma problem led to too little recapitalisation, a weaker system, and a prolongation of the banking crisis.

The analogous solution could be that all euro area members agree simultaneously on an ESM credit line. In fact, there are two existing lines which would have to be modified: the Precautionary Conditioned Credit Line (PCCL) and the Enhanced Conditions Credit Line (ECCL). Using these would reduce stigma and yet meet the legal requirements for deploying the OMT. This would create a confidence shield.

One of the problems of this option is that the credit line may not be used by all members and therefore some reallocation in favour of countries with higher needs would be desirable. Another problem is that this solution may prove divisive and could only work if there are no veto players.

As Jason Furman wrote in his chapter: "Invent new programmes where necessary." The financing quandary: how can national spending, and thus borrowing, be ramped up massively without turning the COVID-19 crisis into a debt crisis? If the OMT is closed or too slow, a second financing option would be to create a new instrument: a common pandemic bond issued by the ESM or EIB (or a combination of both). The bonds would have to have a high rating, which might necessitate a capital increase of these institutions. The bonds would need to be structured to be a targeted to the specific purpose of pandemic fight and limited to a case of extreme emergency.

The proceeds of this bond could be allocated pro rata to member states or they could flow to specific activities of the EIB or ESM. The service of the bond could be through the EU budget or take the form of an EU 'special solidarity tax' (to be levied only after the recovery).

An important advantage of this solution is that is constitutes supranational debt, and therefore does not add to the national debt levels, although governments would have a contingent liability through their capital shares in the ESM/EIB. The bonds would be eligible for ECB asset purchase programmes.

Overall, a pandemic bond would serve the dual purpose of helping to financing the costs of the crisis (see above) and sending a strong signal to markets, firms and citizens that Europe was united and working for the benefit of all. That, in turn, would boost trust.

Watch this space – concluding with continuing remarks

If these were normal times, if the COVID-19 crisis were a normal crisis, our introduction would close with a rousing set of concluding remarks. It would sum up the main takeaway points, add a call to action and finish with a rhetorical flourish. These aren't normal times. These are not concluding remarks. Rather, they point out that the policy analysis and recommendations are rapidly developing.

Here are two examples of escalations that have happened as we rush to finish this introduction: the Spanish government has just announced a €200 billion package, which is equivalent to about 20% of GDP; and a group of concerned economists are calling for the EU to amend legislation and enable the ECB to engage in monetary financing of deficits. This call is quickly gathering support (see the manifesto on Vox here).

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1 So far, so good: And now don't be afraid of moral hazard

Charles Wyplosz
Graduate Institute Geneva and CEPR

The previous COVID-19 eBook (Baldwin and Weder di Mauro 2020) showed an impressive convergence of analyses amongst the various authors – a rare situation in the economics profession.

For a few days, the messages from the authorities sounded lame. Then, over just two days, they came up with a raft of decisions that were coherent with the economists' analyses – an even rarer occurrence, especially as the numbers seem reasonable. These plans will have to be adapted as we understand better the situation, but we are on to a reasonable path. However, clarity of view and willingness to act are just necessary conditions. Implementation details will matter a great deal. Because most measures create some moral hazard, they can be criticised. The risk is that moral hazard considerations derail the policy responses. This is the wrong thing to worry about.

Focus on bottlenecks, not on moral hazard

> *The key analytical issue is simple. Targeted support is needed to face the economic dislocation … But indiscriminately throwing large amounts of money is not an effective way to deal with the myriad of bottlenecks that stand to grip the economic machinery.*

The widely agreed, key analytical issue is simple. Targeted support is needed to face the economic dislocation provoked by the combination of the epidemic, health containment efforts and anguished reactions of individuals, firms and financial institutions. But indiscriminately throwing large amounts of money – be it from the infamous helicopter or by cutting labour taxes – is not an effective way to deal with the myriad of bottlenecks that stand to grip the economic machinery.

Lists of bottlenecks have been produced, more stand to be uncovered, and the required policy responses are usually straightforward. Dealing with many, even most, bottlenecks is not enough, we must try to identify and treat all bottlenecks. Over time, we should uncover all the bottlenecks, but we may face resistance to dealing with all of them.

The decisions unveiled so far generally focus on such measures, but what are the potential pitfalls?

I can imagine five.

- First a bottleneck is like the weak link of a chain – the one that breaks when you pull hard.

A good (and well identified) example is health insurance in the US. If most of the 27 million or so uninsured people cannot afford to not go to work and to be treated, the epidemic and its economic consequences stand to be much worse (Mankel 2020). Moral hazard considerations explain why the US is the only developed country that does not have universal medical coverage. Individual responsibility is a fine concept, but it ignores the externalities from a lack of medical coverage for 'irresponsible' individuals who will infect the 'responsible' ones.

- Second, removing all bottlenecks will be enormously expensive.

The various plans announced by many governments could cost 5% of GDP, possibly much more. This means that we have to carefully craft the policy measures with a watchful eye on effectiveness.

Public spending effectiveness is always challenging, some would say hopeless. It is even more so when emergency measures are taken. It also means that explicit or implicit budget rules, or simply principles of prudent management, will have to be ignored. To make matters worse, we don't really know how much will be needed, and the bill could grow as we uncover more and more bottlenecks. Implicit or explicit budget rules, even regular management and planning, will have to be set aside. This sounds like a recipe for disaster. It is another example of moral hazard – a huge one in fact. Policymakers who have been brave enough to make bold announcements these last few days will face strong pushback.

- Third, the crisis has arrived at the wrong time, as crises often do.

Over the last decade, countless reports have described, in minute detail, corporate – and sometimes household – over-indebtedness, excessive leveraging among financial institutions and unsustainable public debts. The policy answer has generally been that we will deal with these vulnerabilities gradually over time – in effect assuming that we have plenty of time ahead of us.

This wise approach was predicated on the absence of shocks. Well, shocks occur unexpectedly, and we are caught in a most uncomfortable position. Many of the announced policy measures correctly rest on loans to households and firms, through the financial system and the public purse. This means that over-indebted firms and households will have to accumulate more debt, and that financial institutions will have to become more leveraged and more strained as they accept collateral that is about to melt away. For that to happen, public guarantees will have to be extended, backed by equally dubious collateral, or governments will have to lend directly, and possibly even make outright transfers. Here again, we face a moral hazard of enormous proportions. No doubt, wise and prudent objections will be raised, including from the same quarters that rejected dealing with the debt problem when times were good.

- Fourth, so far we face an economic crisis, not a financial crisis.

Even if the governments manage to brush aside the kind of resistance described above, their pockets may be deep, but they are not infinite. They can, and should, suspend the budget constraint, even though they cannot eliminate it and will eventually have to deal with the consequences. But as they ramp up borrowing from the financial markets, those that were already highly indebted stand to face major financial difficulties.

Much the same applies to a whole range of financial institutions. The prudential reforms applied to banks after 2008 were meant to make them more resilient. Resilience, however, is a relative concept. It has been appraised by a great many stress tests, but were the tests stressful enough to encompass the unfolding situation?

Financial jolts are on their way, the markets have already started to panic. In this situation, investors do not just attempt to protect themselves by selling, many also seek to profit from the meltdown by taking short positions, which are potentially infinite. At that stage (much earlier in fact), all eyes will turn to the only institutions that have infinitely deep pockets – central banks, which can lend potentially infinite amounts in last resort.

The earlier central banks let it be known that they are ready to lend in last resort to their governments, to banks and other financial institutions, the more they will stabilise the markets and, therefore, the less it is likely that they will need to intervene. This is particularly relevant for the ECB, as explained below. The argument against such explicit statement is, guess what, that it may create a moral hazard.

- Fifth, assume that all policy announcements are implemented, that all bottlenecks are identified and dealt with, and that central banks manage to nip a financial crisis in the bud, the production system will be ready to promptly resume its functions as soon as the epidemic ends.

With bankruptcies kept to a minimum and workers still attached to firms thanks to temporary suspension of their contracts, demand should also resume as people draw on whatever savings they had put aside during the epidemic and as firms carry out postponed investment.

Avoiding a double-dip recession

Governments should be very careful not to undermine the resumption of growth as they feel the urge to wind down the deficits that they opened up during the crisis. The now-classic example is the euro area's double dip after the Great Recession. Suspending the budget constraint, even for good reason, creates a moral hazard. The response is not premature austerity, nor is it ever lasting laxity. Finding the right balance will be challenging.

> *There is a risk that some governments cannot borrow what they need because of they already are overindebted … the risk of another debt crisis is serious … This is where coordination is required.*

The euro area faces a number of specific challenges. We hear many calls for coordination. There is no doubt that some coordination would help, but not in every dimension. Targeted fiscal measures, which imply transfers to erase the bottlenecks, are ill-suited for coordination. Most measures must target well-identified bottlenecks. In the absence of a fiscal union, providing support to firms and households is a national competence for the obvious reason that it is financed by national taxpayers. In addition, these targets are probably better understood and more effectively dealt with at the local level. However, there is a risk that some governments cannot borrow what they need because they are already overindebted. Given the amounts likely to be required, the

risk of another debt crisis is serious because, as we now know, the euro is a foreign currency because member countries do not own their central bank, the ECB. This is where coordination is required.

One solution would be a mutual guarantee for new national borrowings. An alternative is that the borrowing be undertaken collectively through jointly issued Eurobonds. This is a function that could be entrusted to the European Stability Mechanism (ESM), but its resources (3.5% of GDP) are too limited, the conditions too drastic and the decision-making process, which requires unanimity, too inefficient.

Unfortunately, both mutual guarantees and Eurobonds have been rejected repeatedly in the recent past because of moral hazard considerations. Indeed, countries that managed to attain low public indebtedness are unwilling to protect those that did not. Under the current exceptional circumstances, it would make sense to set the moral hazard concern aside but, given the urgency of the situation, it seems unlikely that an agreement can be worked out after so many years of heated discussions.

Conclusion

The only solution to avoiding a potential debt crisis is for the ECB to offer the same potentially infinite guarantee that national central banks offer their respective governments. It already did so with its "whatever it takes" announcement, but then it was subject to conditionality (pre-existing adjustment programmes focused on deficit reductions) that is incompatible with the current situation. Removing conditionality from the Outright Monetary Transactions (OMT) programme is the most needed form of coordination.

Obviously, this solution involves substantial moral hazard. Casting moral hazard aside will be the acid test of the ability of member countries to coordinate in a meaningful way when needed.

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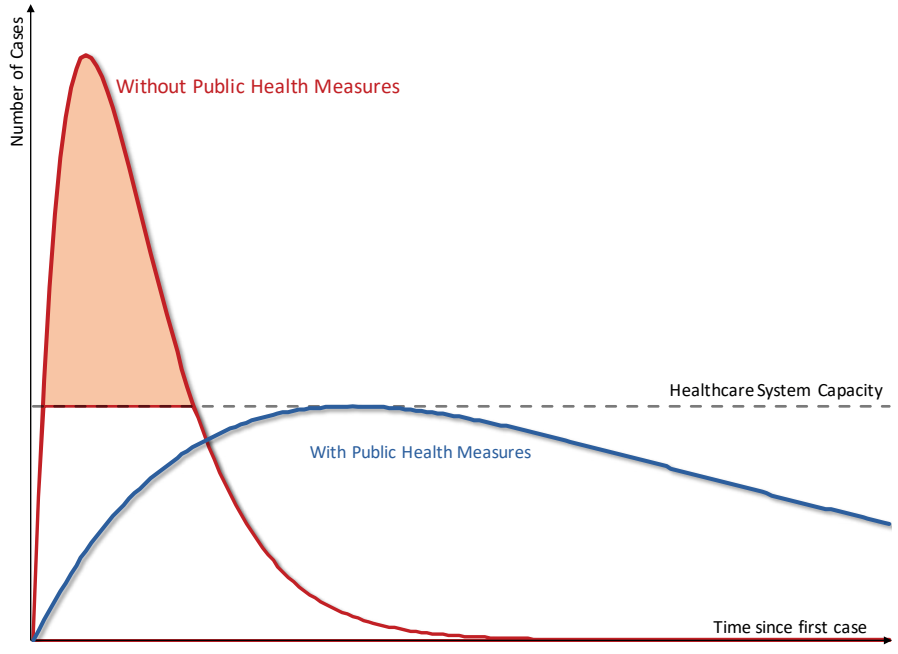
2 Flattening the pandemic and recession curves

Pierre-Olivier Gourinchas[1]
UC Berkeley

We are facing a joint health and economic crisis of unprecedented proportions in recent history.

I want to start by acknowledging that containment of the pandemic is the utmost priority. Figure 1 summarises how public health experts approach the problem.

Figure 1 Flattening the pandemic curve



1 Many thanks to Mark Aguiar, Olivier Blanchard, Jacques Delpla, Oleg Itskhoki and Jonathan Parker for useful comments.

In the short run, the capacity of any country's health system – the capacity of intensive care units, the number of hospital beds, the number of skilled health professionals, ventilators, etc. – is finite. This puts an upper bound on the number of patients that can be properly treated at any given point in time (represented by the flat line in Figure 1).

Unchecked, and given what we know of the transmission rate of the coronavirus, the pandemic would quickly overwhelm any health system, leaving many infected patients with deteriorating pulmonary conditions without any treatment. The fatality rate would surge. The threat is almost beyond comprehension. With a 2% case fatality rate baseline for overwhelmed health systems, and 50% of the world population infected, 1% of the world population – 76 million people – would die. This scenario corresponds to the red curve in Figure 1. The part of the curve (shaded in red) above the capacity of the health care system faces a sharply higher mortality risk.

Instead, public health policy, at least in all semi-decently run countries, aims to 'flatten the curve' by imposing drastic social distancing measures and promoting health practices to reduce the transmission rate. This 'flattening of the curve' would spread the pandemic over time, enabling more people to receive proper health treatment – ultimately lowering the fatality rate. This is the blue curve in Figure 1.

These policies, where implemented, have delivered very strong results. The countries that adopted drastic containment measures ,such as Taiwan, Singapore, or the Chinese regions outside Hubei, have seen the number of cases grow at a markedly slower rate and are now experiencing a decline. Clearly and unambiguously, this is the right short-run public health policy.

Let's assume that health authorities do the right thing, so we are on the flattened (blue) infection curve. What are the macroeconomic implications?

I will argue that, in the short run, *flattening the infection curve inevitably steepens the macroeconomic recession curve*. Consider China, or Italy: increasing social distances has required closing schools, universities, most non-essential businesses, and asking most of the working-age population to stay at home. While some people may be able to work from home, this remains a small fraction of the overall labour force. Even if working from home is an option, the short-term disruption to work and family routines is major and likely to affect productivity. In short, the – appropriate – public health policy plunges the economy into a *sudden stop*. To wit, all indicators coming out of China, for instance, indicate a dramatic plunge in production and trade.

In a perfect world, people would self-isolate until infection rates decline sufficiently and public health authorities give the all-clear. At that point, the economic engines would re-start: workers would go back to work, factories would turn back on, ships would load their cargo and planes would take off.

The first thing to note is that, even in that 'perfect' world, the economic damage would be considerable. To see this, assume that, relative to a baseline, containment measures reduce economic activity by 50% for one month and 25% for another month, after which the economy returns to the baseline. Such a sharp but short-lived decline in activity does not seem unreasonable if one thinks that a majority of the labour force is currently shuttered at home in places like Italy or China. In fact, we could anticipate a much more drawn out process.

Yet, that scenario would still deliver a massive blow to headline GDP numbers, with a decline in annual output growth of the order of 6.5% relative to the previous year. Extend the 25% shutdown for just another month and the decline in annual output growth (relative to the previous year) reaches almost 10%!

As a number of economists have pointed out, most of this lost GDP will not be coming back, so it is reasonable to assume a return to the baseline, rather than a later surge in activity (although one could expect a post-recession surge in spending on postponed durable goods purchases). As a point of comparison, the decline in output growth in the US during the 2008-09 Great Recession was around 4.5%. We are about to witness a downturn that could dwarf the Great Recession.

Why are the numbers so much larger now? The short answer is that even at the peak of the financial crisis when the US economy was shedding jobs at the rate of 800,000 workers per month, the vast majority of people were still employed and working. The unemployment rate in the US peaked at 'just' 10%. By contrast, the coronavirus is creating a situation where – for a brief amount of time – 50% or more of people may not be able to work. The impact on economic activity is comparatively that much larger.

Yet, this is the 'optimistic' scenario. We do not live in the 'perfect world' described above. Instead, a downturn of this magnitude will send shock waves through the economy that could do serious damage. Improperly managed, the economic cost could be much larger and longer lasting.

A modern economy is a complex web of interconnected parties: employees, firms, suppliers, consumers, banks and financial intermediaries… Everyone is someone else's employee, customer, lender, etc. A sudden stop like the one described above can easily trigger a cascading chain of events, fuelled by individually rational, but collectively catastrophic, decisions.

Much like people may ignore self-isolation instructions on the grounds that they have better things to do, so can economic actors make individual decisions that amplify and precipitate a much larger economic downturn. Self-isolated customers may have – per-force – fewer opportunities to spend. Yet, faced with uncertainties about future economic prospects, a common impulse may be to cut down spending even further. This, in turn, would make it harder for firms to earn income – even out of current inventories. Faced with declining demand for their products – and in some sectors such as leisure, travel or entertainment the collapse in demand is likely to be near total – firms will want to cut costs, shedding workers to avoid a complete collapse. Banks, with a worsening portfolio of non-performing loans, will naturally want to cut lending, further darkening the prospects of the non-financial sector. Suppliers will ask to be paid, etc. Panic or loss of confidence adds another layer. The result would be cascading business failures, with an associated surge in layoffs and a build-up in financial fragilities.

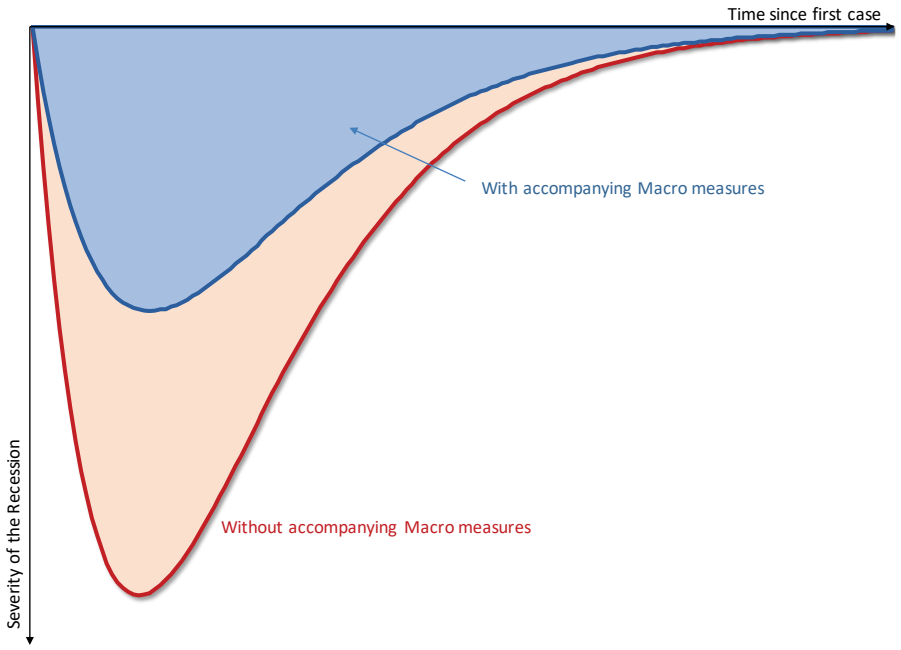
In other words, *a real danger is that the virus mutates and infects our economic system even as we manage to root it out of our bodies*. Its economic form is certainly not as deadly, but it can nonetheless do real damage.

Economists will recognise that the problem in both cases – infection and recession – there are externalities: actions that are individually perfectly sensible, but collectively harmful.

The upshot is that the *economy too faces a 'flatten the curve' problem*. Without proper macroeconomic support, the impact of the downturn could be represented by the red curve in Figure 2. It plots output lost during a sharp and intense downturn, amplified by the economic decisions of millions of economic agents trying to protect themselves by cutting spending, shelving investment, cutting down credit and generally hunkering down. Notice the irony: for the economy, it is isolation that has negative externalities!

In this figure, the blue shaded area represents the economic downturn if we could prevent any additional 'economic infection', i.e. limit the loss of economic activity to the lost production during the public health containment period. As already discussed, this is likely to be a large negative number. The red line – and additional red shaded area – represents the additional loss of economic activity once the economy itself gets 'infected' and the various negative feedback loops and amplification mechanisms described above kick in.

Figure 2 Flattening the recession curve



Not by coincidence, the measures that help solve the health crisis can make the economic crisis worse – at least in the short run – and vice versa: stricter health policy forces a larger economic shutdown, a larger blue-shaded area. Yet, while this may look like a trade-off, it is not really one. Unemployment versus lost lives, there is not much to debate (at least at the infection and fatality rates that we are witnessing). Moreover, even if no containment measures were implemented, a recession would occur anyway, fuelled by the precautionary and/or panic behaviour of households and firms faced with the uncertainty of dealing with a pandemic with an inadequate public health response.

Fortunately, economic policy can act decisively to prevent these `economic infections'. The basic objective here is to also `flatten the curve' and limit the economic damage to what is inevitable given that output is not produced when the labour force is largely quarantined. Modern economic systems – again, when properly managed – contain a number of fail-safes that are designed to prevent or limit catastrophic collapses of this type. Think of these as the 'Intensive care units, beds and ventilators' of the economic system.

Specifically, central banks can provide emergency liquidity to the financial sector. Fiscal stabilisers (the decline in government fiscal revenues and the increase in transfers) also help lessen the blow of economic downturns on households' and firms' bottom lines. In addition, governments can deploy discretionary targeted fiscal measures or broader programmes to support economic activity. These measures help 'flatten the economic curve', i.e. limit the economic loss, as illustrated in Figure 2.

It is important to keep in mind what economic policy can and cannot do. The objective is not and cannot be to eliminate the recession altogether. The recession will be there, it will be massive, but hopefully short-lived. Instead, the priority is to short-circuit all the negative feedback loops and channels of contagion that otherwise amplify this negative shock. Unchecked, the recession threatens to destroy the complex network of economic linkages that allows the economy to operate and would take time to repair.

From this perspective, the priority should be:

1. To ensure that workers can remain employed – and collect their wages – even if quarantined or forced to stay home to look after dependents. Temporary layoff assistance is a key component; without it, it is even unclear whether public health advisories can be followed. Households need to be able to make basic payments (rent, utilities, mortgages, insurance).
2. To ensure that firms can weather the storm without going into bankruptcy, with easier borrowing terms, possibly temporarily waving tax or payroll payments, suspending loan payments, or providing direct financial assistance where needed.
3. To support the financial system as non-performing loans will mount, so as to ensure the crisis does not morph into a financial crisis.

These measures will dampen – and possibly eliminate – the amplification loops and greatly reduce the economic downturn.

The timing is important. Economic measures are most acutely needed while the economy is in shutdown mode. Stimulus packages after the health crisis is over are only needed if we do not manage to act decisively right now to avoid a catastrophic collapse and could potentially be much more costly.

Timing matters in another dimension too. Strict health policies can dampen dramatically the spread of the disease. They have one downside: they leave a larger fraction of the population unexposed to the disease. This implies that containment measures might need to be imposed for a longer time, otherwise the pandemic might flare up again. Indeed, there is some indication that the number of cases in China and Taiwan may be on the rise again.

How long could production remain shut down before the size of the recession becomes catastrophically large? The simple calculations above indicated that one month at 50% and two months at 25% would already cost 10% of annual output. Another two months at 75% production would cost another 5% of annual output…

This indicates that the right strategy is dynamic. In terms of Figure 1, the primary goal of fiscal policy should be to expand the capacity of the health system. Raising the horizontal line in that figure allows both to treat more patients, but also to relax the containment measures. This directly benefits the economy, without degrading the public health response.

Inevitably, these measures will have a heavy fiscal cost. To a first-order approximation, I would consider that governments may need to provide income support on a scale roughly comparable to the output lost. If total output loss is of the order of 10% of annual GDP, I would not be surprised if we need to deploy a comparable level of fiscal resources, even before we account for health expenditures. By comparison, while the markets cheered the UK announcement of a $39 billion stimulus package, this represented 'only' 1.5% of UK output.

Should we worry about this? Put differently, are we constrained in what we can do on the macroeconomic side, much like hospital beds, ventilators and the number of health professionals constrain the capacity of the health system?

I will argue that – with some exceptions – we are not. To start with, borrowing rates for sovereigns are at historical lows – even more so since the beginning of the crisis. The yield on 10-year US Treasuries is at 0.88%; rates in the euro area are similarly low. Even a 10% increase in debt-to-GDP only increases annual interest costs by 0.1% of GDP. If now is not the time to borrow to support an economy on the verge of collapse, when is?

Most advanced economies should be able to face such a one-off increase in public debt. There are important exceptions: euro area countries like Italy, with elevated public debt levels and subject to stringent fiscal rules. Here, the answer is clear: strong signals should be sent that the euro area will support these efforts. This could take many forms. First, there is little doubt that the European Commission will temporarily waive the budgetary rules, allowing countries like Italy to run larger deficits. But this may not be enough. Given Italy's elevated debt levels and the fragility of the current financial environment, one needs to make sure there is a backstop. Substantial support could come from the ECB via its Outright Monetary Transactions (OMT) programme. But an OMT comes with a programme, which is entirely superfluous in this case.

Europeans should recognise that there is nothing 'Italian' about the current crisis, or equivalently that "*We are all Italians!*" It is only a matter of days before France, Germany and other European countries face the same situation. To a common shock, basic economic theory suggests that there should be a common answer.

The proper response, then, would be to issue a *Eurobond* – possibly via the European Stability Mechanism (ESM) – with two specific purposes: to finance necessary health expenditures and to prevent economic dislocation in the affected countries.

Many euro area members are opposed to the creation of a Eurobond. One of the main objections is moral hazard, i.e. the potential risk that countries would apply insufficient fiscal discipline in the future, in the hope that other countries foot the bill. This objection fades when we think of the challenges created by the coronavirus. After all, the RNA strand that constitutes the virus cares little about incentives, or borders for that matter. One certainly cannot fault the policy response of the Italians, which ultimately benefits all other countries in the region (and more generally). They deserve all the European support they can get.

A euro area 'coronavirus bond' would send a strong signal that European countries stand behind the weakest of their member when confronted by a common shock. It will be more powerful than monetary policy contortions in restoring economic confidence and enabling the health authorities in all the affected European countries to fight the real battle.

Should a targeted Eurobond issuance prove a bridge too far for European policymakers, there is an alternative. A coordinated jumbo sovereign debt issuance – between 10% and 20% of GDP – coordinated with an expansion of quantitative easing by the ECB would provide much needed fiscal space.

Large-scale debt issuance may also going be a problem for many developing and emerging countries. Here, again, some backstop is needed. Financial assistance from international organisations (the IMF, World Bank, regional development banks) is the way to go. Upstream, advanced countries should be willing to provide the necessary financial firepower to these institutions so that they can help out as quickly and efficiently as possible. This is good self-oriented health policy. If infection rates in the emerging part of the world are out of control, it makes it that much harder to regain control in the rest of the world. It is also good self-oriented economic policy: financial assistance now means less, possibly much less, fiscal solvency problems in the future for these countries.

The bottom line is that we need bold policy initiatives to contain the looming recession. The right combination starts with public health policy in the driver seat to limit 'human contagion.' Fiscal and financial policies should then be designed to accompany the resulting shock to our economic system and prevent 'economic contagion'. This is not the time to be cautious.

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3 Limiting the economic fallout of the coronavirus with large targeted policies

Gita Gopinath[1]
IMF

The human costs of the coronavirus outbreak have risen at an alarming rate and the disease is spreading across more countries.

The first priority is clearly to keep people as healthy and safe as possible. Countries can help by spending more to boost their health systems, including on personal protective equipment, screening, diagnostic tests, and additional hospital beds (Gaspar and Mauro 2020).

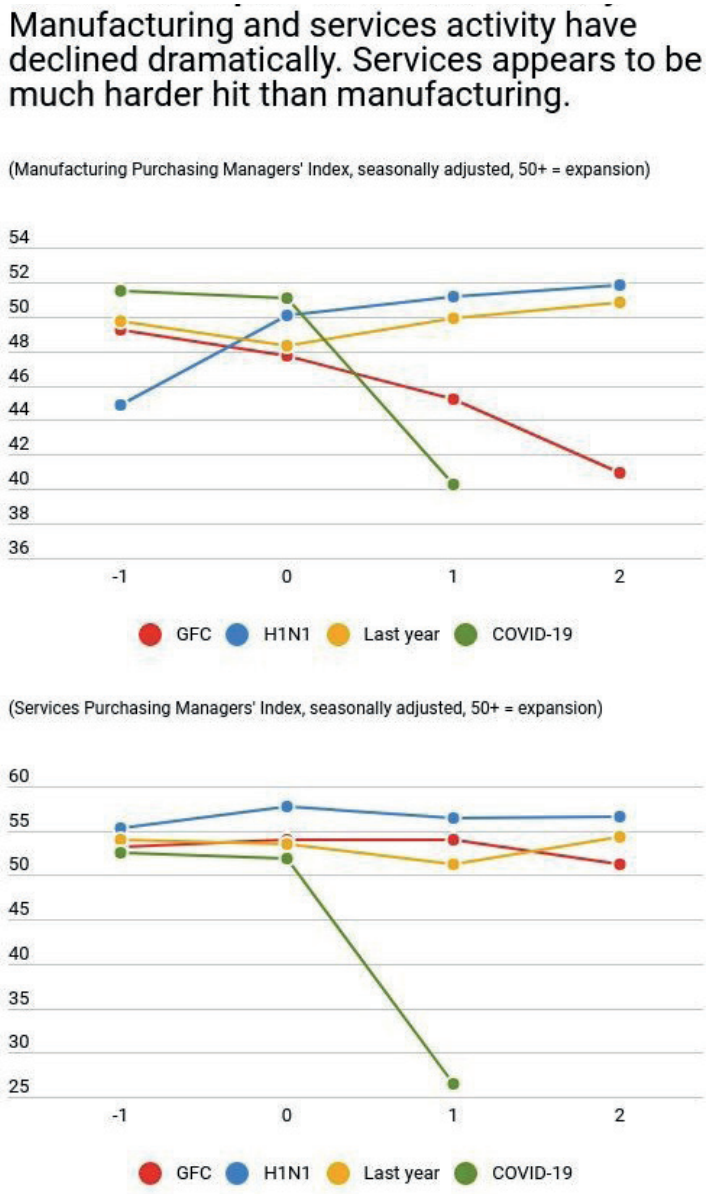
Without a vaccine to stop the virus, countries have taken measures to limit its spread, like travel restrictions, temporary school closures, and quarantines. Such measures also buy valuable time to avoid overwhelming health systems.

The economic impact is already visible in the countries most affected by the outbreak

The economic impact is already visible in the countries most affected by the outbreak. For example, in China, manufacturing and service sector activity declined dramatically in February. While the drop in manufacturing is comparable to the start of the global financial crisis, the decline in services appears larger this time – reflecting the large impact of social distancing.

1 This chapter first appeared on the IMF Blog on 9 March 2020. The views expressed are those of the author(s) and do not necessarily represent the views of the IMF and its Executive Board.

Figure 1 COVID-19's impact on China's economy

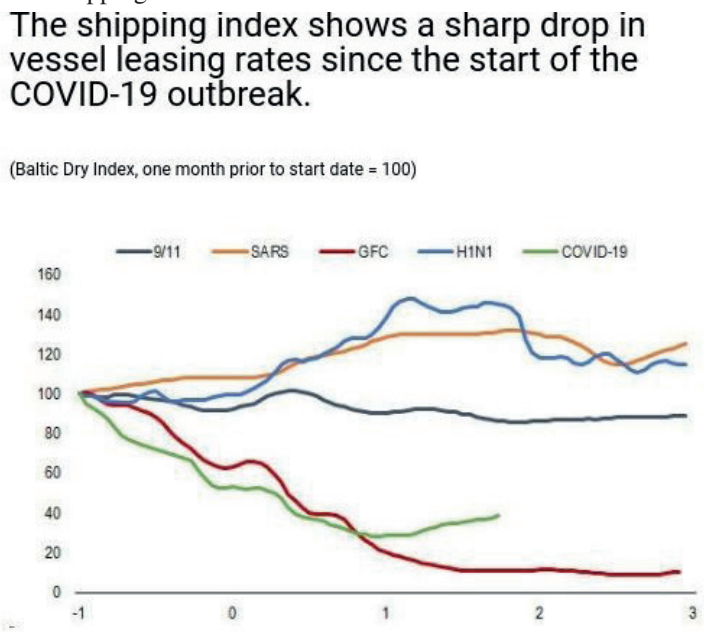


Sources: Haver Analytics and IMF staff calculations

Note: The x-axis shows the months elapsed since the indicated event, with t = 0 the initial impact month. Specific start dates by event are: COVID-19 = Coronavirus Disease 2019 (January 2020), H1N1 = Influenza A virus subtype H1N1 (April 2009), GFC = Global Financial Crisis (September 2008), and last year = January 2019.

The global supply of and demand for dry bulk shipping stocks such as building materials and commodities has also dropped, similar to during the most acute phase of the global financial crisis, reflecting curtailed economic activity associated with the unprecedented containment effort. This drop was not seen in recent epidemics or after the 9/11 attacks.

Figure 2 Shipping costs



Sources: Haver Analytics and IMF staff calculations.

Note: The x-axis shows the months elapsed since the indicated event, with t = 0 the initial impact month. Underlying data are at daily frequency. Specific start dates by event are: COVID-19 = Coronavirus Disease 2019 (11 January 2020), H1N1 = Influenza A virus subtype H1N1 (15 April 2009), GFC = Global Financial Crisis (15 September 2008), SARS = severe acute respiratory syndrome (16 November 2002), and 9/11 = (11 September 2001).

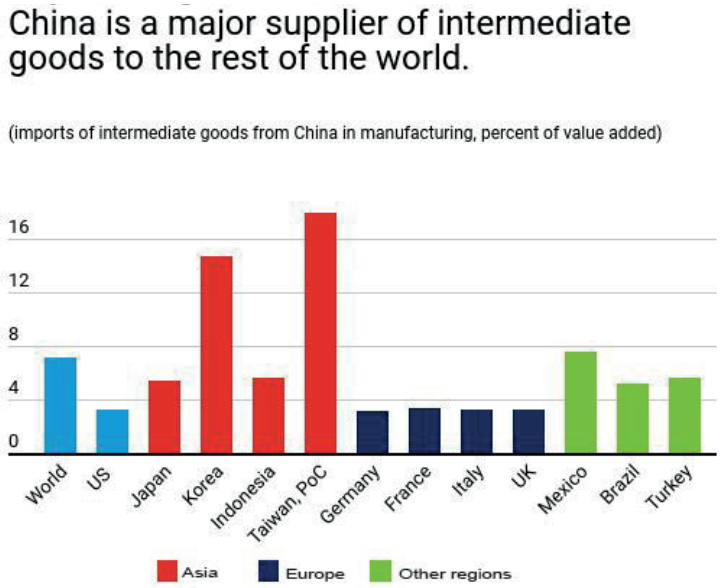
Supply and demand shocks

The coronavirus epidemic involves both supply and demand shocks. Business disruptions have lowered production, creating shocks to supply. And the reluctance of consumers and businesses to spend has lowered demand.

On the supply side, there is a direct reduction in the supply of labour from unwell workers, from caregivers who have to take care of kids because of school closures, and sadly, from increased mortality. But an even larger effect on economic activity occurs because of efforts to contain the spread of the disease through lockdowns and

quarantines, which lead to a drop in capacity utilisation. In addition, firms that rely on supply chains may be unable to get the parts they need, whether domestically or internationally. For example, China is an important supplier of intermediate goods to the rest of the world, particularly in electronics, automobiles, and machinery and equipment. The disruption there is already having knock-on effects on downstream firms. Together, these disruptions contribute to a rise in business costs and constitute a negative productivity shock, reducing economic activity.

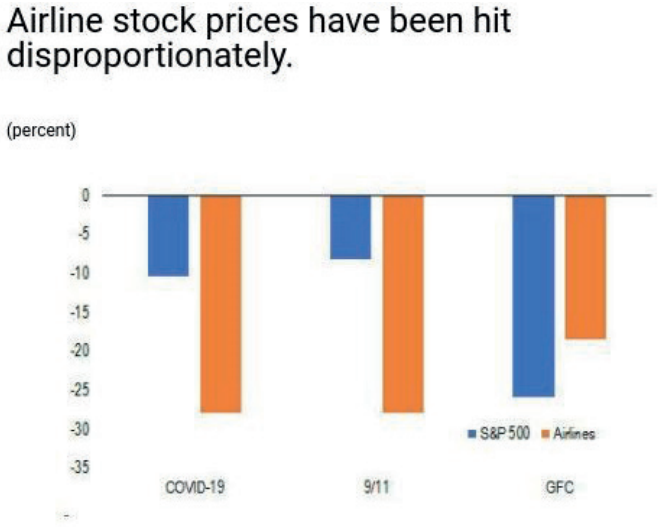
Figure 3 Key link in global value chains



Source: IMF staff calculations using 2014 World Input-Output Database.
Note: Taiwan, PoC = Taiwan, Province of China.

On the demand side, the loss of income, fear of contagion, and heightened uncertainty will make people spend less. Workers may be laid off, as firms are unable to pay their salaries. These effects can be particularly severe for some sectors such as tourism and hospitality – as seen for example in Italy. Since the start of the recent US equity market selloff on 20 February 2020, airline stock prices have been hit disproportionately, in line with the post-9/11 terrorist attacks but lower than after the global financial crisis. In addition to these sectoral effects, worsening consumer and business sentiment can lead firms to expect lower demand and reduce their spending and investment. In turn, this would exacerbate business closures and job losses.

Figure 4 Responses of US stock prices



Sources: Bloomberg Finance LP and IMF staff calculations

Note: Responses after 10 business days. Starting dates are 20 February 2020 for COVID-19, 10 September 2011 for 9/11, and 26 September 2008 for the global financial crisis (after which the S&P 500 experienced the deepest 10-day contraction).

Financial effects and spillovers

As seen in recent days, borrowing costs can rise and financial conditions tighten, as banks suspect consumers and firms may be unable to repay their loans on a timely basis. Higher borrowing costs will expose financial vulnerabilities that have accumulated during years of low interest rates, leading to a heightened risk that debt cannot be rolled over. A reduction of credit could amplify the downturn arising from the supply and demand shocks.

And when these shocks are synchronised across many countries, the effects can be further amplified through international trade and financial linkages, dampening global activity and pushing commodity prices down. Oil prices have fallen dramatically in recent weeks and are about 30% below their levels at the start of the year. Countries reliant on external financing could find themselves at risk of sudden stops and disorderly market conditions, possibly requiring foreign exchange intervention or temporary capital flow measures (IMF 2012).

Targeted economic policies are needed

Considering that the economic fallout reflects particularly acute shocks in specific sectors, policymakers will need to implement substantial targeted fiscal, monetary, and financial market measures to help affected households and businesses.

Households and businesses hit by supply disruptions and a drop in demand could be targeted to receive cash transfers, wage subsidies, and tax relief, helping people to meet their needs and businesses to stay afloat (Gaspar and Mauro 2020). For example, among other measures, Italy has extended tax deadlines for companies in affected areas and broadened the wage supplementation fund to provide income support to laid-off workers, Korea has introduced wage subsidies for small merchants and increased allowances for homecare and job seekers, and China has temporarily waived social security contributions for businesses. For those laid off, unemployment insurance could be temporarily enhanced by extending its duration, increasing benefits, or relaxing eligibility. Where paid sick and family leave is not among standard benefits, governments should consider funding it to allow unwell workers or their caregivers to stay home without fear of losing their jobs during the epidemic.

Central banks should be ready to provide ample liquidity to banks and nonbank finance companies, particularly to those lending to small and medium-sized enterprises (SMEs), which may be less prepared to withstand a sharp disruption. Governments could offer temporary and targeted credit guarantees for the near-term liquidity needs of these firms. For example, Korea has expanded lending for business operations and loan guarantees for affected SMEs. Financial market regulators and supervisors could also encourage, on a temporary and time-bound basis, extensions of loan maturities.

Broader monetary stimulus, such as policy rate cuts or asset purchases, can lift confidence and support financial markets if there is a marked risk of a sizable tightening in financial conditions (with actions by large central banks also generating favourable spillovers for vulnerable countries). Broad-based fiscal stimulus consistent with available fiscal space can help lift aggregate demand, but would most likely be more effective when business operations begin to normalize.

Considering the epidemic's broad reach across many countries, the extensive cross-border economic linkages, as well as the large confidence effects impacting economic activity and financial and commodity markets, the argument for a coordinated, international response is clear. The international community must help countries with limited health capacity avert a humanitarian disaster. The IMF stands ready to

support vulnerable countries with different lending facilities, including through rapidly disbursing emergency financing, which could amount up to $50 billion for low-income and emerging market countries (Georgieva 2020).

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4 Italy, the ECB, and the need to avoid another euro crisis

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Start with the basics, the first two points being the most important.

- The Italian government is behaving extremely responsibly – more so than many.

It is putting health considerations and the control of the epidemic ahead of short-term economic considerations – exactly as it should.

This commitment will have large economic and fiscal costs. But, at the interest rate that prevailed until yesterday (less than 1%), even a large increase in the debt ratio – even of the order of 10% to 20% – does not put debt sustainability into question. As we know, however, there is another equilibrium, one in which investors' fears are largely self-fulfilling.

> *At the interest rate that prevailed until yesterday (less than 1%), even a large increase in the debt ratio – even of the order of 10% to 20% – does not put debt sustainability into question.*

By asking for higher rates, they increase the interest burden, make life difficult for the government, and may lead to the very crisis they fear. Such an increase in rates is totally avoidable. It takes some institution to take the opposite side, buy as much as needed, and maintain the low rates. In the euro area, this has to be the ECB.

The ECB can intervene in the context of an Outright Monetary Transactions (OMT) programme. This, however, requires the agreement both of Italy and of all euro members. Italy may be reluctant to accept the conditionality that comes with such a programme. But in this case, conditionality should be very limited, and easy to define: spend what you must on crisis containment and commit to wind down everything once the crisis is over. Full stop. No stigma.

Other countries might balk. They should not. There is no moral hazard here, no need for punishment for past sins. Just help for a member country that needs help, which can be provided at likely zero cost, and in the process saving the euro area.

> *Conditionality should be very limited, and easy to define: spend what you must on crisis containment and commit to wind down everything once the crisis is over. Full stop. No stigma.*

The OMT route takes time, however. The ECB, instead, can act directly and stand ready to buy Italian government bonds at a given rate. This is what the Bank of Japan does, and it works (yields have not increased).

The constraints on the scope of intervention by the ECB are the capital key and a 33% limit on ECB holdings of debt of a particular country (which is not yet binding for Italy). Both are justified in normal times. Both can be suspended in exceptional times, and both should be.

The last thing the world needs at this juncture is another euro crisis. The ECB should and can avoid it.

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5 The EU must support the member at the centre of the COVID-19 crisis

Alberto Alesina and **Francesco Giavazzi**
Harvard University; Bocconi University

Why Italy became the centre of the COVID-19 epidemic remains to be understood. Most likely it was only bad luck. But the medical situation today is dire.

Twelve days since the number of confirmed cases in Italy exceeded 100, the total number of active cases exceeded 12,000, compared with 6,000 in South Korea and 8,000 in China ex-Hubei. Per million people, the rate is 350 in Italy, 56 in China, 160 in South Korea and 150 in Iran (numbers from the WHO as of 15 March 2020). The number of deaths as of last weekend was half that of China (1,440 against 3,200) and 20 times that of South Korea.

The current constraint is the number of intensive care beds available per day for new patients: in Lombardy this is now close to zero, although hospitals and the government are doing their best to increase supply.

As very clearly explained by Gourinchas (2020) in his excellent essay, "Flattening the Pandemic and Recession Curves", the containment of the pandemic is closely linked to the capacity of the healthcare system. In terms of hospitals beds per 1,000 inhabitants, Italy is close to Finland (according to OECD data) and slightly higher than Israel and Spain, but far below Japan, South Korea and Germany.

The first priority is to expand hospital capacity

The first policy priority is obviously expanding hospital capacity and containing contagion. The severe restrictions to people's mobility imposed a week ago by the Italian government mirror those in the province of Hubei and are now being followed by other countries, including France, Spain, Switzerland and Germany. The US government, misled by the Trump administration, is a laggard. Italy did not send the army onto the

streets, but with a broadly admirable sense of discipline, Italians followed the new rules very closely after an understandable stop and start beginning. Now nobody goes out except briefly for groceries.

Probably the new rules should have been introduced earlier since it takes at least two weeks for such restrictions to slow down contagion. Still, Italy has acted faster than other countries, such as France, Germany, Spain, Switzerland, and especially the US. The UK seems to be taking a do-nothing approach. We shall see what that leads too.

Containing the economic crisis

What about the policy response to the implied economic shock? The planned response of the Italian government was initially very modest. However, it was rapidly raised: the total sum allocated on 15 March is about 1.5% of GDP, which will raise the budget deficit to above 3% of GDP limit stipulated by euro area rules.

Presenting the decree, Finance Minister Roberto Gualtieri said: "Nobody will lose their job because of the virus". We would have added: "And if someone loses her or his job, they will be guaranteed an income to support them until they find a new one". In other words, it would have been preferable to annouce an objective, not a number.

For two reasons. First, to avoid a negative shock to consumption, you want people to be reassured that whatever happens because of the epidemic they will not lose their salary, whatever that costs. To limit the reduction in consumption, families must be given a certain level of certainty. They must be guaranteed that if the companies they work for close due to the virus, their incomes will be guaranteed, whatever the type of company they work in and whatever their contract. And this must also apply to young people. We need decisive surgery – an aspirin could end up costing much more.

> *Finance Minister Gualtieri said: "Nobody will lose their job because of the virus". We would add: "And if someone loses her or his job, they will be guaranteed an income to support them until they find a new one". In other words, we need an objective, not a budget number.*

"No one will have to lose their income because of the virus" should be the analogy, mutatis mutandis, of Mario Draghi's "Whatever it takes" speech which saved the euro. In Italy, however, as in many countries – and for good reasons – the budget law does not allow parliament to adopt bills that authorise unconditional spending. The bill about to be approved by parliament, however, is in practice unconditional – although it

does imply a number for the deficit. This is because the change in the unemployment benefits rules – which extend access to virtually all workers – are indeed unconditional and apply to everybody, even workers on temporary contracts.

What this means is that after a few months, the government might have to refinance the bill. In fact, it has already announced a follow-up decree to be issued on 1 April indicating that the initial figure will be raised over time as needed. Then there are firms, especially those in the tourism business (13% of Italy's GDP), that will not see revenues for many months, possibly longer. Here the principle should be: "No firm must be forced to go bankrupt because of the COVID emergency" because a bankruptcy implies an irreversible loss. The ECB's decision to restart the TLTRO programme goes in the right direction, as does the temporary suspension of tax payments.

> *This is a case in which promising to spend more if necessary may, in the end, make it the spending unnecessary.*

Of course, the burden on the Italian state will be high. But those who criticise the government decree because it is risky for public finances finances are underestimating the importance of the signals – and the effect these signals will have on the behaviour of families and businesses. This is a case in which promising to spend more if necessary may, in the end, make it the spending unnecessary.

The national debt issue and a temporary budget relaxation

The emergency in which Italy finds itself shows, at our expense, the high cost of high public debt. If Italy had not accumulated debt of over 130% of GDP, for no good reason, in years when the economy was growing, we could – and should – be spending much more today. The investors we are asking to finance this emergency spending would not be worried; the spreads wouldn't be rising. All those who did not understand why being fiscally rigorous in in normal times was so important now have their lesson.

Having said that, after the peak of the coronavirus passes, it is important that this unconditional deficit spending does not become a 'free for all' for any kind of spending. It should not be used as excuse for spending on this or that politically useful constituency. That's the sort of situation in which the parasites raise their ugly heads; when governments try to pick winners and losers, and the losers often end up picking the government (Baldwin and Robert-Nicoud 2009). If that happens, the government will fail in a way which would be a monumental disaster for Italian democracy – to say nothing of the debt-to-GDP ratio. The stakes are very high.

> *After the peak of the coronavirus passes, it is important that this unconditional deficit spending does not become a 'free for all' for any kind of spending.*

Without excusing the mistakes Italy has made in the past (and hoping that they are not repeated), this is not the time for the EU to impose constraints. Despite the initial indifference and lack of foresight of France, Germany and other countries, which is finally is changing (too late), the virus will come to them too. And then it can only be contained it with a determined, credible and ideally joint European effort – "whatever it takes".

There are two options. Either each country is left to find the additional resources alone, or they are part of a EU-wide programme. In the first case, we risk a repeat of the 2010-14 euro crisis, as markets will start doubting the solvency of some countries. To avoid this the ECB could step in, for example by expanding the size of the quantitative easing programme and lifting – at least temporarily – the constraints on asset purchase (the capital key in particular). Alternatively, the additional spending could be part of a EU program. This is a "symmetric shock", not an "asymmetric shock" as in the Euro Crisis. We are all in the same boat during this crisis – a perfect occasion to create a European safe asset and turn the euro into a "normal currency." If not now, then when?

Concluding remarks

Italy today is on the frontline of this crisis. This is the time for the EU to support Italy in every possible way. It should be reassuring markets by saying that Italy will not be left on its own, as Ursula von der Leyen has said and Christine Lagarde has not, showing her inadequacy in her post. More generally, EU institutions need be at their best and fastest – populists everywhere are already using the panic created by COVID-19 to further damage the standing of the EU in the eyes of Italians stuck in their homes without anything to do other than reflect on their fate and blame someone (the EU in particular). Christine Lagarde's ditching of Draghi's "Whatever it takes" has given populists ample latitude already.

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6 Helicopter money: The time is now

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The rapid spread of the coronavirus in many countries constitutes a major challenge to their health systems. Under all realistic scenarios, an overwhelming number of human lives will be lost, partly as a result of the inability to provide proper intensive care to all patients that need it. This has led many governments to attempt to slow down the rate of infection through a number of measures, including home confinement, travel restrictions, closing of restaurants and theatres, suspension of sports events, and so on.

Those measures, while necessary, are bound to have a direct impact on the economy, operating through different channels.[2]

- First, they will have a direct effect on production and sales in many sectors, where activity will collapse partly or completely during the emergency, either as a result of supply disruption (due to the unavailability of inputs, labour or otherwise) or a fall in demand (due to the forced change in consumption patterns resulting from health-related measures).

A direct loss of GDP is thus unavoidable, given the path of action required to contain the spread of the virus. And if prolonged by more than one or two months, it is bound to result in a cumulative loss of output similar to or larger than that experienced during the last financial crisis.

That direct loss of GDP, which will be largely reflected in a decline in the consumption of goods and services during the health crisis, will be painful but relatively bearable. Unfortunately, that direct cost may be amplified by the presence of indirect effects if the fall in output leads to a significant reduction in employment (with the consequent loss of income and consumption). Alternatively, firms may try to keep their payroll unchanged

1 I am grateful to Mark Gertler and Francesco Giavazzi for comments.
2 See Baldwin (2020), Benassy-Quere et al. (2020) and Gourinchas (2020) for a related discussion of the macroeconomic consequences of the health crisis, with somewhat different policy recommendations.

and keep meeting other fixed expenses (e.g. rent, interest) during the inactivity period, by taking loans from banks. But banks may be reluctant to extend those loans, given the probability of default and the likely deterioration underway in their balance sheets. In the case banks went ahead and provided that additional funding, the resulting increase in firms' indebtedness would weaken their balance sheets permanently and may cause – sooner or later – a wave of bankruptcies or, in the best case, a highly deteriorated balance sheet.

A swift and well targeted policy response that is commensurate to the size of the challenge is needed to minimise the indirect (and likely more persistent) economic effects of the coronavirus crisis. One approach would be for governments to step in and provide affected firms (and self-employed workers) with the funds to keep meeting their payroll and unavoidable expenses, without raising their financial liabilities. That assistance would ideally take the form of a (non-repayable) transfer during the period of forced inactivity. A component of that net transfer should consist of immediate (and permanent) tax relief.

Unfortunately, such a strategy would only transfer the problem to governments, which would need to raise taxes (thus increasing the burden of households or firms, counterproductively) or to borrow in capital markets and increase their debt burdens (and be forced to raise taxes in the future).[3] Even if the EU were to relax the restrictions on that further borrowing, it would be a risky strategy given the high debt ratios (above 100% of GDP in some cases) in many of the most affected countries, with the consequent risks of a debt crisis and an immediate rise in spreads.

An eventual massive purchase of the newly issued debt by the central bank through an expanded quantitative easing programme would certainly facilitate its absorption but would not prevent the increase in governments' debt ratios, with the risks of putting some countries' public finances on an unsustainable path.

> *There is an alternative … direct, unrepayable funding by the central bank of the additional fiscal transfers deemed necessary, an intervention commonly known as 'helicopter money'*

3 A massive debt-financed fiscal stimulus at the European level is the solution proposed in e.g. Benassy-Quere et al. (2020) and Gourinchas (2020).

Fortunately, there is an alternative to a strategy based on higher taxes and/or more government debt in order to finance such an emergency fiscal programme, albeit one that has remained a taboo among most economists and policymakers – namely, direct, unrepayable funding by the central bank of the additional fiscal transfers deemed necessary, an intervention commonly known as 'helicopter money'.[4]

Central banks have the ability to create money in the form of currency or, more relevantly, a credit to an account held at the central bank. In the typical arrangement, only banks and governments hold an account at the central bank. In the current context, the central bank could credit the government's account (or governments, in the case of the ECB) for the amount of the additional transfers and for the duration of the programme. That credit would not be repayable, i.e. it would amount to a transfer from the central bank to the government. From an accounting viewpoint, it would be captured by a reduction in the central bank's capital or by a permanent annotation on the asset side of its balance sheet. Thus, it should not have an impact by itself on the central bank's profits which are periodically transferred to the government, especially if the interest rate on reserves were to remain at zero. Note that such a transfer from the central bank to the government would be equivalent to a commensurate purchase of government debt by the central bank, followed by its immediate writing-off, thus no longer having an impact on the government's effective debt liabilities.[5]

> *Money-financed fiscal interventions are a powerful tool … policymakers should resort to them only in emergency situations … Unfortunately, that emergency is currently upon us … If ever, the time for helicopter money is now.*

The money-financed fiscal intervention described above raises a number of issues.

- First, it is clear that there are numerous practical implementation challenges in adopting such a policy, including the need to determine (quickly) the size of transfer to which each firm would be entitled.

But those problems seem of second order relative to the macroeconomic challenge facing many countries, and they can be surmounted with sufficient political determination.

- Second, such an intervention is likely to be considered illegal in many jurisdictions.

In particular, the fact that monetary policy is (at least temporarily) driven by the requirements of the fiscal authority may be perceived as an outright violation of the principle of central bank independence. But we have seen many occasions in which rules that were considered sacred have been relaxed in the face of extraordinary circumstances (such as the ECB's decision to buy government debt during the European debt crisis). Furthermore, the central bank could agree to participate voluntarily in such a scheme, thus preserving its formal independence.

- Finally, and legal issues aside, it is clear that a recurrent use of such policies by governments could be a source of an inflation bias and bring about changes in individual behaviour likely to undermine their effectiveness.

But this should not be a concern in the current context, since the reliance on money financing would be strictly restricted to the duration of the emergency measures linked to the health crisis. This is a commitment for which fulfilment can always be guaranteed by the central bank, which would put its reputation at stake.

Concluding remarks

Money-financed fiscal interventions are a powerful tool. The caveats mentioned above suggest that policymakers should resort to them only in emergency situations, when other options are bound to be ineffective or trigger undesirable consequences, current or future (e.g. a debt crisis down the road). Unfortunately, that emergency is currently upon us, provoked by the coronavirus. If ever, the time for helicopter money is now.

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7 What the stock market tells us about the consequences of COVID-19

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The outbreak of the novel coronavirus (COVID-19) will go down in history as a major example of a neglected risk. The topic "infectious diseases" was ranked tenth in terms of impact in the World Economic Forum's *Global Risk Report 2020* (WEF 2020, published on 15 January 2020), but was considered quite unlikely. The attention of corporate decision makers and politicians was mainly focused on traditional sources of business risk and pressing environmental issues. Only a few weeks later, however, their attention shifted dramatically.

According to the World Health Organization (WHO), by 10 March 2020, COVID-19 had led to more than 110,000 confirmed infections and 4,015 deaths in 110 countries – and the numbers are increasing rapidly. Huge disruptions to personal lives are taking place, including curfews (or situations resembling curfews) for a great many individuals. Beyond the immediate tragedies of death and disease, indirect effects through fear are taking hold of an uncountable number of people around the world.

In light of the massive impacts of the coronavirus on public physical and psychological health, the economic and financial impacts may seem secondary. However, the economic effects are potentially going to be of first-order importance. Economists are beginning to consider these consequences. For example, the contributions in this and the earlier Vox eBook (Baldwin and Weder di Mauro 2020) include a number of viewpoints in various domains of the economy. Earlier work also provides valuable insights. For example, Adda (2006) analyses outbreaks of a number of viral diseases in France and evaluates the (sometimes subtle) effects of policies such as school closures and the closure of public transportation networks. Ultimately, predictions are difficult because the spread of the disease, the policy responses, and individual behaviour are unknown.

An important tool for understanding the consequences of events like the emergence of COVID-19 is to consider asset price changes. These price changes capture current expectations. Thus, the researcher need not trace all the future changes to cash flows and discount rates separately (Schwert 1981). Effectively, asset markets provide ongoing, high-stakes surveys regarding future expected outcomes.

Incubation, outbreak, and fever

In new paper (Ramelli and Wagner 2020), we provide a first examination of the stock price reactions to the outbreak of COVID-19. We investigate three periods, which we label *Incubation* (Thursday, 2 January 2020 to Friday, 17 January), *Outbreak* (Monday, 20 January to Friday, 21 February), and *Fever* (Monday, 24 February to at least Friday, 6 March).[1]

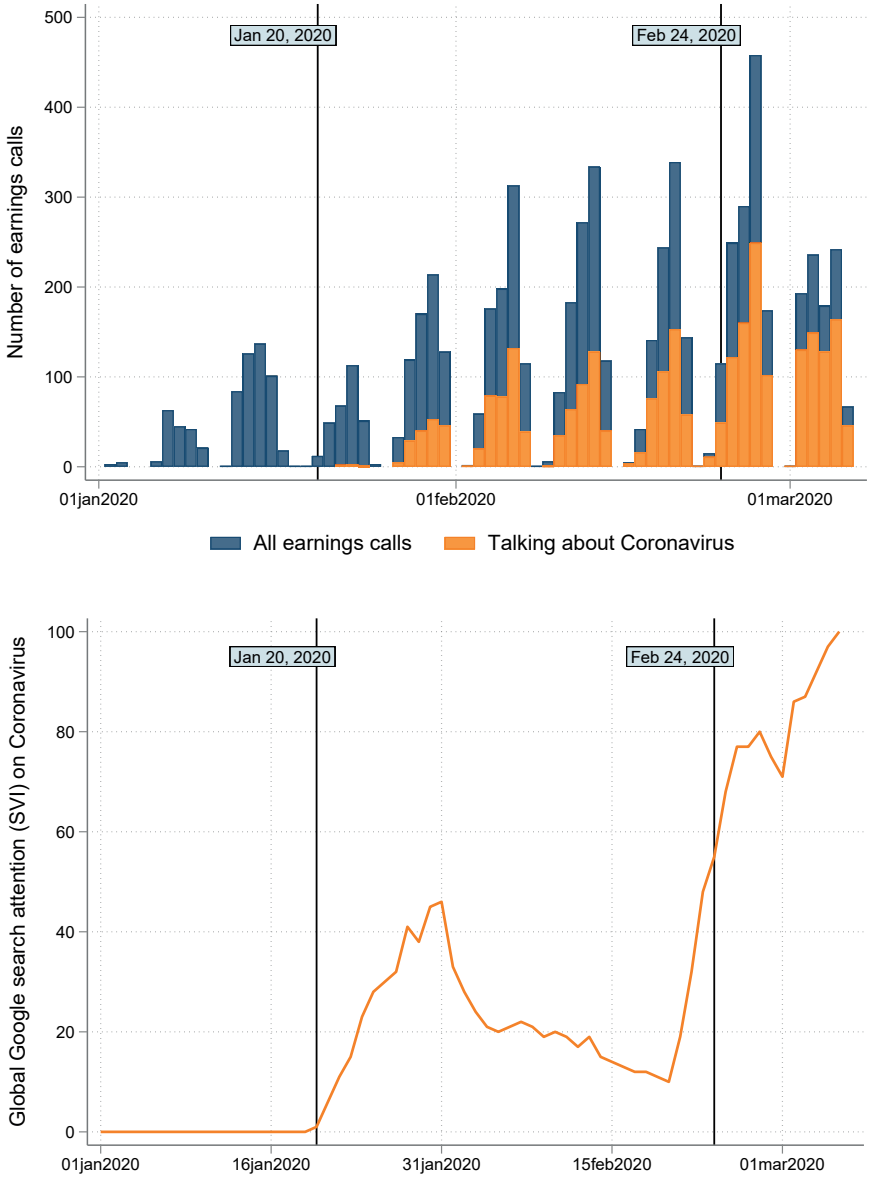
- **Incubation**: On 31 December 2019, cases of pneumonia detected in Wuhan, China, were first reported to WHO and on 1 January 2020, Chinese health authorities closed the Huanan Seafood Wholesale Market after it was discovered that wild animals sold there may be the source of the virus. The first trading day after these events was 2 January 2020.
- **Outbreak**: On 20 January, Chinese health authorities confirmed human-to-human transmission of the coronavirus, and WHO issued the first situation report on the outbreak.
- **Fever**: On Sunday 23 February, Italy placed almost 50,000 people in strict lockdown in Lombardy (one of the most populated and productive regions in Europe) in an attempt to control the outbreak after registering its first deaths from COVID-19 on Saturday, 22 February.

The events initiating the Outbreak and Fever periods markedly changed the attention of market participants. Figure 1 shows that in earnings conference calls, corporate managers and analysts only starting paying attention to the novel coronavirus after 20 January. The first international conference call discussing either of the keywords ‘‘coronavirus’’, ‘‘covid-19’’, ‘‘2019-ncov’’, or ‘‘sars-cov-2’’ took place on 22 January. The fraction of firms discussing these topics increased markedly over time, to around 30% at the end of the Outbreak period. When the Fever period began, that fraction increased to approximately 50%.

1 For a full timeline see https://en.wikipedia.org/wiki/Timeline_of_the_2019-20_coronavirus_ outbreak.

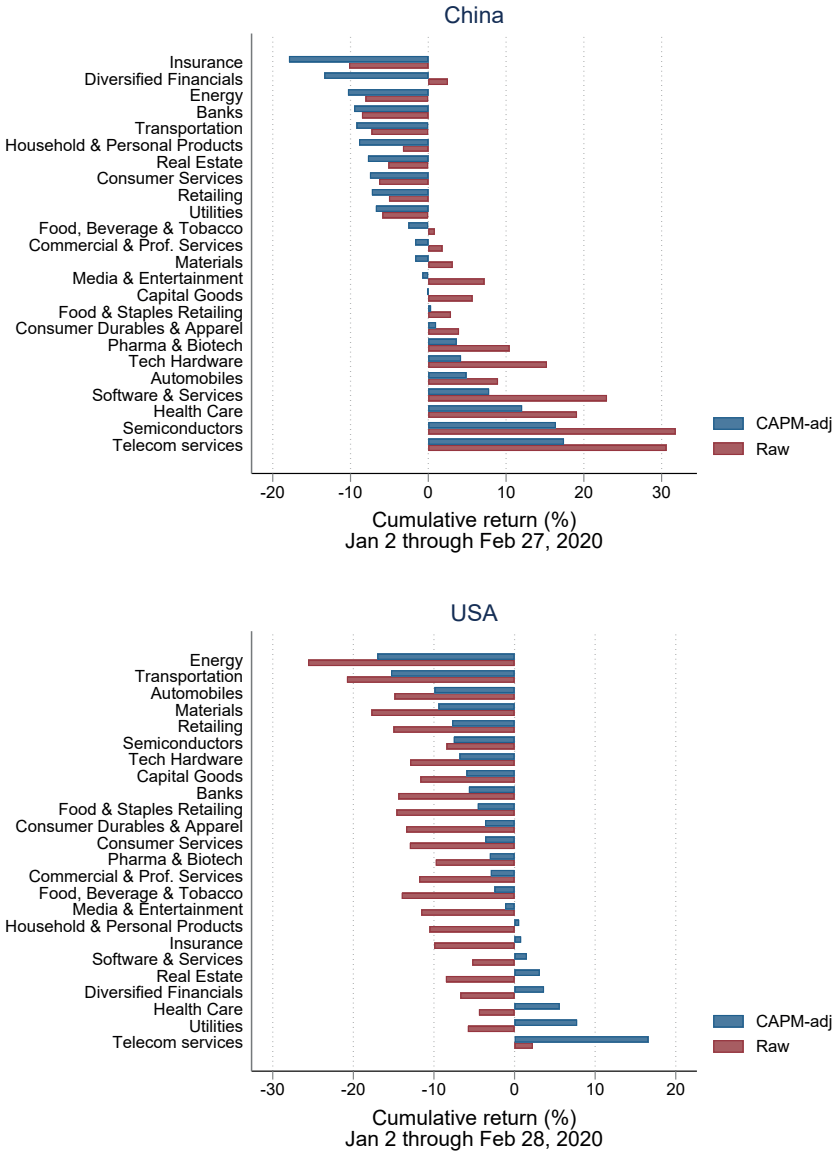
The global Google search intensity on coronavirus increased massively after 20 January. It subsided somewhat after its interim peak at the end of January, but when the Fever period started, the search intensity spiked.

Figure 1 Global attention to coronavirus



International stock returns by industry

Figure 2 Stock returns by industry in China and the US, January to February 2020

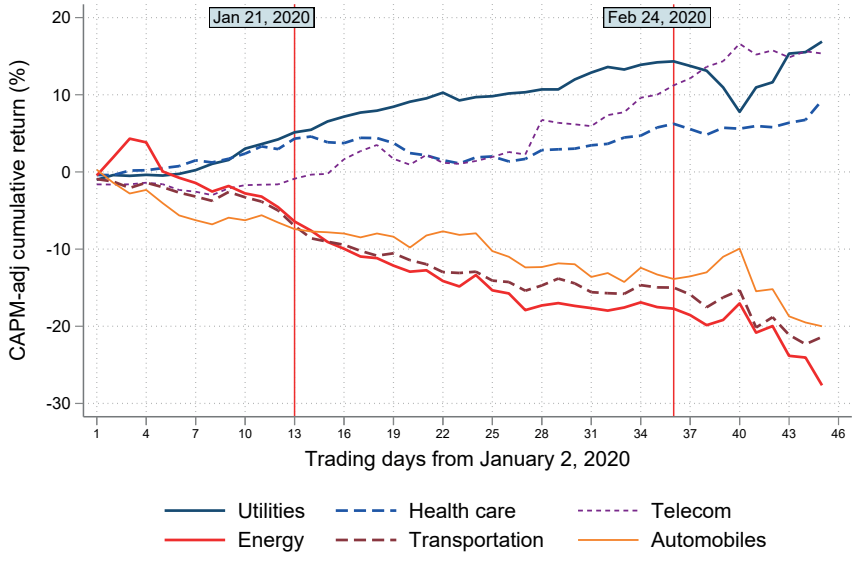


We begin our analyses with an overview of industry-level returns in China, the US, Europe, and Asia ex China, throughout the full months of January and February 2020 (the latest data available to us for countries other than the US). While discussions in the media have generally used raw returns, we also compute CAPM-adjusted returns – that is, returns adjusted for a firm's exposure to the overall market.

Figure 2 plots the industry averages of cumulative returns for China (top panel) and the US (bottom panel). Energy, Retailing, and Transportation were losers both in China and the US. Healthcare gained substantially in both (and other) countries. There are also differences across regions. For example, the Semiconductor sector gained sharply in China, but lost in the US. Utilities lost in China, but gained strongly in the US.

Next, we consider *when* these returns were realised. For this question, we study reactions in the US, which initially was not directly affected.[2] Figure 3 plots the CAPM-adjusted returns over time for a selected subset of industries.

Figure 3 Relative winning and losing US industries, 2 January to 6 March 2020



2 The number of cases in the US, while relatively limited at the time of writing this column, is poised to rise rapidly, as the disease spreads and as systematic testing begins.

Interestingly, of the total run-up (loss) that US firms in Healthcare and Utilities (Energy and Transportation) experienced in the Incubation and Outbreak periods, about one third occurred already in the Incubation period. And also strikingly, in the Fever phase there was temporarily strong reversal in the relative returns (as investors apparently sold all stocks), followed by a whipsaw pattern (as in the aggregate market).

Firm-level stock returns: The roles of trade and debt

Next, we quantify the effects of various firms-specific factors.

First, we employ data on US firms' international exposure from Hoberg and Moon (2017). These authors analyse 10-Ks for annually updated firm disclosures regarding their international activities, counting the number of times each country is mentioned, distinguishing between input reliance and exposure to the export market.

We find that US firms with any Chinese exposure experienced 7.1% lower CAPM-adjusted returns from 2 January to 6 March than comparable firms (5.3% when controlling for industry fixed effects). More mentions of either export or supply chain exposure to China resulted in substantially lower cumulative abnormal returns (CARs) over the whole period. A one standard deviation higher export (input) exposure is associated with 1.91% (1.80%) lower CARs.

These considerations hold also when looking at the stock price effects of firms' share of foreign revenues (not necessarily from China), indicating a general pessimism of financial markets regarding the disruptive impact of COVID-19 on global trade.

Figure 4 plots the sensitivity over time of CAPM-adjusted returns per one-time mention of China in a firm's disclosure of its international activities. Interestingly, as for Chinese supply chain exposure, about half of the overall effect until the end of the Outbreak period was actually realised in the first part of January. Thus, it is conceivable that sophisticated investors had already started pricing in the concerns about supply chain disruptions in the Incubation period. It is notable that these asset-price changes occurred at a time when firms exporting to China in particular should, in principle, have done comparatively well, given the arguably good news contained in the 'Phase 1' trade agreement between China and the US signed on 15 January.

In the Fever period, the market entered a feverish whipsaw pattern of aggregate returns, and so did the value of firms' international exposure, even though little fundamental information of different signs appears to have arrived each day. Herd behaviour appears to have gripped investors.

Finally, in the Fever phase concerns about corporate debt (leverage) and corporate liquidity (cash holdings) started to play an important role, as seen in Figure 5. These results suggest that market participants are increasingly worried that the COVID-19 crisis may turn into a financial crisis more broadly.

Figure 4 Stock prices and exposure to China, 2 January to 6 March 2020

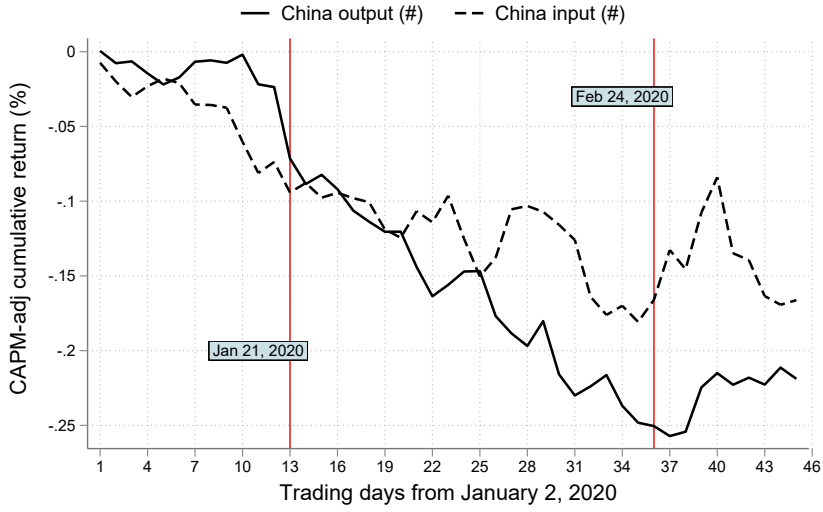
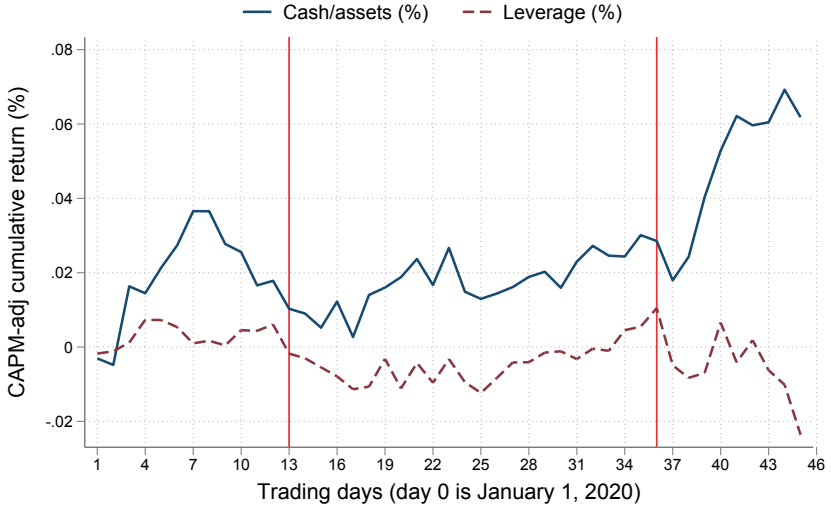


Figure 5 Stock prices and leverage and cash holdings



Concluding remarks

Overall, our study illustrates how markets are adjusting to the rapid emergence of a previously neglected risk. These early results suggest that the market fairly quickly began to respond to concerns about the possible economic consequences of the novel coronavirus. The reaction happened initially in quite an orderly fashion, focusing on international trade. In the most recent period (late February and early March), large price moves of the aggregate market occurred. But behind these feverish price moves, some patterns emerge. In particular, the cross-section of stocks reveals that investors started to become concerned about potential amplifications of the COVID-19 shock through financial channels

Our work looks at stock price effects, which capture the expectations of market participants regarding future economic consequences. Other research should examine the realisedconsequences of the novel coronavirus. The combination of this research will inform policymakers, investors, and businesses in their responses to the emergency (and hopefully help prepare for future emergencies).

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8 Ten keys to beating back COVID-19 and the associated economic pandemic

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In a column for Project Syndicate that I wrote on 27 January, I predicted a turning point in the spread of the novel coronavirus in China by the second or third week of February and the end of the epidemic by early May. That projection was based on a combination of the experience in ending the SARS epidemic in 2003 with aggressive government actions and the information on the lifecycle of the virus. We do now see a clear turning point in China – the total number of serious and critical cases have been on a declining path since 22 February, and the new case count has stayed low since mid-February.

The aggressive measures deployed by the Chinese government – including a lockdown of the city of Wuhan and surrounding areas, a mandatory extension of the holiday period throughout the country, and the conversion of university courses to online offerings – have imposed tremendous economic costs on the country in the short run. But they have bought time for other countries to ramp up the supply of testing kits, protective clothing and medicines (at least in principle). Unfortunately, we are now seeing a rapid increase in daily new cases outside China in a number of countries.

When the US, Australia, and other countries first cancelled flights between China and their countries in late January, the Chinese government took it as an affront. Now, with the appearance of ineffective controls of the virus in some of these countries, the Chinese may not be eager to resume these flights any time soon.

As the virus has transitioned from an epidemic to a pandemic, it is important to take stock of the experiences and lessons thus far. This is especially important for countries which are not yet experiencing a widespread number of cases.

- **First, ramp up the preparation before an outbreak strikes.**

An outbreak will come. It is a question of when, not if. When it comes, there will be a spike in the demand for testing kits, face masks, alcohol wipes, protective clothing, hospital beds, and life support machines. Some countries did not use the lead time well, reflected in a shortage of testing kits even now. Hoping that the cancellation of flights will be enough, or declaring that the "virus will miraculously go away" is not a good enough preparation strategy. If your country does not have a major outbreak yet, it is time to double your efforts and get ready.

- **Second, if the domestic supply of health products is limited, consider ramping up imports from China, Japan, and other countries of the relevant capacity.**

Facial masks, protective gears, and testing kits are not high-tech products and can be made in many countries. China is the 'factory of the world', and as it appears to have COVID-19 under control and is eager to resume production, its factories can respond to a surge in the world demand quickly. Even many factories not currently producing these products have the knowledge and capacity to change the composition of their output to include them. High-end, ECMO-like life-support systems can be produced by Japan, Switzerland and other countries. Some mid-end life-support machines can be produced and exported from China too, including by the affiliates of multinational medical device companies in China. As important, the World Bank, the IMF, and the Asian Development Bank stand ready to help, presumably including providing emergency financing for these medical imports if needed.

- **Third, have a workable contingency plan to ensure an adequate number of hospital beds, especially ICU beds, for infectious diseases in the event of a large-scale outbreak.**

Every country has to have an emergency plan specifying which hotels, university accommodation, or other suitable facilities can be requisitioned and refitted in an emergency. If such a plan is unfeasible or insufficient, they need to consider constructing new hospitals quickly. If domestic capacity does not allow for the same speed of construction as in China (which built two brand new hospitals in Wuhan within a very short period of time), they may consider hiring Chinese companies to do the job (or companies that have a demonstrated ability to do so with speed, quality, and cost-effectivness). In many World Bank and ADB projects involving the construction of power plants, roads, and airports, Chinese companies happen to have won the most number of competitive international biddings that are open to firms in all member

countries. This is a testimony to the speed, quality, cost-effectiveness, and competency of Chinese companies in this area. In a public health emergency like this, when life is at risk and domestic capacity is limited, domestic protectionism should be set aside.

- **Fourth, advise the general public early, clearly, and forcefully on ways to minimise the virus spread.**

This includes advice on both personal hygiene (e.g. washing hands often and thoroughly) and, very importantly, social distancing (avoiding crowds and unnecessary gathering, disinfecting doorknobs and bus/train seats). Two types of governments may fail in this regard in the initial phase of the pandemic. Authoritarian governments may suppress information on the epidemic to maintain their public 'image' before the problem gets out of their control; anti-science governments may downplay the seriousness of the problems for fear of a negative impact on stock prices and election outcomes. Fortunately, since the World Health Organization declared COVID-19 a pandemic, the risk of active suppression of the seriousness of the problem has subsided. However, not every government has succeeded in conveying clear and trustworthy advice to the public consistent with the best available medical knowledge. A good model to emulate is Singapore's, where health officials and even the prime minister have delivered a series of informative and medically accurate communications to the public. While Singapore had some high early counts of cases of infection, it has been broadly successful in limiting community spread in spite of a high level of inter-connectedness, both economic and personal, with mainland China. The wise and trusted advice from the government has played an important role.

- **Fifth, take early and decisive actions to enforce social distancing as soon as there are signs of an outbreak.**

As Tomas Pueyo points out,[1] because the official case counts record people who have symptoms and sought medical assistance a few days after the onset of infection, they offer a delayed account of what is going on in society. There is generally a gap on any given day between the true count of new cases and officially recorded new cases. Importantly, the systematic bias changes signs in two stages. In general, in the early stage, the true count tends to be substantially higher than the officially recorded count. In the second stage, after the containment has been successful, the turning point in the true count tends to occur a few days ahead of the turning point in the official case count. Based on this insight, Pueyo calculates that the downward trend in China's 'true case count' began almost immediately after the lockdown in Wuhan and the mandatory

1 https://medium.com/@tomaspueyo/coronavirus-act-today-or-people-will-die-f4d3d9cd99ca

social distancing started in the rest of the country. This suggests that aggressive social distancing was effective in China and will likely be necessary in any country that wants to see a relatively quick turnaround in the spread of the disease.

- **Sixth, emergency assistance to workers, firms, and financial firms need to be put in place quickly.**

While aggressive social distancing is important in turning around the pandemic, it will exert a strong negative impact on the overall economy in the short turn, and potentially a large negative impact in some sectors even in the medium run. The closure of factories and schools and the cancellation of product exhibits and work conferences are a negative shock to the supply, and the impact of this shock can be transmitted via supply chains to downstream sectors around the world, including to countries not currently experiencing a major virus outbreak.

The pandemic is also causing a contraction of income and demand, the impact of which can transmit via supply chains to upstream sectors around the world, again including to countries not yet experiencing any major virus outbreak. During this period, wages, utilities, bank loans, and other expenses need to be paid. Many firms have limited cash reserves, perhaps not enough to cover expenses for more than three or six months. This is especially true for micro, small, and medium-sized enterprises. Moreover, the decline in business activity and the rise in uncertainty can cause households and companies to cut spending, even in the absence of store closures and quarantine requirements. This means that there could be a downward spiral (or self-fulfilling expectation) in demand for each other's products and services. This logic means that governments have to roll out an emergency economic assistance programme, including temporary suspension of tax and interest payments, financial assistance and guaranteed health benefits to workers who have to stay at home due to the virus, financial assistance to banks to forestall large-scale financial sector failure, and the reduction or elimination of import duties for medical supplies and protective garments.

- **Seventh, make the best or better usage of the digital age.**

Much of offline retail shopping can be replaced by online shopping, but this requires the country to have a broad reach of internet access, widespread acceptance of digital payments by merchants and households, and an efficient and inexpensive delivery system. China is fortunate to possess all three. A suspension of delivery services in the early phase of the epidemic control has now been relaxed. Much of the remaining resistance to digital payments (typically via Alipay or WeChat pay), mostly among the elderly, has given way to near complete acceptance of digital payments out of necessity. Countries that are deficient in these areas can find ways to ramp up capacity. If there is

a shortage of domestic talent or capacity, there are quite a few international companies in digital payments and online retailing that can come to the country expeditiously if the policy environment is open and conducive. If not, this is the time to consider emergency service sector reforms in all areas that can help to advance public health objectives.

- **Eighth, turn the increase in internet usage into a more permanent enhancement of long-run economic growth potential.**

Once a large proportion of student learning and worker training goes online, there can be an acceleration in the pace of human capital accumulation. The world does not need 10,000 physics, mathematics, or economics professors teaching the basics of these subjects. Instead, all students can learn from a menu of perhaps the top ten professors globally explaining these ideas. This will not only reduce the gap in access to the best teachers between the most elite and the least privileged schools, but will also free up local resources to provide better targeted question-and-answer sessions or increase the variety of course offerings. This technological possibility existed before the coronavirus, but habits are hard to change (particularly when the change involves some physical or mental switching costs). The experimentation with massive online learning that is necessitated by measures to control the pandemic could be the nudge required to produce a permanent change of habit. Those governments and communities that see the potential of the digital economy – the potential for students and workers to learn from the global best – and make policy changes and corresponding investment will better utilise the potential.

- **Ninth, an internationally coordinated economic stimulus programme will be more effective in reducing global recessionary pressure than isolated actions by individual countries.**

This is especially true for fiscal stimulus. When a country pursues fiscal expansion on its own, such as a payroll tax cut or a temporary financial assistance to needed households, the increase in domestic demand may 'leak' to foreign producers in the form of an appreciation of the domestic currency and higher imports of foreign products. The leakage is especially high for small and medium-sized countries that have a relatively high ratio of imports to GDP. This may disincentivise the countries from pursuing sufficient fiscal stimulus. International coordination of simultaneous fiscal expansion can solve this problem. When all countries raise their total demand, exchange rates do not need to move, or at least do not move as much as when each acts alone. The increase in the world demand will be good for all countries. The required coordination goes beyond the G7 countries and will require stronger cooperation at the G20 level, or under the auspices of the IMF or the World Bank.

- **Tenth, reducing tariffs and non-tariff trade barriers can also help to fight a pandemic-induced recession.**

As the US Federal Reserve and the ECB Bank have already cut their policy interest rates to nearly zero, there is a limit to how much more the central banks can do to stimulate the economy. Yet, many countries still maintain various trade barriers that both raise the costs of production and reduce the real incomes of their households. While the risk of an economic recession often tempts countries to raise trade barriers, the exact opposite is needed to boost global output and employment. Similar to the logic underlying a coordinated fiscal expansion, coordinated trade liberalisation has a better chance of overcoming domestic protectionist resistance, as each country's policy 'concession' to foreign firms is met with improved access for their own firms to foreign markets. The WTO and the G20 need to step up their leadership in this area and act fast. One natural question is whether the United States, a traditional promoter of trade liberalisation but a recent instigator of unilateral trade wars, will join this effort. There are reasons to be hopeful: when the US initiated the trade wars three years ago, the negative effects were hidden behind an economy over-stimulated by a massive tax cut. Now that the sugar high from the tax cut is almost gone and the US faces the risk of a recession, perhaps the Trump administration's calculations will be different and it will be more open to a coordinated trade liberalisation, especially if it can be combined with the reforms at the WTO that it seeks.

The global coronavirus pandemic is moving the world towards a rare and serious disaster, but it also offers a rare chance for the global community to undertake a number of policy changes to not only address the short-term public health challenge but also boost the long-term growth potential for the world economy. While not all interesting sayings attributed to the Chinese are actually said by the Chinese, it is true that the Chinese expression for "crisis" consists of a word for "danger" and another one for "opportunity". Let us seize the moment and not waste the crisis.

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9 Saving China from the coronavirus and economic meltdown: Experiences and lessons

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PHBS, Peking University and HKUST; Shanghai Jiao Tong University

With the COVID-19 outbreak having officially become a pandemic, we must consider not just how to prevent further public health crises but also economic and financial ones. In both cases, recent lessons from China are instructive. To stop the spread of the virus, China enacted aggressive public health polices such as lockdowns of heavily affected regions, suspensions of public gatherings, mass isolations of infected patients, extensions of public holidays, prohibitions on travel, and home-quarantines. These policies appear to have been effective, at least in the short term. The country's new cases of COVID-19 and fatality rates have both declined significantly. However, the measures taken to stem the public health crisis may still lead to a domestic economic meltdown[2] that could infect international trade, global production networks and value chains – and potentially trigger global turbulence and a catastrophe in the financial markets.

To avoid an economic meltdown, the Chinese government has adopted a package of policies to support the resumption of work and production, including fiscal, monetary, financial and trade policies. To maintain market liquidity and meet the needs for working capital and other financing, the People's Bank of China (PBC) eased the credit

1 We would like to thank Richard Baldwin, Long Chen, Tao Chen, Bengt Holmström, Wenlan Qian, Beatrice Weder di Mauro, Lin Peng, Richard Portes, Hélène Rey, Nathan Sussman, Neng Wang, Michael Weber, Wei Xiong, Liyan Yang, Tao Zhang, and Feng Zhu for thoughtful discussions and suggestions..

2 The National Bureau of Statistics reported on 16 March that due to the coronavirus outbreak, Chinese manufacturing decreased by 15.7 percent in the first two months of 2020. It also reported that private sector output declined by 20.2% and fixed-asset investments fell by 24.5%, compared to a year earlier.

market through conventional policy instruments, including open market operations,[3] the reserve requirement ratio, loan facilities, refinancing, and rediscount policies. Chinese financial institutions also implemented a series of financial support measures, especially for small and medium-sized enterprises (SMEs), including reducing interest rates, increasing debt rollovers and renewal loans, and providing specific credit lines for the resumption of production. The central bank encouraged online financial companies such as Ant Financial to ease financing for small and micro businesses.

The central government also launched a package of policies to stabilise international trade and foreign investment and continues to open the market. By 4 March, the Ministry of Finance arranged a total of 110.48 billion yuan of special funds for epidemic prevention and control, 71.43 billion yuan of which has been used. The fiscal authority also increases the 1.85 trillion yuan of the quota of newly issued local government bonds to mitigate the adverse impact of the epidemic. From January to February, nearly 70% of the quota (approximately 1.2 trillion yuan) of local government bonds had been issued.[4] On 13 March, in response to the global financial panic, the central bank cut the targeted reserve requirement ratio by 0.5 to 1 percentage points, which released 550 billion yuan of long-term funds.

What lessons could we learn from China's responses to both the public health emergency and the subsequent potential economic and financial crises? In this chapter, we chart a timeline of the coronavirus outbreak in China and the government's responses. We also offer a case study of how the outbreak has affected SMEs to illustrate the economic policy implications of the COVID-19 crisis.

Timeline

As Figure 1 illustrates, there have been several important milestones in China's COVID-19 outbreak and slowdown.

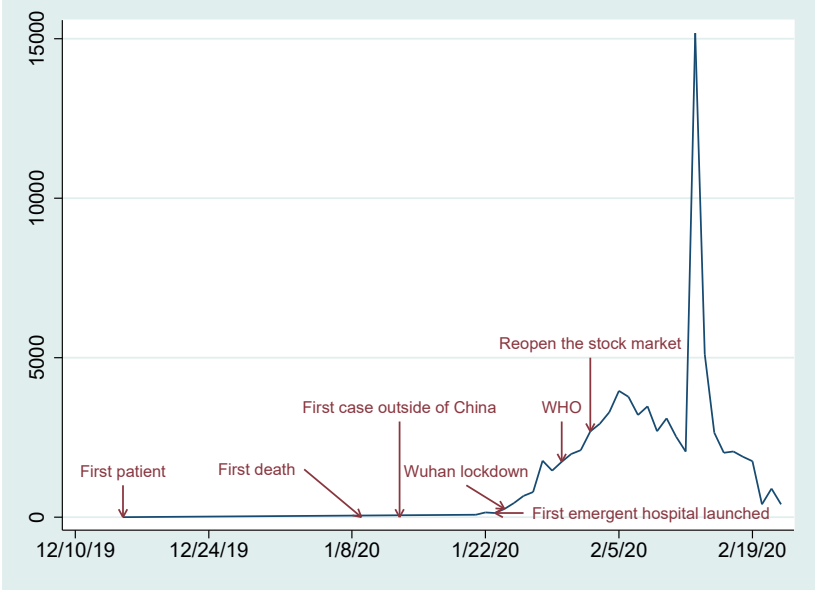
In December 2019, a series of pneumonia cases, later to become known as COVID-19, emerged in Wuhan, the capital of Hubei province. According to an article in The Lancet (Huang et al. 2020), the earliest known patient became ill on 15 December 2019. The report found that no epidemiological link was made between the first patient and later cases. On 9 January 2020, a 61 year-old man who had contracted COVID-19 died of a

3 Bloomberg Economics estimated that China's back-to-work rate has reached at between 80-85% for the week ending March 13.

4 Source: official website of Ministry of Finance http://www.mof.gov.cn/zhengwuxinxi/caijingshidian/jjrb/202003/t20200310_3480302.htm

heart attack, becoming the first known death from the virus. On 13 January, the World Health Organization (WHO) reported the first known case outside China – a woman who had arrived in Thailand from Wuhan.

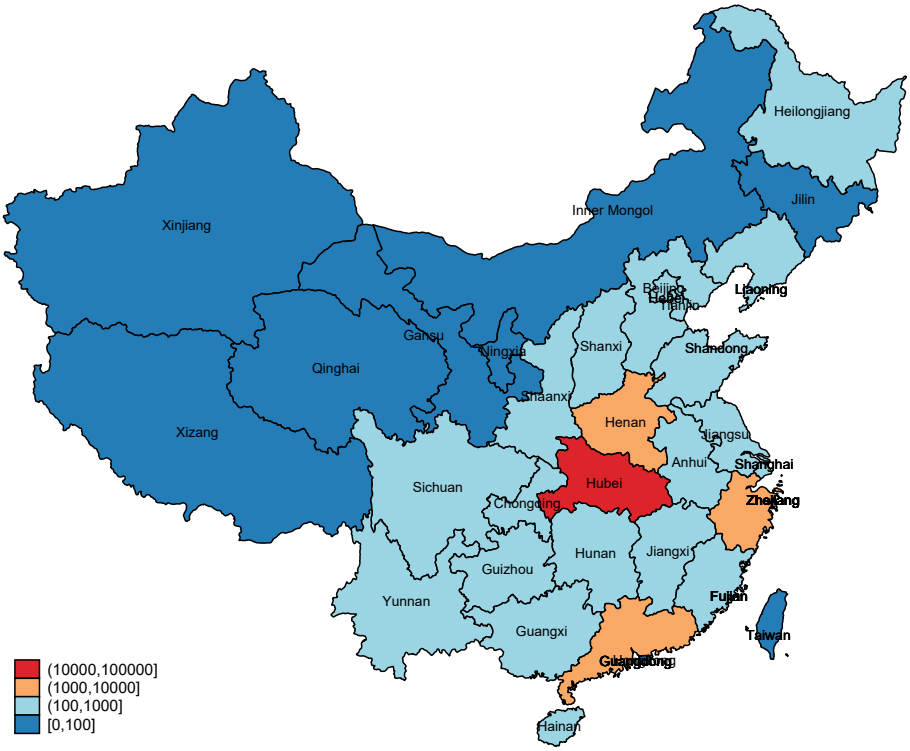
Figure 1 COVID-19 outbreak in China (number of newly confirmed cases)



By 20 January 2020, the virus had spread to Shanghai, Beijing, and Guangdong, some of the most important economic zones in China, and the number of confirmed cases in the country increased to 218. China's national health commission officially confirmed the public's worst fear that the virus could be transmitted between humans. On the same day, Premier Li Keqiang urged decisive action to curb the spread of the virus at a state council executive meeting, which marked a dramatic change in how the evolving pandemic was managed. By 21 January, the US had confirmed its first case, which was also the first known case outside Asia. On 30 January, WHO declared the COVID-19 outbreak a "public health emergency of international concern". By then, the virus had spread to all provinces in mainland China. By 1 February, the total number of confirmed cases had reached 10,000. Newly confirmed cases rose to 15,177 before declining to 5,110 after 13 February 2020.

Figure 2 illustrates newly confirmed cases across China on 14 February. Clearly, Hubei province, its neighbours and its economically connected regions were more heavily affected by the crisis than inland China and more distant provinces.

Figure 2 Newly confirmed cases across Chinese regions



Source: Authors' calculations based on National Health Commission of the PRC: http://www.nhc.gov.cn/xcs/yqtb/202002/50994e4df10c49c199ce6db07e196b61.shtml

Pandemic control policies: Public health crisis

In retrospect, the Wuhan municipal government made serious mistakes in its early response, including delayed reporting, lack of communication with the public and failure to undertake any precautionary actions for more than three weeks. These were the main reasons for the COVID-19 outbreak in China. Chinese scientists completed genome sequencing of the COVID-19 virus by late December, about two weeks after the hospitalisation of the first patient. On 31 December 2020, the Wuhan Municipal Health Centre issued an urgent notice of 27 cases of pneumonia from an unknown cause, but concluded there was no evidence of person-to-person transmission. The National Health Commission sent a team of experts to Wuhan on 31 December 2019 and they also failed to recognise that the virus could be transmitted between humans. Consequently, the Wuhan Municipal Health Centre issued several statements to reassure the public there was no evidence it was contagious, possibly in an attempt

to avoid disrupting the merry atmosphere of the incoming Chinese Lunar New Year. In addition, despite knowing the virus was spreading, the Wuhan government did not take sufficiently urgent precautionary actions, such as issuing guidance on social distancing and self-quarantining.

Facing a rising number of new cases, hospital visits and fatality rates, on 18 January the National Health Commission sent a team of experts to Wuhan led by Professor Zhong Nanshan, a highly respected epidemiologist who became a household name during China's battle with SARS in 2003. Two days later, Professor Zhong disclosed there had clearly been person-to-person transmissions. The Chinese government adopted its unprecedented containment measurements shortly afterwards.

A national public health emergency

On 23 January, the Chinese government ordered a complete lockdown of several cities in Hubei province, including Wuhan, Huanggang and Ezhou, after its total number of cases rose to 444. Wuhan suspended all public transportation, including all buses, metros and ferry lines. All outgoing flights and trains were halted. By 25 January, all provinces in mainland China except Tibet had declared a Level 1 public health emergency, all public gatherings had been prohibited, and cinemas and tourist sites were closed until further notice. The Chinese Lunar New Year holiday was extended by a week so people would stay home, and the government advised the public to self-quarantine for two weeks. Communities across China started to ban visitors. All schools stayed closed after the Chinese New Year holiday. The online delivery sector that has sprung up over the past decade made large-scale self-quarantines possible. Governments issued daily updates on the number of confirmed and suspected cases and patients being monitored. People were also required to wear masks in public spaces. It is widely believed these measures helped curb the spread of the virus. By 13 March, the number of newly confirmed cases had dropped to 11. In several provinces, all existing cases had been cleared. Except in Hubei, the mortality rate from the virus in other parts of China was less than 1%, based on current statistics.

> *The sudden increase in confirmed cases and widespread media reports caused some initial panic among the general public. Many people rushed to the supermarkets and hoarded masks and hand sanitizers.*

It is worth noting, however, that the sudden increase in confirmed cases and widespread media reports caused some initial panic among the general public. Many people rushed to the supermarkets and hoarded masks and hand sanitizers. The panic may have also exacerbated the overburdening of hospitals, leaving many more severe illnesses

untreated. Hospitals in Wuhan were quickly flooded with patients and soon ran out of essential supplies and equipment. The Chinese New Year holidays further exacerbated the issue of shortages as factories were closed for the holidays. To overcome the shortage, Chinese government launched a package of policies, which helped expand production of medical equipment while maintaining stable prices. Take mask production, for example. Daily production of medical masks was only 16 million per day in early February, but that increased to 150 million per day in March, according to the National Development and Reform Commission.

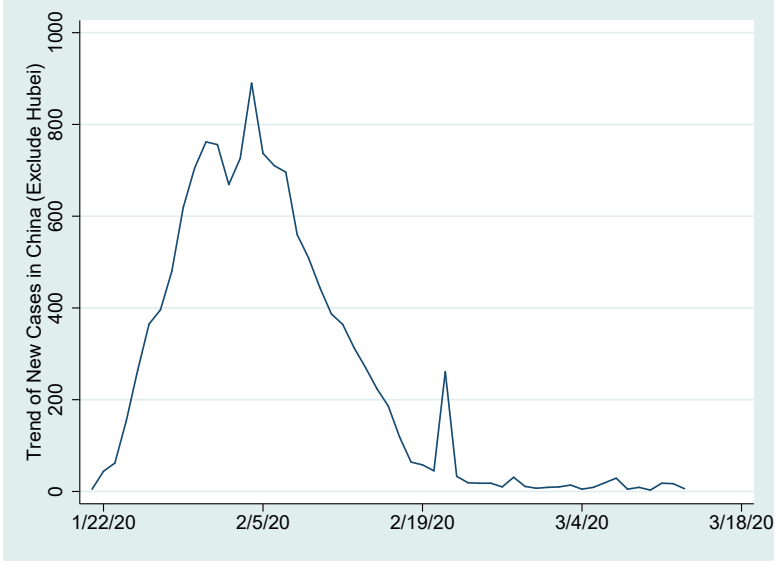
Hospital facilities and human resources support

China also started building temporary hospitals almost immediately. Wuhan went into lockdown on 23 January, and its first temporary hospital – the Huoshenshan facility with 1,000 beds – was completed on 2 February. On 25 January, the Wuhan municipal government started to build a second temporary hospital – the Leishenshan facility with 1,600 beds – which was completed on 6 February and started to operate two days later. On 1 February, the number of confirmed COVID-19 cases in China surpassed the total cases of SARS in 2003.

It became apparent that many people with mild symptoms were spreading the virus in their communities. The Wuhan municipal government decided to build a mobile hospital on 2 February and eventually built 14 such mobile hospitals. These facilities started to admit patients on 5 February, with more than 20,000 beds in operation during peak times. Many other cities also built similar hospitals as a precautionary measure. By 10 March, the last group of patients were discharged.

To solve the issue of a shortage of doctors and nurses, other provinces quickly extended their aid by sending medical teams as early as 24 January, the second day after the lockdown in Wuhan. By 9 March, other provinces in China had sent a total of 426,000 doctors and nurses to Hubei province. Among them were 19,000 ICU-related medical staff. As we now know, timing is crucial to stemming the spread of the virus. As Dr Zhong Nanshan noted in a recent article, if China had taken these measures even five days earlier, it is estimated the impact of the virus would have been reduced by two-thirds. Figure 3 shows the massive decline in newly confirmed cases in China, except for Hubei province, which indicates that China successfully stemmed its outbreak.

Figure 3 Newly confirmed cases in China (except Hubei province)



Source: Authors' calculations based on National Health Commission of the PRC: http://www.nhc.gov.cn/xcs/yqtb/list_gzbd.shtml

Economic meltdown and financial risk: Macro policy tools

During China's initial COVID-19 outbreak, it was still the Lunar New Year. The government extended the holiday to help stem infections, so few industries were working at the time. When the epidemic was under control, the government continued its strict policies to control the virus but started to allow the resumption of work and stimulated production.

The outbreak period

During the outbreak period, the government's economic policies were primarily aimed at supporting virus-related manufacturing, services, and retail sectors, including through fiscal, monetary, and social insurance tools. These measures primarily consisted of:

- **Fiscal policies, including tax deductions and subsidies.**

The central government issued a stimulus package for the expansion of production capacity for virus-related goods and services. Tax deduction and fee-waiving policies were issued for enterprises and taxpayers in relevant industries, including medical services, public transportation and the delivery of daily necessities. Industries severely

hit by the epidemic, including transportation, catering, accommodation and tourism, as well as enterprises and individuals who donated critical medical products, were also eligible for tax deductions. The central government provided subsidies in the form of loan payments for producers of virus-related products and for startups that were severely affected. The central government required local governments to guarantee and facilitate the delivery of critical medical products and daily necessities. Municipal governments also issued their own measures, including offering funds and credits for antivirus-related industries and businesses, reducing rental payments, and deducting taxes and fees for severely affected industries and individuals.

- **Monetary policies, including credit easing, loan rate cuts and debt rollovers.**

The PBC eased market credit through conventional policy instruments, including open market operations, reserve requirement ratios, loan facilities, refinancing and rediscount policies. Financial institutions cut the loan rate and provided additional credit to virus-related manufacturers and the daily necessity retail and delivery sectors, as well as producers of critical medical products. For SMEs, the commercial banks were required to roll over debt contingencies. The central bank also required commercial banks to improve the quality of services, including establishing a 'green channel' for COVID-19-related businesses, and increasing e-payments and online services. Financial institutions offered additional credit to the trading industry for the importation of medical products from abroad. The China Banking Regulatory Commission (CBRC) required commercial banks to adjust personal loan repayment arrangements for housing mortgages and credit cards and delayed repayment periods.

- **Social insurance policies, including the delay or deduction of insurance payments.**

Local governments implemented policies with the goal of stabilizing employment and helping SMEs overcome threats during the epidemic. These policies included the deferment and refunding of social insurance payments. In some cities, such as Shanghai, those enterprises that did not lay off employees could enjoy the deduction of social insurance payments and receive subsidies for employee on-the-job training.

The post-outbreak period

When China's epidemic started to subside, the government focused on restarting the economy. The central government required local government to simplify business approvals and optimise services to encourage enterprises and workers to restart work and resume production. It issued a package of policies to support the resumption of work and production, including fiscal, monetary, industry, trade policies.

Stock market reopening. The central government reopened the stock market on 2 February. The regulatory authority said the decision was based on a careful assessment of the trade-offs; the reopening could send a positive signal to the market regarding economic conditions and facilitate market liquidity. Meanwhile, the government was fully aware of the risks. The regulatory authority continues to closely monitor the market and has prepared hedging tools to stabilise it, if necessary.

Fiscal policies, including tax cuts, fee exemptions, cost reductions and subsidies. VAT for small businesses will be exempted for a period; some social insurance contributions by employees will be exempted or halved for a time; and local governments have been encouraged to waive urban land-use taxes to encourage landowners to reduce or waive rents. The central government has required utilities to lower the price of electricity to reduce the cost associated with resuming production. The government is also subsidising domestic and foreign airlines to support the resumption of international flights.

Monetary and financial policies. By 12 March, the banking sector had provided 1.4 trillion yuan of credit to the economy. Financial institutions had implemented a series of financial support measures, especially for SMEs, including reducing interest rates, increasing debt rollovers and renewal loans, and providing specific credit lines for the resumption of production. The central bank encouraged internet-based financial companies to ease financing access for small and micro businesses. In response to the global financial panic, on 13 March the central bank cut its targeted reserve requirement ratio by 0.5 to 1 percentage points, which released 550 billion yuan of long-term funds.

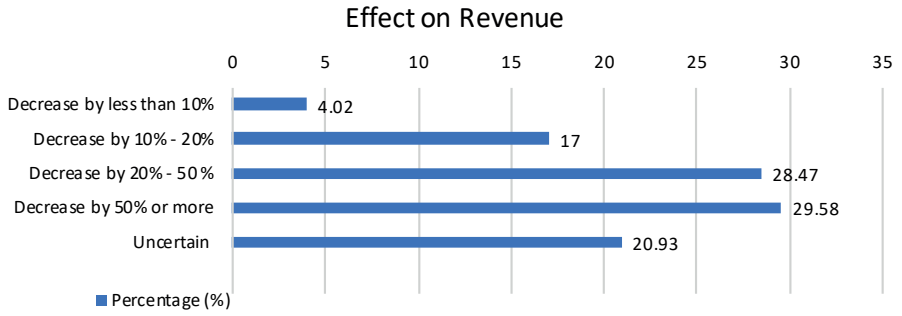
Industry policies focusing on large infrastructure investment projects and supply chains. Several ministries coordinated to effectively expand domestic demand by stimulating infrastructure investment. A number of key projects related to the energy, transportation and IT (5G) industries have been launched and financed by special local government bonds. The central government aims to strengthen international coordination and cooperation and provide more credit to core companies in relevant industries to maintain international and domestic supply chains.

Trade policies focusing on the stabilisation of foreign trade and investment. The central government has launched a package of policies to stabilise international trade and foreign investment and continues to further open the market. For example, all export tax rebates must be made in full without delay except for energy-intensive, polluting or resource-heavy products. Financial institutions have been encouraged to increase foreign trade credits, defer loan payments and extend debt rollovers for those small trading firms severely affected by the epidemic. Commercial insurance companies have been encouraged to offer short-term trade credit insurance and lower fees for trading firms.

Saving small businesses

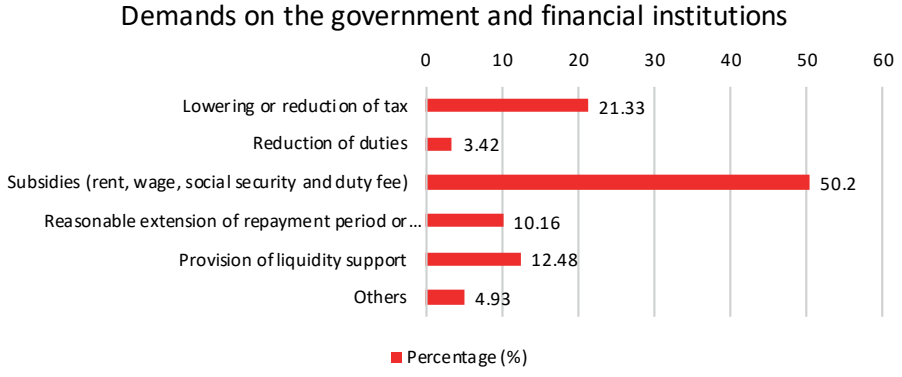
Due to their lower resilience, SMEs in China have been more severely affected by the epidemic. A recent survey by Tsinghua University and Peking University of 995 SMEs found that 85% could not survive more than three months due to the epidemic. Figure 4 shows that more than 70% of such firms expect significant negative impacts on their revenues.

Figure 4 Effects of coronavirus on firms' performance



Sources: Authors' calculations based on SMEs Survey by Tsinghua University and Peking University (2020)

Figure 5 Expectations of government support due to coronavirus shocks



Sources: Authors' calculations based on SMEs Survey by Tsinghua University and Peking University (2020)

This expected crisis among SMEs would not be due to their own operational deficiencies, but is rather a result of force majeure. Therefore, it is necessary that the government, financial institutions, private capital and other parties come together to help them overcome their difficulties. As Figure 5 indicates, SMEs have high expectations of substantial government support, including tax relief and subsidies.

Since February, the central and local governments have undertaken a number of targeted policies aimed at supporting the development of SMEs. These have included allowances for deferred payments of social security premiums and certain taxes, rent reductions, loan extensions, loan interest rate reductions, and subsidy increases, among other things. Such measures provide robust institutional assurances for SMEs and may help safeguard the health and stable development of China's economy.

Small businesses, fintech and the digital economy

Thoroughly digitalise the economy, mobilise private capital and utilise internet financing to provide targeted credit support to SMEs. Compared with traditional commercial bank loans, internet fintech platforms have the following advantages regarding SME credit:

- Relatively complete credit rating systems specifically for SMEs and individual e-commerce sellers through the use of big data;
- Real-time monitoring of debtors with the help of big data, blockchain finance, supply chain financing and other technologies;
- Lending practices that are free from geographical restrictions that can provide SME credit on a larger scale; and
- The ability to complete credit transactions remotely online, which helps prevent and control the epidemic.

Researchers, including Chen et al. (2019), have suggested that fintech applications can significantly reduce the operational volatility and improve the survival rate of SMEs, particularly after natural disasters. Therefore, we recommend that in the context of this epidemic, we leverage internet fintech platforms – such as e-commerce finance platforms, blockchain finance platforms, and supply chain finance platforms – to provide loans to SMEs.

Major internet-based fintech platforms that have the advantage of accessing the operational data of SMEs should particularly be encouraged to deploy big data in providing precise credit support for SMEs, and take various measures to effectively lower credit costs, such as reducing both requirements and interest rates in SME lending,

extending loan maturities and increasing loan amounts. At the same time, SMEs should also be incentivised and supported to improve their digitalisation so they can better take advantage of internet-based financial platforms to resolve their financing difficulties.

> *We recommend that in the context of this epidemic, we leverage internet fintech platforms – such as e-commerce finance platforms, blockchain finance platforms, and supply chain finance platforms – to provide loans to SMEs.*

Importantly, the digital giant Alibaba Group is leveraging its technology and experience with the 2003 SARs crisis to support SMEs amid the current crisis, including through its advances in cloud computing, IT and QR health coding systems, as well as AI virus diagnosis and communications. The company's Ant Financial and its virtual bank MYbank are also providing financial support to SMEs.[5] They are working with other financial institutions in China to provide financial support to around 10 million micro-and-small enterprises around the country to assist with the resumption of work and production, as well as efforts to expand production.

According to a recent study by the Alibaba-affiliated Luohan Academy research institute (Luohan Report 2020), Alibaba has unveiled a total of 20 measures across six major areas to help SMEs recover. Among these measures, MYbank has announced interest-free and low-interest loans to Taobao and Tmall merchants registered in Hubei province. The one-year loans will total 10 billion yuan and be interest-free for three months, after which the interest rate will be reduced by 20% from current levels. Another 10 billion yuan in one-year loans will be available to merchants outside Hubei province with interest rates 20% below current levels. Payments will also be issued to merchants free of charge as soon as an order has been fulfilled. Through MYbank, Ant Financial is further lowering interest rates by 20% for 8.5 million online and offline businesses. In addition, Alipay has launched new features to offer insurance, online recruiting and sourcing for affected small and medium-sized online stores.

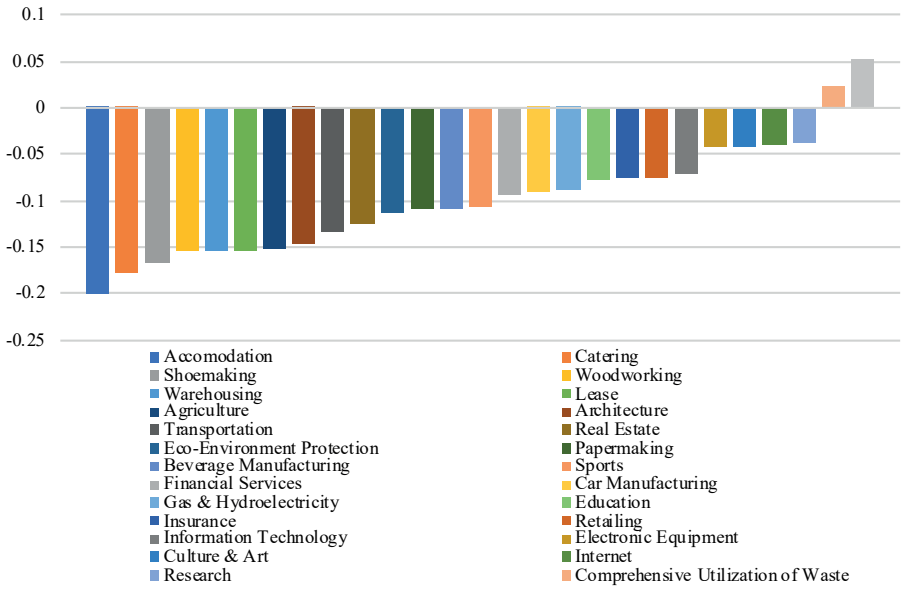
Supporting small businesses by sector

Due to movement restrictions during the crisis, service industries such as hotels and restaurants and labour-intensive manufacturing industries have been severely affected. Capital markets have become wary of these industries since the start of the crisis. Figure 6 illustrates the Chinese stock market's movements for various industries

5 Source: http://www.chinabankingnews.com/2020/03/08/100-chinese-banks-sign-up-for-mybanks-non-contact-micro-loan-plan-to-help-mitigate-coronavirus-impacts/

from 20 January to 5 February. As can be seen, the stock prices of service industries such as accommodation and catering, as well as manufacturing industries, including shoemaking and woodworking, have experienced large declines. Therefore, to support SMEs, the characteristics of the industry should warrant particular consideration, and support should be strengthened for SMEs in the service and manufacturing industries where the impact from the epidemic has been severe.

Figure 6 Stock market responses to coronavirus shocks by sector



Sources: Authors' calculations based on SMEs Survey by Tsinghua University and Peking University (2020)

Buying more time for small businesses

It is not the case that the longer a support policy lasts, the better it is. A policy that drags on for too long is likely to jeopardise market efficiency and obstruct the market, which plays a decisive role in resource allocation. The SARS epidemic serves as a guide for the implementation of support policies during this crisis. At the end of 2002, SARS first appeared in Guangdong province. In March 2003, an atypical pneumonia began to invade Beijing. The epidemic situation then gained widespread attention and the central government began to prevent and control the epidemic. In June 2003, the World Health Organization removed mainland China from the list of epidemic areas, which marked the end of the SARS epidemic in China. Therefore, the duration of the epidemic

was estimated to be about five to six months, and the recovery period was about three months (after September 2003, the gravity of the situation gradually recovered to the previous year's level, or that before the epidemic).

> *It is not the case that the longer a support policy lasts, the better it is. A policy that drags on for too long is likely to jeopardise market efficiency and obstruct the market, which plays a decisive role in resource allocation.*

To the government's credit, the prevention and control of the new coronavirus pneumonia epidemic has been quicker. According to an analysis by Professor Zhang Wenhong, leader of the Shanghai medical expert team for epidemic prevention and control, on 30 January, the best scenario would be for the national epidemic to be contained within two to three months. We expect that if the COVID-19 epidemic dies down in March, the accommodation, catering and transportation industries will be able to resume normal operations in April, and that after three to four months – i.e. in July – the turnover of these industries will return to their normal levels, in which case the duration of the support schemes should be set at about six months. If the epidemic is not well-contained, it may last into May or even longer. In this case, the adverse impacts on companies would be more severe, and it is expected that it would take four to six months for them to resume generating normal levels of turnover. That is to say, it is optimal to maintain the credit support schemes for about a year.

Policy implications

The economic costs, the uncertainty and anti-globalisation trends induced by the COVID-19 crisis might result in a new great recession in the global economy. Based on the policy responses by the Chinese government, we would like to summarise the main lessons and experiences for policymakers in Europe particularly, and the rest of the world, as follows:

- **Time is crucial**. The first-order policy is to stop the outbreak and prevent its spread across regions using any and all emergency public health measures. Governments should enact isolation policies to ensure social distancing and utilise strict quarantines.
- **Information transparency is necessary**. The Wuhan government lost three precious weeks that could have been spent preventing the outbreak due to faulty public health crisis measures and information reporting systems. Utilising digital technology, big data and cloud computing technologies could be very helpful in providing real-time and precise information to overcome misinformation, lack of communication and misreporting or reporting delays.

- **'Whatever it takes' macroeconomic policies are fundamental**. To prevent a potential economic meltdown after this public health crisis, the Chinese government not only provided fiscal support, but also created monetary and financial policies to prevent a macroeconomic recession due to unexpected demand and supply shocks. Saving SMEs has proved to be a very strategic step in boosting domestic demand, the production networks and the global value chain.

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10 China's changing economic priorities and the impact of COVID-19

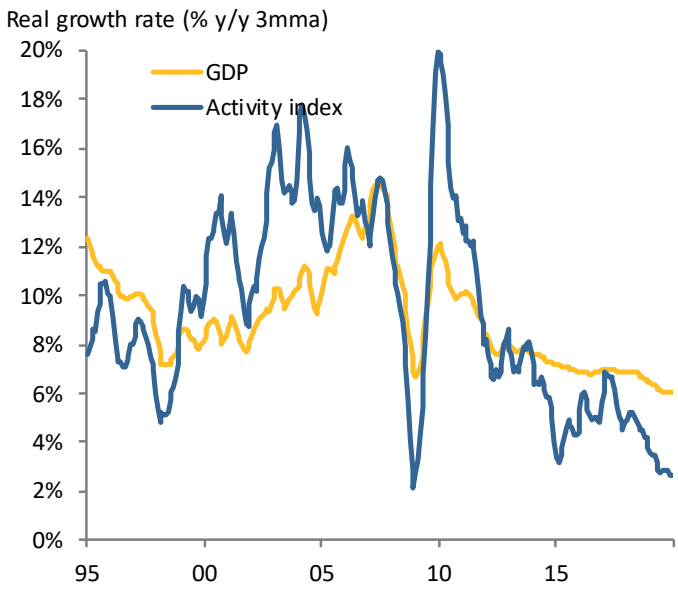
Jonathan Anderson
Emerging Advisors Group

Before we discuss China's current policy response to the COVID-19 epidemic and potential future actions, it's vitally important to cover some historical background. To wit, over the past few years, China's leadership has undergone a very significant and visible change in economic priorities.

Pre-COVID-19 macro policy shift: No longer just about growth

Consider Figure 1. As shown in yellow, official reported real GDP data show annual growth of a bit over 6% in 2019 – but bottom-up estimates of economic activity show a very different picture. The blue line is a rough composite index of available data across a dozen broad production and expenditure categories (see the footnote below for details). Based on that measure, real growth last year was barely above 3%, driven by sharp slowdowns in trade, industrial production, property activity and corporate investment.[1]

Figure 1 Official GDP versus activity index

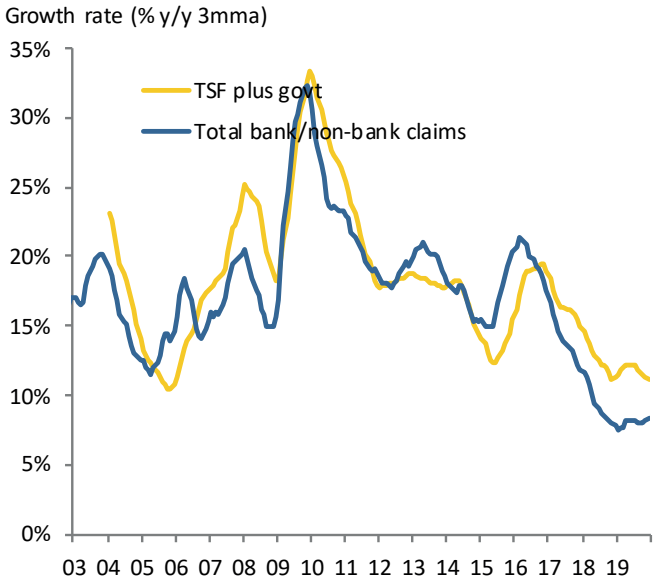


Source: Emerging Advisors Group

There are only two other times in recent decades when implied growth slowed to this level: once briefly during the 2008-09 global crisis, and once again during the combined export and property recession of 2014-15. And in each instance the worsening of conditions was met with a sharp, dramatic policy response. The response consisted in part of 'standard' macro tools such as lower interest rates, People's Bank of China (PBC) liquidity injections and increased budgetary expenditures … however, that was not the real story. Rather, in both cases the overwhelming bulk of stimulus came via an explosion of 'quasi-fiscal' infrastructure and development project lending, funded through a combination of direct local government debt issuance and, especially, massive bank borrowing by affiliated public and private firms (see Figures 2 and 3).

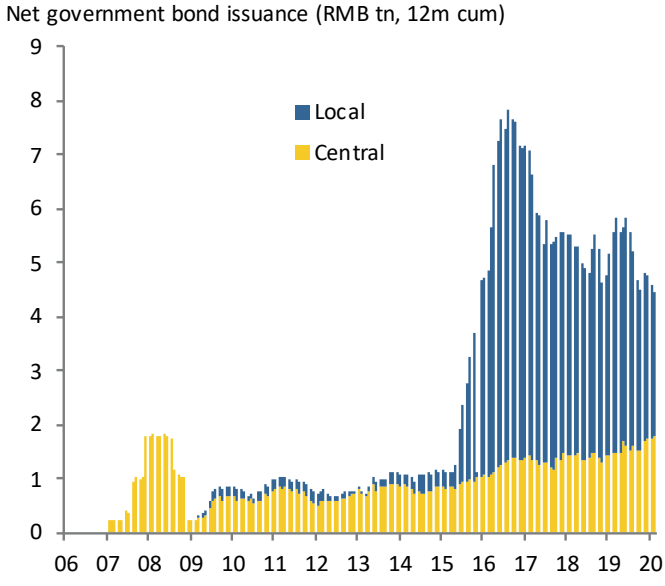
At the peak of the respective policy cycles, annual amounts from this activity easily dwarfed formal PBC and central budgetary support by a factor of five or more. In short, this is where true policy action happens in the mainland, and this is what to watch if the government is really serious about boosting growth 'at all costs'.

Figure 2 Credit growth



Source: CEIC, Emerging Advisors Group

Figure 3 Net government debt issuance



Source: CEIC, Emerging Advisors Group

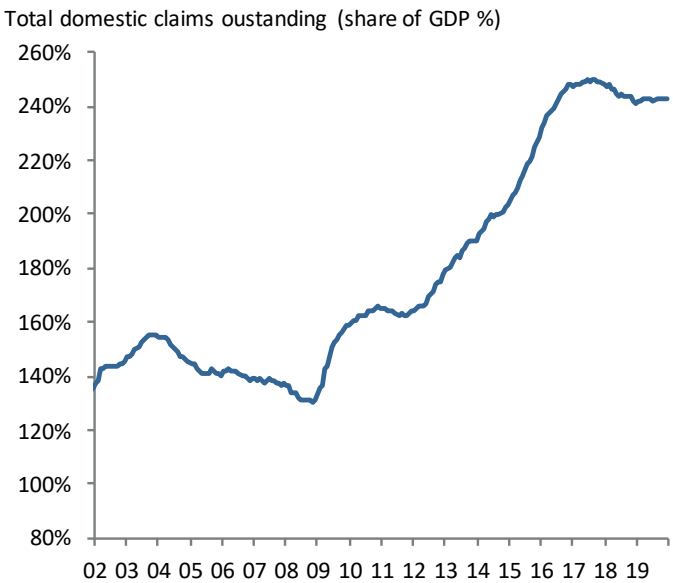
Fast forward to the past two years, and things have been very different. Again, by the beginning of 2019 implied growth had slowed sharply to low single-digit levels – but this time around there was no emergency stimulus package, no explosion of quasi-fiscal project activity. Quite the opposite; credit growth remained profoundly weak (Figure 2) and net government issuance fell throughout the year (Figure 3).

What explains China's sudden reticence to revert to 'old school' stimulus? Three things, in our view.

Debt

The first is the sheer magnitude of outstanding debt already in the economy. As shown in Figure 4, the cumulative effect of previous policy lending rounds has been to push up domestic financial debt by more than 100 percentage points of GDP between 2008 and 2016, a massive increase even by developed country standards and virtually unprecedented in the emerging market universe. This in turn left Chinese banks with an enormous hidden pile of bad credit claims, and since 2017 macro deleveraging has become an overriding de facto policy priority. Banks have been strictly forbidden from expanding balance sheets in an unbridled fashion and local government have been reined in; as of this writing, at least 20 depository institutions have already been restructured, with dozens more to come, and untold numbers of insolvent quasi-fiscal borrowers are being quietly closed.

Figure 4 Domestic credit/GDP

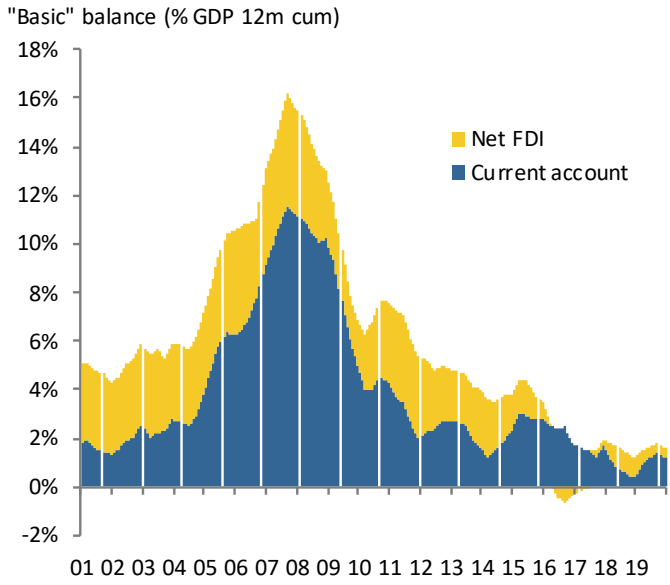


Source: Emerging Advisors Group

External balance

The second is the state of the external balance. In 2008, when the government first turned to massive debt expansion in order to push growth in the economy, China was running a 'basic' balance of payments surplus (the sum of the current account plus net FDI inflows) of more than 15% of GDP (see Figure 5). In 2015, during the next major easing round, the basic surplus was still 5% of GDP. This buffer gave the authorities plenty of room to increase demand at home without having to worry about external deficits.

Figure 5 'Basic' balance of payments



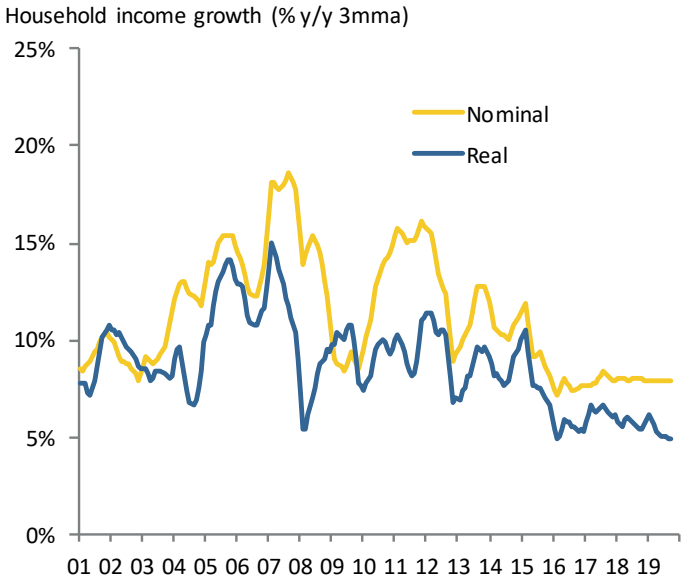
Source: CEIC, Emerging Advisors Group

By 2018, however, the basic balance had fallen to less than 1% of GDP and it is in the order of 1.5% of GDP today. Net FDI flows are barely positive, and the current account is sharply reduced from earlier highs. And senior leadership is extremely wary of posting a formal deficit. Memories of the destabilising capital outflows that took out nearly US$1 trillion of China's foreign exchange reserves in 2015-16 are still vivid, and in the past few years the government has taken steps to reduce imports and dampen outward tourism at the margin. In this environment, external concerns now also act as a major constraint on domestic stimulus policy.

The labour market

Finally, we should mention the labour market. For decades, Beijing has motivated aggressive growth targets with the need to sustain employment growth and thus social stability, citing a growing labour force and pressures from underutilised rural workers. Over the past decade, however, the situation has clearly changed; China's working-age population has already peaked, and migrant wages have soared as shortages of young rural labour began to bite. The results are shown in Figure 6 – despite a dramatic deceleration in real growth since the first half of the 2010s, nominal wages have maintained a respectable high single-digit pace, with no sign of burgeoning unemployment concerns.

Figure 6 Household income growth



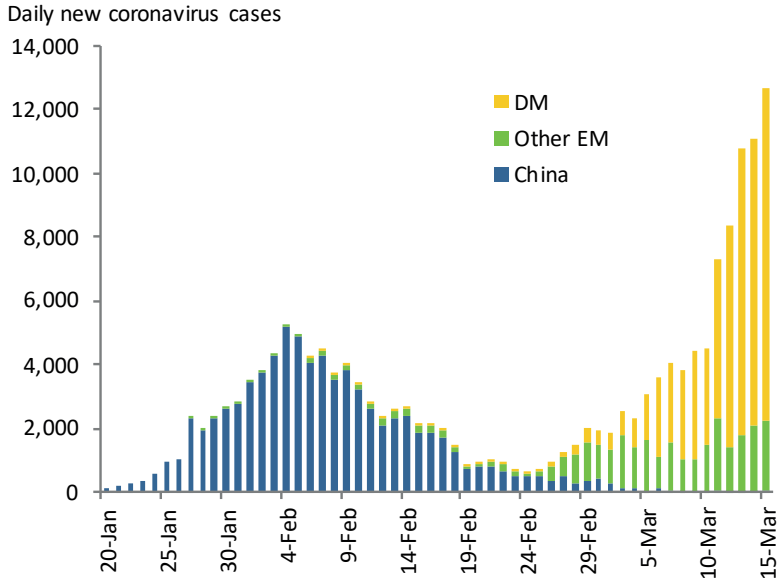
Source: CEIC, Emerging Advisors Group

Putting these points together, the resulting picture is one of a government with substantially changed policy priorities. Rather than high growth at all costs, the authorities are now much more focused on deleveraging at home and stability on the external balance – and willing to accept a weaker de facto macro growth profile in the process, even if they do continue to post official GDP growth of 6%.

The virus and the economic impact

Which brings us to the present day. Since the beginning of 2020, of course, China has no longer been seeing 'weak growth'. Rather, economic activity collapsed outright in February in the face of a country-wide shutdown, as COVID-19 made its way through the population. But look where we are now in March. As shown in Figure 7, the number of reported new cases in China has ground to a virtual halt in the first half, while the figures for Europe and (to a lesser extent) the US have begun to skyrocket.

Figure 7 Daily new COVID-19 cases



Source: Johns Hopkins

For the West, this now means frantically closing borders, shutting school, churches and sporting events at home; for the Chinese economy, it means recovery. It's still early days, of course, and some observers have raised doubts about the quality of the official mainland coronavirus statistics, but even so, shops and offices are resuming business, traffic is returning and public spaces are starting to revive, with daily indicators such as energy usage, emissions and store sales uniformly showing a pickup since the beginning of this month. (Indeed, one simple headline says it all: on March 14, Apple announced that it was closing all its stores in the rest of the world … and reopening them in China.)

Mind you, even in the best case, economic resumption will only be partial. The fact that much of the developed world is now in lockdown means that China will be forced to intensify border restrictions as well, which should in turn mean provinces and municipalities are slow to rescind the onerous domestic travel constraints currently in place throughout the country. This will continue to dampen labour mobility, tourism and hospitality. What's more, the inevitable further contraction of global trade flows will hit the Chinese export sector through the summer at very least.

Where to from here?

In short, China has already suffered a dramatic contraction in the most recent two months, and will likely still be working to get back to trend at the end of June, if not beyond. And there's no doubt that the government will undertake macro stimulus to aid recovery. The only question is: "How much?"

So far, in a strictly formal sense, the answer is "not much" – certainly not in terms of actual data. The PBC has kept the financial system flush with adequate liquidity, bringing short-term rates down slightly. But in terms of actual borrowing and spending, the macro figures released for the first two months of the year showed rather anaemic bank lending and little in the way of new budgetary funding – unsurprisingly so, given that most firms and government offices were shut down – and the March data are likely to underwhelm for the same reason.

There have been a succession of formal central policy announcements since January, but rather moderate by mainland standards as well: PBC relending facilities in support of SMEs and other affected firms, corporate tax breaks and additional budgetary outlays totalling altogether around 2.5% of GDP on a notional basis. These are buttressed by local municipal actions, including municipal wage and rent subsidies for some cities and increased emergency health and medical spending, but most are strictly time-bound and thus unlikely to account for a significant share of GDP going forward.

What's missing, as per the above discussion, is the 'elephant in the room', i.e. the explosion of debt-fuelled quasi-fiscal project lending that accompanied past major stimulus rounds. And this is where things become murkier. On the one hand, in recent weeks there have been a growing number of announcements and rumours of new infrastructure and development plans at the local level in anticipation of yet another round of major stimulus from Beijing. On the other hand, such announcements in and of themselves don't necessarily mean anything; without a serious loosening of current

financial system balance sheet and lending constraints at the central government level, local projects would simply remain on drawing boards or go unfunded for significant lengths of time.

How will we know? Unfortunately we won't – not for a number of months to come at least, when we finally have full ex-post credit and debt issuance figures for the second quarter of the year and are able to gauge to what extent banks and nonbank financial institutions are actually expanding lending activity and local governments are being allowed to fund expansion plans on the ground. Until then, there will certainly be a very active and varied cottage industry in 'reading the Beijing tea leaves' – but as discussed earlier, we would caution against assuming that China will automatically go back to the 2008-09 global crisis-era playbook. Today's policy environment is very different indeed, and at the end of the day the government's response to COVID-19 is likely to surprise on the downside rather than the upside.

About the author

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11 Singapore's policy response to COVID-19

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In this chapter, I describe Singapore's economic policy response to the 2020 COVID-19 outbreak. Although the core interest in this discussion is economic, two companion attributes in the suite of Singapore's policies feature prominently. The first concerns trust in political leadership; the second, confidence in technical competence and scientific expertise.

I argue that it is the coming together of these three – economic policy, assured political leadership, and expert evidence-based domain knowledge – that has made for Singapore's thus-far successful response to the COVID-19 outbreak.[1]

Unlike a routine economic shock, with an impact of perhaps up to a standard deviation on price and quantity, the introduction of the novel coronavirus into the national conversation brings into focus for market participants questions of heightened social fears, not least in the form of widespread health emergencies and a collapsed healthcare system. Will COVID-19 be just about disturbances to demand and supply, or will markets – organised systems of exchange – break down altogether?

In the COVID-19 outbreak, ordinary people confront changing restrictions not just through price variations affecting the value of their endowments of time and wealth. Instead, people face quarantine-related, non-price constraints on their physical mobility and thus contend with restrictions on their labour force activity and economic production. These social engineering constraints imply further that people are restricted in leisure group engagements and thus in consumption activity. The shock to people's psychological composure – from social distancing, self-isolation, and working from home – affects consumer confidence and worker efficiency.

1 Following World Health Organisation convention, I will use "*COVID-19" to refer* to the disease but will refer to the virus itself by a different name, "*SARS-CoV-2"* or the "*novel coronavirus"*, or when there is no ambiguity, just "*coronavirus"*.

For COVID-19, therefore, the disturbance to aggregate demand and supply come together. So too should policy respond on multiple fronts. In this view, attempting to support just aggregate demand, say, will only result in distortion and further disruption to the economy. I therefore present Singapore's economic policy response to COVID-19 against a background that acknowledges the multiplicity and correlatedness of COVID-19's different effects.

The broad, general contours of Singapore's COVID-19 actions have already been described elsewhere.[2] Some of these accounts characterise Singapore as having undertaken "draconian tracing and containment measures", with its small population therefore "largely accepting of the government's expansive orders". One observer in New York noted how, in a public health crisis, Singaporeans seemed to show "more of a willingness to place the community and society needs over individual liberty".

My own view is that well-designed economic incentive schemes, working in tandem with established domestic laws and the population's confidence in scientific knowledge and political leadership, have been critical in reaching good outcomes in Singapore.

The narrative that follows presents, in the main, just facts, drawing directly from material on Singapore's ministry websites or first-hand accounts of speeches or other official engagement.

On 2 January 2020, Singapore's Ministry of Health (MOH) first began to issue public advisories on an emerging cluster of pneumonia cases in Wuhan, Hubei province, China. Temperature screening was set up for inbound travellers at Singapore's Changi airport the following day. The first case of COVID-19 in Singapore was confirmed on 23 January. In the week between then and 1 February, 18 cases were confirmed, every single one of them connected to a case having recent physical presence in Wuhan.

In late January, both in anticipation and in response, a number of housing properties (including at the National University of Singapore) were designated government quarantine facilities, to accommodate those who had been in close contact with confirmed cases of COVID-19. People who might also have been exposed but were thought to be at lower risk were placed on compulsory leave of absence (LOA), to be contacted regularly for health monitoring. All who were quarantined or placed on LOA were newly returned from Wuhan.

2 See https://time.com/5802293/coronavirus-covid19-singapore-hong-kong-taiwan/, https://www.nytimes.com/2020/03/13/opinion/coronavirus-best-response.html and https://www.technologyreview.com/s/615353/singapore-is-the-model-for-how-to-handle-the-coronavirus/.

Tuesday 4 February, however, changed that discourse: the first local coronavirus transmission was detected. MOH confirmed four cases, none of whom had recently travelled to mainland China. Three of these had had contact with recent travellers from mainland China. The fourth had not, but was a domestic worker for one of the three. This change in circumstances took infection possibilities to a new level, with the negative impact on aggregate demand and supply growing correspondingly larger. If up until then the strategy was one of border control, that strategy now needed to change to containment and social distancing.

Three days after that, on Friday 7 February, Singapore's Disease Outbreak Response Condition (DORSCON) was raised from yellow to orange, indicating the novel coronavirus outbreak was now estimated to have a moderate to high public health impact. Across the island, inessential large-scale events were cancelled or postponed. Universities and businesses put up thermal screening stations, and twice-daily temperature reporting by every individual was mandated. Soon thereafter a new category of medical isolation, stay-home notification (SHN), was introduced, in severity between a quarantine order (QO) and an LOA. Both QOs and SHNs attract the full force of the law under the Infectious Diseases Act, and so carry legal penalty.

Economic policy

- **On economics, first some context and a sense of magnitude**

Singapore is a small open economy that trades in a typical year between three to four times its total GDP. In 2019 that total GDP stood at S$508 billion, having grown that year at a 0.7% annual rate, down from 3.4% in 2018.[3]

In November 2019, Singapore's Ministry of Trade and Industry (MTI) officially forecast that 2020 GDP growth would fall within the range of 0.5% to 2.5%.

The COVID-19 outbreak swiftly changed that. MTI revised down its 2020 forecast interval to -0.5% to 1.5% – i.e. by a full one percentage point – within the space of, essentially, weeks. This assessment was conditioned on expected weaker growth in China, but keeping broadly unchanged the 2020 outlook for the US and euro area economies.

3 On 15 December 2019, one Singapore dollar was worth US$0.74, so Singapore's 2019 GDP amounted to US$376 billion, or US$66,000 per capita.

From the perspective of March 2020, China's growth will likely continue to be low even if COVID-19 containment appears to have been successful unexpectedly quickly. However, in the weeks since MTI's February assessment, the US and euro area economies have begun to look distinctly weaker than was thought then to be the case. Moreover, COVID-19's economic impact, not just on the US or the euro area but globally, will probably be larger than previously expected.

If the lower end of MTI's February forecast range materialises, 2020 will be a full one-year period of negative growth in Singapore – the first since 2001. Even the 2003 SARS outbreak reduced GDP by 0.3% for just one quarter, with record GDP expansion of 5.3% in the quarter that followed.

The predicted impact of the COVID-19 outbreak on Singapore's economy, therefore, is larger than any other event of the last two decades, including the 2008 Global Financial Crisis.

- **Second, what has been the economic policy response?**

The economic policies that have been applied can be divided, logically, into those formed within the 2020 government budget process (coincidentally announced in February 2020), and those constituted outside that process.

Beginning with the second category, with the COVID-19 outbreak leading to a range of quarantine-derived restrictions imposed on business and workers, the government quickly realised that, all else equal, the incentive was for even the ill and infected to keep coming in to work. The externality this inflicted was that those who were healthy but had a sick colleague experienced an increased risk that they too would fall ill. So, in mid-February the government put in place a scheme to help compensate businesses and the self-employed for those under COVID-19-related leave of absence.4 Although the compensation is not 100%, this is a move towards guaranteeing paid sick leave.

Along the same lines of externality management, COVID-19 testing is free, although those suspecting infection but not yet showing respiratory symptoms are encouraged instead to practice self-isolation and social distancing.

Turning now to the 2020 government budget, Tuesday 18 February was when Singapore's Finance Minister Heng Swee Keat was scheduled to present the budget to Parliament.

4 https://www.mom.gov.sg/newsroom/press-releases/2020/0212-leave-of-absence-support-programme

To better appreciate the significance of this budget, recall two facts. First, by then the name COVID-19 was only a week old. Second, Singapore's government operates on a principle of budget balance over each term of government. Thus, for instance, from 2001 to 2010, a period that included the 2008 Global Financial Crisis, Singapore's overall budget balance averaged to +0.1% of GDP.

The 2020 budget, by contrast, showed an expected deficit of S$10.9 billion, fully 2% of GDP, with total spending by ministries amounting to S$83.6 billion. This deficit exceeds the S$8.7 billion of the 2009 budget during the Global Financial Crisis, although in relative terms 2009's did come to 3.2% of GDP.

Included in this unusual government expenditure is a S$4 billion Stabilisation and Support package[5] targeted specifically at COVID-19 issues. The ingredients of the package provide support on both aggregate demand and supply:

- A jobs support scheme (S$1.3 billion) whereby the government pays 8% of the wages of local workers for three months, up to a S$3,600 monthly cap. Singapore has 1.9 million local workers.
- A wage credit scheme (S$1.1 billion) whereby the government co-funds approximately wage increases of approximately 30% for Singaporean employees, up to a S$5,000 gross monthly wage (the exact parameters taper over time).
- A care and support package (S$1.6 billion) whereby the government provides one-off cash payments of between S$100 and S$300 to every Singaporean aged 21 or higher, thus helping households defray the cost of living.

Beyond these large components, the 2020 budget also includes corporate income tax rebates of up to 25% of total tax payable in 2020; faster write-down for investment incurred in 2021; government co-financing of working capital loans; increased flexibility in rental payments for commercial enterprises on government properties; and retraining and reskilling programmes in tourism, transport, and other affected sectors.

In comparison with historical fiscal spending averages, the scale and extent of this expansionary support policy are remarkable. The policy is targeted, moreover, with the most vulnerable and affected in the Singapore economy receiving greater, albeit still time-limited, attention. Both demand and supply side considerations are taken into account: businesses receive investment relief at the same time as consumers see an immediate boost to their cash holdings, thus raising economy-wide spending power.

5 https://www.singaporebudget.gov.sg/budget_2020

Further, in February the Monetary Authority of Singapore, the nation's central bank, announced that it was "prepared to recalibrate monetary policy" if the economic outlook deteriorated further.[6]

At the end of February, to show solidarity with other Singaporeans coping with the coronavirus outbreak, the President of the Republic of Singapore, the Prime Minister, all Cabinet Ministers, and all political office-holders took a one-month pay cut. At the same time, the Finance Minister announced that healthcare frontline workers would receive an extra month's special bonus.

Finally, in his 12 March speech, Prime Minister Lee Hsien Loong added to what was in the Finance Minister's budget by announcing that, as needed, the government was already putting together a second package of support measures to continue to help businesses, workers, and households.

Technical knowledge and scientific expertise

Beyond economics, Singapore's other domain experts have approached the job in a way that has, by all accounts, continued to build trust among Singaporeans.

Throughout January, even as the first isolated, imported COVID-19 cases were being confirmed, MOH maintained clear, consistent, and informative messaging on their website. The current state of confirmed cases would be reported each evening, normally with precise information on where the confirmed cases had travelled, and continuing updates on individuals with whom the various confirmed cases had come into contact. Singaporeans could develop a clear picture for themselves of what was happening with COVID-19 across the nation.

Within a week of the first confirmed case in Singapore, researchers at Duke-NUS (National University of Singapore) announced they had cultured the novel coronavirus from a patient's clinical sample, thus aiding the development of new diagnostic methods and the testing of potential vaccines.

When spatial clusters of COVID-19 emerged, MOH and affiliated agencies painstakingly undertook contact tracing until practically every individual was accounted for. Again, Duke-NUS developed a crucial new serological test able to establish links across infected individuals, even when, after recovery, patients had cleared the virus from their

6 https://www.straitstimes.com/business/economy/singapore-downgrades-2020-economic-growth-forecast-to-05-15-on-coronavirus-impact

systems. This was put to use to connect two previously distinct clusters in Singapore, clarifying the transmission mechanism and identifying the individuals who had served to link the clusters.

That Singaporeans understood why such detailed knowledge mattered and how the risks were asymmetrically distributed also helped the process of confidence-building. South Korea had also carried out systematic and exhaustive monitoring. Their first confirmed case was discovered 20 January: "Patient 1" had flown from Wuhan to Incheon International Airport in Seoul. Upon discovery, she was isolated. In the weeks that followed, in a city of 10 million, only 30 new cases occurred, even with "Patient 6" having contracted the virus locally. But then "Patient 31" (how she became infected remains unclear), who denied she had been told to get tested for the virus, attended service twice at the Daegu branch of the Shincheonji Church of Jesus along with 9,300 others. Within weeks, hundreds tested positive for COVID-19,[7] with South Korea's total cases now numbering in excess of 8,000.

Singaporeans could clearly see the dynamic unfolding between new, carefully reported scientific evidence and the corresponding policy measures taken. The same evening (Tuesday 4 February) that the first local coronavirus transmission was recorded, the Minister of Education informed that primary and secondary schools would suspend large group and communal activities. That weekend, universities, business, and most other establishments set up thermal scanning stations ahead of the coming workweek.

In an environment where, for example, social distancing is asked of the population, it does not take a great deal of convoluted calculation to evaluate costs and benefits, and to take on board the advice from both science and political leadership. Policies are simply that much more effective when there is trust in science.

Communication and political leadership

The evening of Friday 7 February, after MOH announced Singapore was going DORSCON Orange, some supermarket shelves across the island quickly emptied, famously including those that should have held toilet paper.

7 https://graphics.reuters.com/CHINA-HEALTH-SOUTHKOREA-CLUSTERS/0100B5G33SB/index.html

The following day Prime Minister Lee Hsien Loong went on TV to address the nation. By all accounts, the message was the very model of good communication and national leadership. The speech explained to the audience what economic and social reserves Singapore would be able to draw on, what was new in the threat posed by the novel coronavirus, what measures were in place, and how individual Singaporeans could help.

Most critically, the speech pointed to how strategies would need to be reconsidered as the situation continued to unfold and scientific understanding grew with more data. When Singapore's Foreign Minister Vivian Balakrishnan was interview on CNBC on 11 March, he set out how the challenge is now global and likely to continue perhaps into the next year. He described how Singapore will need to meet the challenge by working together with others, both in the region and worldwide. The approach is one where "We prepare for the worst. We get all our measures lined up, coordinated. We communicate with our people, people understand what we are doing."

In Singapore the messaging has remained clear, consistent, and well-informed. Credibility is high. This has continued to reassure the population appropriately to and maintain trust in the system. Demand and supply work best when there is confidence in social mechanisms.

Contrast this with how in the US the Trump administration went from one week boldly announcing the US would have zero cases to the next week having to deal with more than 2,000 confirmed infections and nearly 50 deaths. The US president refused to accept responsibility for testing delays, blaming instead others within and outside of his administration. He continued to contradict his own health officials. All this has elevated anxiety and uncertainty among Americans.[8]

Even the most expansionary monetary policy will face a steep challenge restoring American consumers' confidence in the face of such erratic top leadership.

The US Centers for Disease Control and Prevention (CDC) suggest a simple formula for public health communication: "Be consistent. Be accurate. Don't withhold vital information. Don't let anyone onto the podium without the preparation, knowledge, and discipline to deliver vital messages."[9] If a threat is going to make many ill, don't falsely reassure them. Information that is frightening still needs to be conveyed, but do so with empathy. Help people see at an individual level what they can do to help.

8 https://www.washingtonpost.com/health/2020/03/14/cdc-manual-crisis-coronavirus-trump/
9 https://www.washingtonpost.com/health/2020/03/14/cdc-manual-crisis-coronavirus-trump/

Singapore's political and scientific leadership seem to have taken the CDC formula to heart for their public announcements; the Trump administration, the complete opposite. One might have been tempted to say the Singapore approach is only one of plain common sense. That the US approach has been so different suggests that there is little plain or common in that approach.

Conclusion

I have suggested that Singapore's policy response to the COVID-19 outbreak has taken three broad strands:

- Economic, to repair potential falls in aggregate demand and supply and possible market failures.
- Scientific, to confront head on the health and medical challenges, and to build confidence in the system.
- Political, with leadership showing itself to be in command of the situation to the extent possible, and admitting to continuing to learn as knowledge gaps closed and to be willing to adapt policies as a result.

Each of these strands is, by itself, sensible and effective. But they also feed off each other, and through positive spillover effects strengthen the policy response. What appears to have worked for Singapore is scientific and political leadership both communicating a clear understanding of the situation – identifying risks and challenges – together with economic policies that address both demand and supply considerations and that support a continued stable social system for productive exchange.

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12 The experience of South Korea with COVID-19

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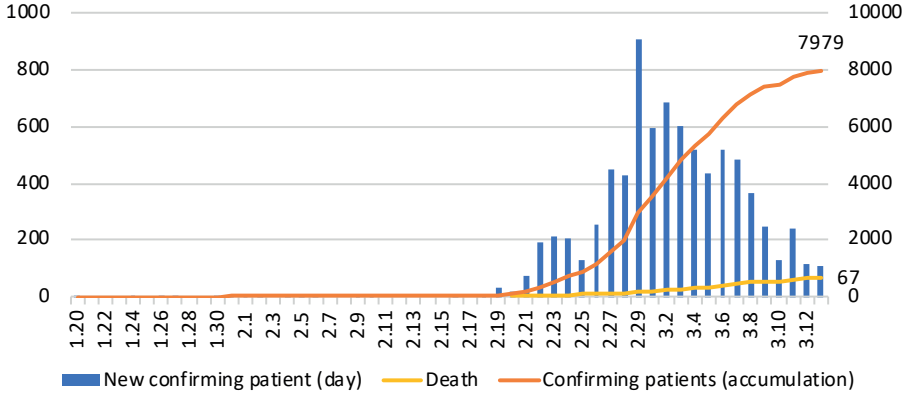
With the spread of COVID-19, the Korean economy is facing a crisis of unprecedented contraction in both supply and demand. The medical shock – in terms of total cases – is now the fourth largest in the world, but for many weeks it was in the top three. The Korean experience with the virus was unusual.

The medical shock: Large-scale infection via a religious cult

As COVID-19 spread across mainland China, many East Asian countries placed entry bans on people coming from China. South Korea, however, only banned the entry of those coming from the centre of the Chinese outbreak, the city of Wuhan, and simply strengthened immigration quarantines for those entering from other areas of China.

Figure 1 Trend of cases of COVID-19 and number of deaths



Source: Korea Center for Disease Control & Prevention

In the beginning, few people were infected in South Korea, thus the government felt confident that the disease control measures were working. The president announced that there was no need to restrain consumption activity and daily lives due to the excessive fear of the virus. However, the situation worsened markedly from late February (Figure 1). This is linked to one particular outbreak.

Daegu and Gyeongbuk – cities located in the centre of South Korea – experienced large-scale group infection outbreaks from 19 February. These were initially linked to religious cults, but spread rapidly.

The government reaction was to opt for a large-scale test-and-tracing approach to slowing the rate of infection. This was possible thanks to South Korea's biotech industries and its efficient medical services system. Many medical teams came voluntarily to Daegu, where about 80% of the COVID-19 patients were concentrated, in to offer medical services – despite the risk to their lives.

South Korean was able to develop COVID-19 test kits very quickly and set up a production line. The result was a remarkable acceleration in testing, with over 12,000 tests conducted per day. This was far greater number than in other nations (Table 1), as Ritholtz (2020) reported.

Table 1 COVID-19 testing per capita

Country	Population (millions)	Number of tests	Tests per million people
US	329	13,624 (12 March)	41.8 (12 March)
Japan	127	10,205 (12 March)	80.5 (12 March)
Italy	61	80,611(12 March)	1,420.5 (12 March)
South Korea	51	248,647 (13 March)	4,831.3 (13 March)

Source: "Our World in Data" by University of Oxford; World Population Review.

This response was possible due to an innovative approach.

First 'drive-through' test in the world

To protect doctors from the highly contagious disease – as well as to accelerate the testing – South Korean doctors designed a 'drive-through' testing method, not unlike at McDonald's.

When a person with symptoms arrives at the testing centre , the medical team collects his or her sample while the person is still in their car. The next steps are consultation with the medical team, payment, completing administrative procedures, and applying for treatment – all this without having to get out of the car. On 13 March, the US government announced that it would also begin drive-through testing.[1]

The identification and isolation of cases had a dramatic impact on the number of new cases. From a peak of 900 people infected per day, the numbers are now down to around 100 cases (as of 13 March when this chapter was written). Control of the virus seems to be in sight. Further, the number of deaths, which was recorded to be 67 as of 13 March, is remarkably low compared to other countries.

All this was paid for from government budget reserves.

The economic shock

South Korea has a high trade dependency, with China absorbing about 25% of its total exports. South Korea's industry is also deeply integrated with Chinese industry, so the disruption of parts and supplies from China was felt particularly hard in the country. Many corporations have already been weakened due to the failure of international logistics. Government policies to disinfect the population have also hit hard.

About 120 countries have placed an entry ban on travel from South Korea. As face-to-face interactions are important to business, the restriction in human mobility has had severe effects on trade in intermediary goods, investment management and construction work abroad.

The South Korean government advised citizens to avoid gathering in places that are prone to passing on the disease, such as schools, sports facilities, entertainment venues and the like. For high-risk groups the policy is stricter, taking the form of mandatory isolation.

Despite being voluntary for most, the worsening epidemic saw people switching to 'staying at home' mode. Shopping districts that used to be crowded with customers are now empty, and many SMEs that have lost their sources of demand are faced with bankruptcy. A contraction of spending due to adverse developments in consumer sentiment has also had an impact on aggregate demand.

1 "South Korea is doing 10,000 coronavirus tests a day. The U.S. is struggling for even a small fraction of that", Washington Post, 13 March. https://www.washingtonpost.com/world/asia_pacific/coronavirus-test-kits-south-korea-us/2020/03/13/007f14fc-64a1-11ea-8a8e-5c5336b32760_story.html

While it is too early to have actual data, the possibility that the economic shock will lead to extensive unemployment is high. In particular, the unemployment rate among teenagers and the elderly could rise substantially.

Economic policies to date

To stem the economic cost of the medical shock, the South Korean government is covering the costs of COVID-19 tests, the costs of treating the disease and patients' living expenses.

The government has proposed expanding this policy to low-income households, with support to help with living expenses, consumption vouchers, childcare allowances, and so on. An additional budget of 11.7 trillion won is currently under review by the National Assembly.

The government has also established an 'emergency management' fund for small business owners worth 1.4 trillion won. This is aimed at providing liquidity for SMEs and their owners. However, the procedure for preparing an application, the evaluation the application and the confirmation of a guarantee can take more than two months, and it then takes another week to actually receive the funds. This has not worked well. Supporting institutions have stuck to conventional methods, which sometimes means letting people receive support after they face bankruptcy. Moreover, the evaluation criteria for the funds are very strict. Only 4% of the government budget has been dispersed.

What more should be done?

Support the vulnerable

Certainly, measures should be taken to provide financial assistance to people who are vulnerable and/or directly impacted by the disease. This includes those who have lost their jobs because of COVID-19 – for example, workers in hospitality and transportation – as well as low-income households. As part of this, small businesses such as restaurants, wholesale and retail, tourism and travel all need backing to overcome the challenges posed by the COVID-19 crisis.

Minimise the collapse of the industrial ecosystem

To minimise the collapse of the industrial ecosystem due to the COVID-19 pandemic, a large budget should be secured. There is, as mentioned, an initiative to boost spending, but some politicians are arguing for a policy such as the universal basic income approach.[2]

South Korea's economy is founded on its industrial base, however, and a key goal of government policy should to avoid lasting damage to this base. The extra spending should be focused on preventing the collapse of the industrial ecosystem and on helping firms to get through the 'crisis tunnel' while keeping employment as high as possible. We must formulate deliberately targeted policies that support the whole industrial ecosystem. This includes consideration of the most appropriate timings for policies to be implemented.

The support should not be only financial. In addition to the expansion of financial support, a way to improve the investment environment for new industries by major corporations through deregulation should be sought in order to create decent jobs. In the longer term, after overcoming COVID-19, the country should establish industrial policies aimed at promoting smooth industrial restructuring.

A main pillar of these pro-industry supportive policies should be policies that prevent struggling companies from going out of business. There are several ways to do this: i) providing emergency operation funds, ii) providing employment maintenance funds, and iii) providing direct tax relief. In designing these policies, it is imperative that the industrial ecosystem includes consideration of SMEs .

One aspect of the ecosystem is the transportation sector. Many airline flights have been suspended. This is challenge for the transportation companies, but also for manufacturing companies which face difficulty procuring parts and components from overseas. As a result, manufacturing activities are rapidly contracting.

For these companies, foreign currency liquidity support for the procurement of parts, diversification of this procurement, smooth restructuring support if necessary, and measures to counter deepening financial insolvency should be pursued.

2 Several politicians, including Governor Kim Kyoung-soo of Kyongnam, have advocated giving everyone the same amount in cash.

Another direct way of providing relief from reduced cashflow lies in suspending or delaying the payment of costs. Despite dramatic reductions in earnings, corporations still are responsible for paying rent, wages and all types of taxes, social insurance fees, and so on. The COVID-19 crisis is expected last for several months, so a move to postpone taxes and insurance fees – the fixed costs that the government has control over – for a certain period of time is urgent and would bring significant benefits in terms of maintaining business and employment continuity. To implement this, the government should announce a temporary halt to all taxes and social insurance fees.

Strengthen the foreign exchange shield

Given the harsh lessons learned during the 1990s Asian crisis, South Korea is very vulnerable to the instability of financial markets.

As COVID-19 spreads rapidly within the United States, the huge shock to the real economy is making it difficult for companies to earn export dollars. At the same time, financial market instability is likely to make it harder to raise or roll over financing. All this is likely to put foreign exchange strain on Korean financial and non-financial firms.

Based on past experiences in South Korea, the dollar has always been the first to be exposed when national risk has been high. South Korea's foreign exchange reserves stood at $429 billion as of 13 March 2020. While this is among the ten highest in the world, it is not sufficient considering the size of the economy. Taiwan, with GDP one third that of South Korea, owns approximately $480 billion – far more than South Korea. Measures should be prepared to prevent foreign investors' funds from being suddenly withdrawn if the investors grow uneasy. To this end, South Korea should sign currency swap agreements with the United States and Japan. To facilitate this, the government should end its political confrontation with Japan.

As the Wall Street Journal has reported, the need to expand currency swaps is being raised in the United States as well.[3] South Korea must strengthen its 'foreign exchange shield' through signing a currency swap agreement with the United States.

These economic measures seem to be being displaced by medical policy priorities. South Korean authorities are focusing their administrative power on resolving the issue of the supply and demand of masks. This needs to be sorted out. The Ministry of Economy and Finance must try to reduce industrial damage and to minimise the economic deterioration, leaving the Ministry of Health and Welfare in charge of disease

3 "The Fed's Market Emollients", *Wall Street Journal*, 9 March 2020.

control – and whatever that requires. Furthermore, meticulous policies that set pertinent timings for budgetary spending based on urgency and that encourage money to flow smoothly within the economic system are needed.

Deregulation for investment

While it is natural that policymakers focus on the urgent, they should also think about the important.

The Ministry of Trade, Industry and Energy must see the present situation – where many corporations are inevitably faced with bankruptcy despite government support – as an opportunity for future-oriented industrial restructuring. Thirty percent of South Korea's GDP is tied to investment demand. This is much higher than the 10% in the United States and the OECD average of 20%. Under the current circumstances, where domestic demand is excessively contracted, it is unreasonable to expect job creation and economic growth unless investments are increased. Investments to change the industrial paradigms are needed. South Korea imposes many regulations on big conglomerates, and in this sense, domestic investment for new industries is not taking place in an appropriate manner.

The government should also encourage companies to create new jobs by improving the investment environment. Employment requires corporate investment. To revitalise corporate investment, measures such as aggressive deregulation, tax cuts, and preferential tax treatment for investment funds should be introduced. There is also the issue of labour market regulation. For SMEs in particular, problems relating to the labour market regulations introduced by the current administration – raising the minimum wage, cutting work limits to 52 hours per week, among others – are hindering investment and the creation of employment.

Some of these are directly related to the pandemic. For instance, if even one employee is infected by the coronavirus, the whole factory is subject to disinfection. This can take several days, and once the factory is reopened, firms have no choice but to arrange overtime work to meet deadlines. As the new labour laws make this illegal, firms are having to give up the contracts and pay the penalties. Despite companies' urgent calls for deregulation of labour markets, the government, which is more used to budgeting, is not showing any interest in amending the labour laws.

South Korea's rapid and high activist medical reaction is admired and widely studied and around the world. It is time for the nation's economic policymakers to take inspiration from this. The goal of saving Korea's industrial base is as important as saving jobs and protecting the vulnerable from the ravages of this pandemic.

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13 COVID-19: Europe needs a catastrophe relief plan

Agnès Bénassy-Quéré, Ramon Marimon, Jean Pisani-Ferry, Lucrezia Reichlin, Dirk Schoenmaker and **Beatrice Weder di Mauro**
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Beyond its public health dimension, the unfolding coronavirus epidemic also represents a severe economic stress test for Europe that comes from a totally unexpected side. This time, it is primarily a shock to the real economy hitting all European countries more or less equally (time lags will soon become a footnote). The buffers and firewalls put in place after the global financial crisis and the euro crisis have been designed to fight a different sort of crisis, originating in the financial sector or in a particular sovereign. This time is different.

For this reason, and because its fallout for integration may be persistent, this crisis calls for a common Europe-wide response. **This is not only an economic crash test, but also a test of European unity**. How European leaders will deal with the fear and the suffering of their fellow citizens will be remembered. By the same token, the crisis is an opportunity for leaders to build trust and to show unity, strength, consequence and solidarity. They will need to demonstrate that Europe can help put in place an effective catastrophe relief plan. Just a few weeks after Brexit, it is time for the EU to demonstrate that it can deliver in the face of dramatic events.

There is no European roof

Twelve years ago, the global financial crisis triggered a major recession and marked for many countries the beginning of a 'lost decade'. **Europe is entering this new crisis with different strengths and weaknesses**. Among the strengths are that the banking sector is better capitalised and more liquid; the derivative markets are more transparent; the European Stability Mechanism can act as a backstop in case of bank resolution and, more importantly, it can deliver emergency assistance to a member state, conditional on

an adjustment programme; and last but not least, the ECB can help counter an attack on a member state by purchasing potentially unlimited amounts of sovereign bonds, again conditional on an adjustment programme. Hence, banks are stronger than they used to be; and although sovereigns are weaker (due to accumulated debts), the potential for multiple equilibria on the bond market is reduced.

As for weaknesses, the ECB is running out of fire power, with a still negative deposit rate and little room for further quantitative easing. A long period of extremely low interest rates has encouraged borrowing and buoyant asset prices in the euro area, although through different channels and to different extents across member states; it has also weakened the banking, pension funds and life insurance sectors. Although macroprudential policies have been activated in most countries, various actors are entering the crisis with debts, overvalued assets and small interest margins.

On the fiscal side, the European roof is not only leaking, it is missing altogether for the kind of shock that is unfolding. Europe is equipped with a fair-weather budget that has not been designed to cope with emergencies. The pre-COVID negotiations on whether the EU budget should amount to 1.11% of national income (the European Commission's proposal), 1.02% (the 2014-20 level) or 1.07% (a compromise) will probably appear pathetic to future historians, who will compare the Chinese and European reactions to COVID-19. More importantly, the adequacy of a pre-allocated budget over a seven-year period is problematic: it leaves no room for frontloading (with common borrowing) and even little room for the rearrangement of spending priorities. Moreover, the long-lasting discussions on the need for a fiscal stabilisation capacity at euro area level have gone nowhere, except for the meaningless micro-BICC (Budgetary Instrument for Convergence and Competitiveness) agreed upon in October 2019.

A very serious economic crisis for Europe

The COVID-19 shock combines features of a demand and a supply shock. Assuming, as a working hypothesis, that the epidemic is over in the summer of 2020, the crisis in Europe could unfold through four partially overlapping phases:

- **Phase 1 – the China Shock** (January-March): mostly adverse supply-side effects of the Chinese health crisis through global manufacturing value chains. Supply-side shortages are specific to some producers and products; sectoral effects are significant but macro effects are small since the most affected sectors (transport equipment, electronics, pharmaceuticals, textiles) represent some 4% of GDP (though more for Germany), according to OECD data.

- **Phase 2 - sectoral disruptions** (starting in February): a sectoral and regional demand shock hitting mostly tourism, air transport, hospitality and entertainment. This is a more violent shock but again, the impacted sector is small overall – at most, 5% of GDP if restaurants are included, with some variation across countries (more in Spain, less in Germany).
- **Phase 3 – acute overall disruption** (starting early March in Italy, 1-3 weeks later in other European countries): aggregate supply shock resulting from contagion containment measures with restrained demand and mobility. The nature of these may not be the same in all countries, but all will need to tackle the acceleration of contagion with measures such as travel bans, shutdowns of public transportation systems and school closures. Such broad-based measures are bound to be very damaging economically because of labour supply reductions (around 15% for school closures, based on simulations for the UK; Sadique et al. 2008), obstacles to business activities, financial disturbances (stock markets, credit standards) and a drop in social consumption. Aggregate quarterly output is likely to fall severely during this phase, but hopefully still by single-digit numbers. Reduced oil prices will act as a very partial stabiliser, with other international spillovers being clearly negative.
- **Phase 4 – recovery** (starting in May or June): a sharp rebound is likely but may be muted by hysteresis due to confidence effects, lost corporate income in the service sectors, bankruptcies among SMEs and credit constraints resulting from the accumulation of non-performing loans on banks' balance sheets and the rebuilding of dented savings at the household level. The danger is that such hysteresis effects prevent a return to the pre-crisis path once the health emergency is over. Again, major international spillovers will be at work, compounding national and regional difficulties. If the lesson from the global financial crisis is of any relevance, it is because it underlines the extent to which major shocks can have strong spillovers and persistent consequences.

The adequate policy response depends on the phase

The right policy response depends on which phase the economy is in. During the first phase, there was limited scope for policy intervention at the aggregate level. Some targeted sectoral measures, such as subsidised short working hours ('*Kurzarbeit*'), were already being discussed in Germany for firms hit by disruptions to their trade with China.

In the second phase, liquidity lifelines – starting with automatic delays to tax and social contribution payments and partial unemployment schemes – have been or are being deployed at the national level. **This is on the whole an adequate response**, on top of additional funding for healthcare.

Phase 3 requires more generalised emergency support measures for various reasons. First, spending on healthcare (temporary facilities, equipment, hires, overtime for medical personal) and on related items (security, control of lockdown measures, etc.) must be stepped up significantly. The corresponding one-off cost is hard to assess, but may amount to several tenths of a percent of annual GDP. Second, some service sectors will suffer permanent income losses instead of just liquidity shortages. SMEs in particular need substantial financial support in this phase, in the form of tax relief and concessional credit lines and grants on top of the previous measures in order to forestall bankruptcies. Temporary partial unemployment support (*Kurtzarbeit* in Germany, *Cassa Integrazione Guadagni* in Italy and *chômage partiel* in France) needs to be activated as it helps cushion the shock and avoid lay-offs, which is exactly what is needed when facing an exogenous drop in activity. Direct support to households, through relief of cash payments (such as tax holidays or relief from paying electricity bills, as announced in Italy) or cash handouts (as already announced in Hong Kong and Singapore) may also be necessary, as well as direct transfers to independent workers.

In the event of a one-month lockdown leading to a temporary 50% drop in private-sector activity, we estimate that the cost of exceptional support measures would amount to 0.5% to 1% of annual GDP.[1] The direct cost of *discretionary* measures (emergency health and lockdown measures plus economic relief) would therefore be of the order of magnitude of 1% to 1.5% of annual GDP. This may seem a large number, but Italy has already announced an emergency support programme amounting to €10 billion, or 0.6% of GDP. Together with the fiscal stabilisers, such an action plan would imply accepting a short-term deterioration of the fiscal balance by about 2% of GDP.

These are large enough numbers to test the fiscal capacity of the most vulnerable member states. As there are now large externalities of containment measures, the economic response should also involve the European level.

Phase 4 will call for significant fiscal demand support to help avoid hysteresis effects. The magnitude of the effort will depend on the length and severity of the Phase 3 recession, but it is best to plan for action that is meaningful, comprehensive and long-lasting enough to ensure the elimination of the scars inherited from the crisis. The

1 Assuming that the government would cover one-third of income fallout of the reduced economic activity and that the other two-third would be borne by companies and, to a lesser extent, households.

priority in this phase will be on aggregate demand rather than supply-side or sectoral measures. The most appropriate vehicle is likely to be direct transfers to households. There is a need to plan the boost beforehand so that it can be activated at the right moment. Again, the European dimension will be key to internalising externalities.

During phases 2 and 3, the ECB should stand ready to provide liquidity to banks that are likely to be affected by the deterioration of credit quality, while facing urgent demands for short-term credit. The ECB also has a long experience with (targeted) long-term refinancing operations and should consider launching such a programme (conditional on bank lending to SMEs). As for monetary policy, the best course of action would be a monetary easing in coordination with a fiscal stimulus. The decline in oil prices will affect headline inflation and, as happened in the past, could affect household and corporate inflation expectations. It is therefore key that the ECB provides firm communication on its inflation target to avoid a deflationary scenario.

Since non-performing loans (NPLs) will be on the rise, **the ECB and national supervisors could provide temporary relief (for example, for the remainder of the year) of the agreed framework to reduce NPLs in the EU**. A temporary waiver on the implementation of the Basel standards for loans categorisation might also be useful. Finally, some specific buffers could be relaxed. However, supervisors should not allow a massive deterioration of banks' balance sheets, since the banks will be needed to finance the restart of the economy in phase 4. Guarantees extended by the European Investment Bank would help protect banks' balance sheets, while at the same time allowing for an extension of credit lines to SMEs.

The bottom line, though, is that phase 3 will create not just a liquidity problem but also a solvency problem in the various economies, although to a varying extent depending on specific sectors and firm sizes. These solvency problems cannot be addressed by monetary policy and even less so by micro- and macroprudential policies; fiscal intervention will be key.

A European fiscal response

Under current circumstances, **the Economic and Financial Affairs Council should formally rule that all temporary additional public expenditure caused by the outbreak of the health crisis will be deducted from 2020 public expenditures** and the corresponding public deficit for the assessment of the member states' compliance with the Stability and Growth Pact (SGP). The Commission has already given indications of this, but a formal EU decision covering the period of the health emergency is needed. This would require triggering the general escape clause introduced in the SGP 2011 to

cope with "an unusual event outside the control of the Member State concerned and with a major impact on the financial position of general government, or when resulting from a severe economic downturn" (Council Regulation No 1177/2011, Art. 2).

However, as after the global financial crisis, **the hard constraint may not be the SGP but rather the ability of national governments to borrow several additional percentage points of GDP.** Here, member states are not equal. Between 22 February and 10 March 2020, interest rates on 10-year sovereign bonds fell by 0.3 percentage points in Germany and stayed stable at a negative level in France; but they rose by 0.4 and 0.15 percentage points in Italy and Spain, respectively. It could be argued that such divergence is the logical outcome of different situations in terms of debt sustainability. However, it is not in the interest of Germany or France to see Italy or Spain restricting spending related to the epidemic, since this might impact on them in the form of further contagion and economic weakness. Conversely, costly containment measures will produce positive spillovers on other countries, and thus should be co-financed.

- **A European catastrophe relief plan aiming at supporting the combined efforts of the member states in combating the pandemics should be urgently conceived and decided upon.**

The most pressing priority is to help finance the additional cost of improving hospital infrastructure (especially the number of intensive care beds) and paying for the extra workload of medical staff. The second priority is to open a window to finance indirect expenditures related to public health measures, such as containment and school closures. This mutualisation of healthcare costs should be subject to screening by an expert committee. Eligible expenditures could include security, partial unemployment schemes and support targeted at specific sectors such as hospitality, airlines and entertainment (after alleviating existing constraints on state aid, which should be easier to do if all countries are concerned simultaneously than if only one asks for it). The Commission could extend the funds on a weekly basis and carry out the audits once the crisis is over, hopefully in the second half of the year. Transparency (not bureaucracy) over how support is being spent will be a key element in the success of the fiscal intervention. Within each country, it is well understood that the shock is truly exogenous, hence moral hazard should not be a core concern and temporary support – for example, through *Kurzarbeit* – is legitimate. The same line of reasoning should apply at the EU level.

We are advocating a **comprehensive emergency package through which the EU would take responsibility for a meaningful share of the overall emergency effort**. This would require finding the means to release tens of billions of euros from EU resources, despite existing limitations on the use of the EU budget.

European Council President Charles Michel and European Commission President Ursula von der Leyen declared on 10 March that the EU should both take part in the fight against the disease and act on the macroeconomic front, and they announced initiatives that remain to be specified. We welcome such initiatives but underline that a mere renaming of existing budgetary credits and the announcement of large headline figures based on virtual multipliers would not do any good. The situation calls for the allocation at EU level of new funds dedicated to addressing the consequences of the disease wherever they occur within the Union. This is not a moment when the EU members should be afraid of 'mutualisation'. Rather, they should be afraid of the consequences of ring-fencing.

Possible sources of funding include the following:

- **Existing EU funds**, including the European Solidarity Fund and the European Globalisation Adjustment Fund, which would need to be leverage as they currently totalize less than €1 billion.
- **Reallocations within the EU budget**. Budgetary credits earmarked for the structural funds in the 2020 budget should be mobilised for the emergency health initiative. Article 317 of the TFEU Treaty makes it possible to reallocate funds within the budget. It will be important to provide relief to all member states, irrespective of their share in the structural funds or the distribution by country of as yet unspent money. A straightforward solution would be to reallocate within the EU budget specific budgetary items to the European catastrophe relief plan, and to negotiate a political agreement that would compensate the would-be beneficiaries of the reallocated funds through an exceptional allocation in the 2021 budget.
- **Cooperation among member states outside the framework of the EU budget**. Article 122(2) could provide a basis for organising such voluntary cooperation in the same way as was done for the creation of the European Financial Stability Facility (EFSF).

What could be plan B?

We know that our proposal is unlikely to receive warm backing from policymakers in several part of the EU and the euro area. Before discarding it, however, it is useful to understand the risks involved in an attitude of denial.

The starting point is that although the crisis today is believed to be mostly temporary, financial markets are short-sighted: they do not weigh future profits or tax receipts as they should based on the low level of interest rates. Hence there is room for multiple equilibria, and we should not rely on the assumption of well-behaved financial markets.

What would happen in the case of a sudden rise in interest rates in some member states, which would in turn make their debts unsustainable? This is not a theoretical threat, given that some governments are already on the razor edge. In such circumstance, there would be no solution other than an ESM financial assistance programme or, rather, the activation of the ECB's Outright Market Transactions (OMT) scheme. The fiscal adjustment programme would need to be postponed to the post-crisis period, with all the governance problems involved.

In the end, we think plan B would be more costly than plan A. Policymakers in all countries will likely be better-off if they can be granted for solidarity in the face of a common health drama than if they muddle through and ultimately have to cope with new emergency assistance, new conditionalities, and the involvement of the ECB in solving another sovereign debt crisis. It is time for the Europeans to think more deeply about opportunity costs, which are at the same time economic, social and political.

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14 The COVID-19 bazooka for jobs in Europe

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Faced with a huge increase in the number of COVID-19 cases, by now all EU governments have undertaken strategies of varying degrees to 'flatten the curve' – that is, to reduce the rate of growth of the pandemic in order to avoid a collapse of European healthcare systems. This strategy has an unfortunate economic consequence – what was already a sharp supply and demand shock is now a brutal, legally enforced, sudden stop to our highly interconnected economies.

Over the next few months, we face an unprecedented drop in the EU's GDP. This one may dwarf the 2008 financial crisis.

Can we put the economy in the freezer without damaging it?

We cannot predict how long the virus will last, which sectors and supply chains it will disrupt, or by how much GDP will drop. The risk is that many loans will simply not be repaid, ever. Credit default swaps on European corporates (iTraxxIndex) reached prices on 12 March implying a 38% default probability (Ainger 2020).

> *At this point standard demand management is useless. Governments do not want to stimulate economic activity – they are doing all they can to stop it [with social distancing policies] ... Instead, economic policy must ensure that the economy survives a 'freeze' of 3 to 6 months.*

As ECB President Christine Lagarde pointed out in her testimony that same day, this is a problem of state and fiscal capacity, not one of monetary policy. However, at this point standard demand management is useless. Governments do not want to stimulate economic activity —they are doing all they can to stop it (they are asking people to stay at home!). Instead, economic policy is needed to ensure that the economy survives a 'freeze' of (hopefully, no more than) three to six months.

For this to be possible, member states and EU institutions must insure all workers, families and SMEs against the bankruptcy risk this stoppage creates. Sadly, what is now on the table fails to accomplish this aim.

In this chapter, I propose a €500 billion package (the "bazooka" in German Minister of Finance Olaf Scholtz's parlance) to fight the virus, stabilise the European economy, and protect its jobs while the economy is in the 'freezer'. Then I discuss how to finance this package.

A €500 billion 'bazooka' to fight COVID-19, stabilise the economy, and save jobs

The package has three aims:

- First, help member states undertake the healthcare spending they need to defeat this pandemic.
- Second, provide a financial backstop to companies, particularly small and medium-sized enterprises.
- Third, support employment protection schemes throughout member states, so that a minimum of jobs are lost.

To finance the package, I conclude a straight Eurobond is probably not a realistic option, either legally or politically. I discuss three possible alternatives.

- First, the status quo, where member states finance the spending, as now, with the ECB ready to intervene as needed when and if the markets get riled up by the risk of financing the growing debt.

This 'path of least resistance' is actually quite risky as it may force the ECB to get too close to the limits of its mandate.

- Second – and the quickest legally and least politically costly – the sovereign bond-backed securities (SBBS) proposal, passed by the European Parliament in March 2019 and only lacking the Council approval, could be approved after very little work by the Council.[1]

It would allow member states to finance the 'bazooka' with less fear of destabilising the markets.

1 For details of the SBBS proposal, see European Commission (2020a).

- Third, it could be financed through the ESM, which, to facilitate its usage, should step in using the emergency procedure.

A clear engagement by the European Stability Mechanism (ESM) will allow the ECB to play its role by activating its Outright Monetary Transactions (OMT) programme. I propose the creation of a specific instrument within the ESM, tailored to take into account the present situation – an instrument in which the (necessary) conditionality could be linked to investments in the key priority areas discussed in this piece.

The Commission's response: Flexibility, not money

The measures announced by the European Commission this week tried to accomplish two objectives: to make full use of the flexibility in EU fiscal and state aid rules, and to mobilise the European budget. The Commission has decided that Europe will not stand in the way of EU member states' responses, but it has not mobilised new resources to aid those responses.

More flexibility

To ensure that member states act boldly, the Commission has granted them greater freedom to stimulate their economies. First, by relaxing state aid rules if the aid is intended to compensate citizens or companies affected by the coronavirus. Second, by recalling the exceptions in the Stability and Growth Pact (SGP) that allow for increased flexibility in times of need. By broadly interpreting the provision for unusual events beyond government's control and by triggering the escape clause, the Commission has paved the way for member states to use ample resources to tackle the crisis.

Target existing resources to the coronavirus response

The Commission announced it will mobilise the EU budget through the Coronavirus Response Investment Initiative. First, it has mobilised €1 billion in guarantees from the European Fund for Strategic Investments (EFSI), which would be leveraged by the European Investment Bank (EIB) to provide €8 billion in liquidity to the private sector. Second, the Initiative would mobilise €37 billion to support member states' healthcare systems, SMEs and workers. Out of the €37 billion, €8 billion will consist of funds that were already allocated to countries to carry out projects but were yet to be completed (and spent). If fully used, these could be complemented by €29 billion in further structural funding (these including national co-financing).

> *The Commission's proposal will not be nearly enough. Forgoing enforcement of our common fiscal and state aid rules is not a coordinated action at the EU level. It is just letting member states act as they see fit.*

Alas, the Commission's proposal will not be nearly enough. Forgoing enforcement of our common fiscal and state aid rules is not coordinated action at the EU level. It is just letting member states act as they see fit. As for the money, it will not suffice, and even then, the allocation of spending among member states will be that of structural funds. It will not be based on any factors related to the impact of COVID-19. The Commission's most common phrase while answering questions during their presentation was: "if we had time, the tools would have looked very different".

A European bazooka to protect jobs and wages

What Europe has put on the table will not be enough. Consider the "protective shield for employees and companies" that the German government proposed (Scholz and Altmaier 2020). It will bring massive tax cuts, the activation of Germany's short-term employment protection programme (*Kurzarbeit*), and €550 billion in loans to the private sector. It is a "bazooka" for the German economy, as Finance Minister Olaf Scholz put it.

A plan with this level of ambition could not be undertaken by many other member states. With elevated debt levels and, in some cases, fast growth in contagion, some countries may fear that were they to propose a plan of this size, they might face funding difficulties in their sovereign debt markets. It is clear then, that a European approach is needed to avoid the financial fragmentation that could, as in 2011, put the survival of the euro and the EU at risk.

> *A plan with this level of ambition could not be undertaken by many other member states… a European approach is needed to avoid the financial fragmentation that could, as in 2011, put the survival of the Euro and the EU at risk.*

A key argument against any common fiscal policy is the risk of moral hazard – a European budget, it is argued, rewards the imprudent. In the current context, however, this argument does not apply. Given the shock is exogenous, it is ludicrous to imagine countries did not act hoping for a collective action.

What would it entail for Europe to achieve its level of ambition? I believe that €500 billion distributed throughout the main priorities that the Commission has outlined:

- Help member states undertake the **healthcare spending** they need.

A 5% increase in EU-wide healthcare spending would cost around €50 billion. This would secure an EU-wide medical response in areas such as purchasing medical supplies, recruiting medical personnel, and retrofitting different venues to serve as temporary hospitals.

- A **financial backstop for companies**, particularly SMEs. Such a programme would bring guarantees, credit lines, and working capital loans to ensure SMEs remain liquid and can return back to normal when the economy is 'unfrozen'.

This would mean a programme with the level of ambition of the German bazooka. Relative to GDP, the German level of ambition would entail a €2.2 trillion programme at the EU level. Assuming the level of leverage the EIB can achieve, this would require around €275 billion in guarantees.

- A **European *Kurzarbeit* programme** – a programme to support short-term employment protection facilities throughout member states.

The main objective of these facilities will be to ensure firms have liquidity without having to fire workers. Instead of letting them go, companies would be able to reduce the hours of their workers (by 100% if needed) under these schemes. The state would compensate workers for (a significant part of) the lost wages.

Even though the package would be financed with public funds, if the programme does not run for an extended period of time, it will end up saving money for the taxpayer, as it will maintain the link between workers and firms and avoid the risk of a deep recession.

Given that explicit *Kurzarbeit* programmes are already in place in 17 EU member states (European Commission 2020b), in the rest it would have to finance other similar employment support programmes. The general condition would be that the link between employee and the job is not cut, so that the contract remains in place.

Such a programme could also be a stepping-stone towards establishing the European Unemployment Reinsurance, once it is adopted. For this mutualised package, and assuming EU governments would fund half of the cost of an 8% reduction in working hours of EU workers for three months, we estimate that the cost of this leg would hover around €175 billion.

How to pay for the bazooka

The three-pronged package would constitute a genuine coordinated fiscal response at the EU level, but it is clear member states would have to raise substantial amounts of debt to finance it. With automatic stabilisers depleting national budgets and member states making use of the flexibility provided for in the SGP, concerns about the sustainability of sovereign debt loom large.

After the plunge in the stock markets this past week, a market reaction to increased stress on public finances is likely, so innovative European funding mechanisms are needed. At the same time, the difficulty is that, given the need for a prompt action, we cannot take the time to develop legislative proposals and ideas from scratch. We must work from what is already on the table. Against this backdrop, I see three ways forward:

- Have the ECB step in
- Create a European Safe Asset, or
- Integrate the ESM into the EU's legal framework.

Expand the role of the ECB to step in

Some have argued that member states should borrow as much as they need and that, in the event of any market reaction, bold action from the ECB would calm the markets. For them, the ECB would expand its sovereign bond purchasing programme and target its purchases to those countries most affected by the coronavirus. However, it is no surprise that the recently announced purchases will be targeted to the corporate debt market. The ECB's headroom for an expansion of sovereign bond purchases is unclear, and would face substantial legal and political challenges.

> *After the plunge in the stock markets this past week, a market reaction to increased stress on public finances is likely, so innovative European funding mechanisms are needed.*

The ECB faces two self-imposed limits: its 33% position limit, whereby it cannot purchase more than a third of any given issuance; and its capital key guidance, whereby it must attempt to purchase sovereign bonds along the shares of its own capital contribution key. The position limit was raised from 25% during the last crisis, but further increases would present serious legal challenges. If the ECB held, for example, 40% of Italy's debt and Italy were to default, the ECB would be placed in a position where it would have to vote in favour of or against the restructuring. This would expose the ECB to legal challenge, since the measure could be interpreted as being contrary

to Article 123 TFEU and against its obligation of abstaining from monetary financing of member states. Some have pointed to potential legal loopholes around this (Canepa 2019), but the legal challenges would be unavoidable.

Alternatively, one could argue there is no need to increase the limit; the ECB today only holds about 22% of the total sovereign debt (Becker 2019), and it could simply reach the limit for all sovereigns. However, given that countries have widely differing debt-to-GDP ratios, reaching 33% on all sovereigns would entail a permanent deviation from the capital key —the ratio of sovereign purchases to capital contribution would be twice as high for Italy as that for Germany (Carrión Alvarez 2020). Given deviations from the capital have been a major point of contention for northern member states, the political challenges might be insurmountable.

Sovereign bond-backed securities

The establishment of sovereign bond-backed securities (SBBSs), a new category of bonds, would enable member states to increase their debt levels without causing market instability. SBBSs are a new kind of safe asset, issued by the private sector and backed by a diversified portfolio of euro area government debt. Because pooling and diversification are only done at the private-sector level, SBBSs bring no additional fiscal costs and don't involve any kind of subsidies or mutualisation of risks. Crucially, due to the tranching involved in the issuance, SSBSs would be considered safe assets, and their prevalence in the market would bring the stability needed for additional public debt issuances to be feasible.

> *The establishment of sovereign bond-backed securities, a new category of bonds, would enable member states to increase their debt levels without causing market instability. SBBSs are new kind of safe asset, issued by the private sector and backed by a diversified portfolio of Euro area government debt.*

Initially proposed by a group of economists that I was a part of (Brunnermeier et al. 2011), it has been thoroughly studied and endorsed by the ECB and the European Systemic Risk Board (Cœuré 2016, ESRB 2018). Essentially, the regulation simply eliminates a few existing prudential obstacles that as of now prevent the market-led development of SBBS.

The key for our purposes is that today there is already a proposal on the table, approved by the European Parliament in 2019. It is just waiting in the Council's drawers. SBBSs are a low-hanging fruit that could be implemented fast and effectively, and that would help calm market concerns immediately.

Creating a European Monetary Fund

The euro was built on two complementary but unequal pillars: a single monetary policy, conducted by the ECB; and decentralised fiscal policies, left in the hands of the member states (albeit constrained by common rules limiting their action). This asymmetric architecture had shortcomings, as proven by the sovereign debt crisis, contributing to building uncertainty about the permanence of the single currency and giving way to redenomination risk. To tackle this, a fiscal lender of last resort was put in place in 2012 – the European Stability Mechanism (ESM). Its purpose, as stated in Article 3 of its Treaty, is to "provide stability support (…) if indispensable to safeguard the financial stability of the euro area".

Yet, with the coronavirus causing havoc, pressure could once again become unbearable for member states, leading the ESM to step in. By involving the ESM, member states would be granted access to €500 billion under the best possible financing conditions. This would be done in full compliance with the European Court of Justice's case law as set in Pringle, as they would still be liable to repay the loans.[2] A key drawback, however, is the lengthy approval process that ESM programmes need to undergo since they require the participation of national parliaments. Moreover, if COVID-19 causes more cases of quarantine/confinement for MPs, national parliaments may not be able to take decisions. To speed up the process, it would be desirable to trigger the emergency procedure already in place under the ESM Treaty, which allows for decisions to be taken by a qualified majority of 85% of the votes cast.

The ESM's underlying logic derived from a context in which considerations regarding budgetary discipline and moral hazard were the norm (De Gregorio 2012). This, however, cannot be extrapolated to the present situation. That is why it is necessary to adapt its design and make it fit for purpose. The Commission's 2017 proposal to integrate it into the EU legal order, by establishing a European Monetary Fund, could very well be the perfect occasion in which to make the necessary changes. Based on Article 352 TFEU and without requiring Treaty change, the creation of a European Monetary Fund should be swiftly approved in the European Parliament and Council.

This endeavour would allow for an ambitious European response. To do so, a new instrument, tailored to take into account the present situation, should be added to the ESM's toolbox. Its required conditionality – legally essential to comply with the no-bailout clause in Article 125 TFEU (De Witte and Beukers 2013) – could be linked to investments in the key areas outlined above: healthcare systems, short-time employment schemes, and liquidity and other support for SMEs. Additionally, the ECB could

2 See http://curia.europa.eu/juris/document/document.jsf?docid=130381&doclang=en

also get involved through its announced but never implemented Outright Monetary Transactions (OMT) programme if the situation continued to deteriorate. The ESM programme would provide, following the Gauweiler ruling, the legal cover the ECB needs to be able to serve as its de facto backstop. By activating the OMT programme, the ECB would thus purchase unlimited amounts of member states' government bonds, putting an end to the excessive risk premia asked in the markets and thus preserving "the singleness of monetary policy".

Conclusion

To prevent the European economy from stalling, we must strive to preserve the links upon which it is based. The disruptive impact of the fight against COVID-19 on jobs, debts and loans, as well as on supply chains, puts at risk the entire economic fabric of European economies. If we do not act as the situation requires, we may find that when we want to go back to normal after the virus has passed, we will find it impossible to do so.

The situation is particularly risky for euro area countries, which could face renewed flight to safety and doubts about the sustainability of the commitment to the euro in the face of a massive growth in debt levels (redenomination risk). We must assuage market doubts about our determination to protect the euro and European economies. The funding plans proposed here are based on legislative proposals that already exist but have not yet been developed. It is now time to finish implementing them.

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15 The monetary policy package: An analytical framework

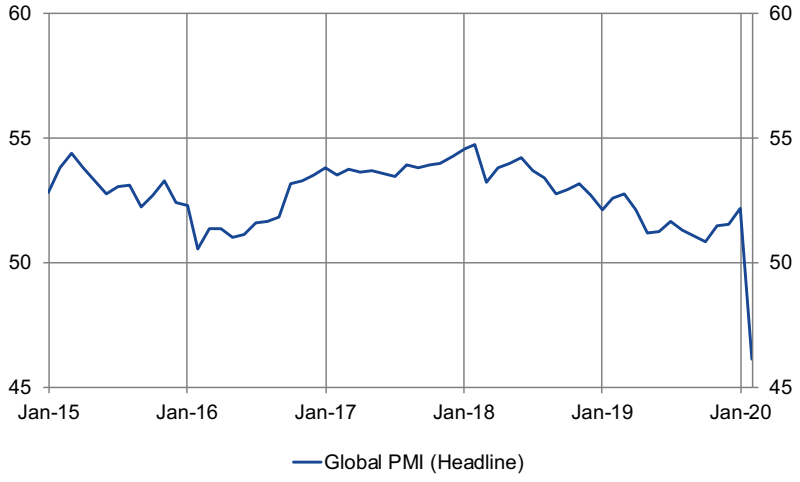
Philip R. Lane
ECB

In this chapter, I will explain the analytical framework underlying the comprehensive package of monetary policy measures that the ECB Governing Council decided on 12 March 2020. The spreading of the coronavirus is a severe economic shock to the world and euro area economies. In addition to the much-discussed potential interruption of supply chains, the necessary containment measures that are being introduced in many countries imply both a temporary decline in production and the cancellation or postponement of many expenditure plans. In overall terms, this situation has an immediate adverse impact on the economy.

In fact, the latest survey data measuring current global activity have nosedived (see Figure 1). Moreover, as lockdown measures are implemented more broadly and for a longer duration, a more substantial and longer lasting downturn is likely. At the same time, success in containing the virus – notably through an appropriate policy response – will ultimately allow a return to more normal economic conditions.

The clear aim for policymakers should be to mitigate the impact of the shock, by countering pro-cyclical amplification dynamics and muting propagation forces that might convert a temporary shock into a decline in long-run economic performance. For governments, in addition to meeting the immediate public health challenges that are needed in order to contain the spread of the coronavirus, an ambitious and coordinated fiscal policy response is required to support firms and workers at risk due to the economic fallout from this shock. This should include measures such as credit guarantees that limit the threat that a temporary shortfall in revenue would constrain the subsequent recovery of firms that were in good shape before this shock occurred. It should also include support for workers that face temporary declines in wages. More broadly, the overall macroeconomic orientation of fiscal policy should ensure that the decline in aggregate private-sector expenditure is not amplified in a pro-cyclical manner. Accordingly, the Governing Council strongly supports the commitment of euro area governments and the European institutions to joint and coordinated policy action.

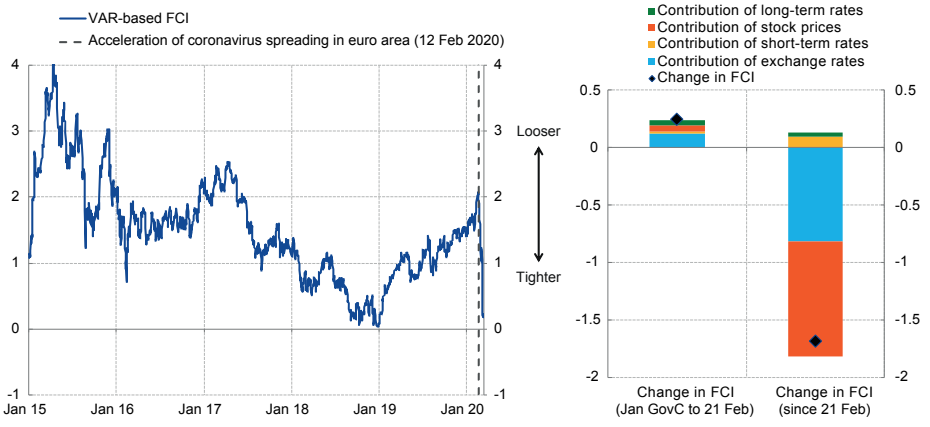
Figure 1 Global PMI



Sources: Markit.

Note: Last observation: February 2020.

Figure 2 Financial conditions in the euro area



Source: ECB.

Notes: The FCI is constructed as a weighted average of the 1-year OIS, the 10-year OIS, the EA NEER vis-à-vis 38 trading partners and the EuroStoxx Broad Stock Exchange Index. All variables are in deviation from their long-term average. The FCI is an average of two alternative FCIs, one in which the weights are derived from the impulse response of HICP inflation to a shock in each of the four financial variables from an estimated VAR model, and the other where the weights are derived from the elasticities drawn from a set of projection models used in the (B)MPE. Last observation: 11 March 2020.

Monetary policy also has a vital role to play. The initial supply-side shock from the coronavirus outbreak has clearly morphed into a demand shock that deeply affects activity across all sectors of the economy. Moreover, the economic ramifications of the coronavirus have already been amplified by a tightening in financial conditions, especially through the decline in stock prices, rising yields in some asset classes, together with the appreciation of the euro (Figure 2). This risks triggering a material deterioration in financing conditions in the euro area.

Our monetary policy response to this severe (yet ultimately temporary) shock has three key elements:

- first, safeguarding liquidity conditions in the banking system through a series of favourably priced long-term refinancing operations (LTROs);
- second, protecting the continued flow of credit to the real economy through a fundamental recalibration of the targeted longer-term refinancing operations (TLTROs); and
- third, via an increase in the asset purchase programme, preventing that financing conditions for the economy tighten in a pro-cyclical way.

Let me explain the rationale for each of the measures in more detail.

It is essential to ensure that liquidity is provided on generous terms to the financial system, in order to avoid the well-understood spiral effects if an adverse economic shock is amplified by liquidity shortages. In addition to our existing regular liquidity operations, the new LTROs provide new lines of funding at a low rate (the deposit facility rate of minus 50 basis points). Such liquidity measures are especially important under conditions of heightened uncertainty and when the coronavirus shock also poses operational risk challenges for many participants in the financial system.

Especially given the revenue shortfall that is facing small and medium-sized enterprises (SMEs) and the income shortfall that is facing households, supporting credit supply can avoid the credit-crunch dynamic by which banks pull back from lending at the same time as the demand for credit is increasing. Under the new terms for TLTRO III, we have increased the volume of funds that banks can borrow from us in order to provide credit to firms and households by more than €1 trillion. This raises the total possible borrowing volume under this programme to almost €3 trillion. Banks can borrow at the most favourable rates we have ever offered, provided that they continue to do their job of extending credit to the private sector. An important innovation is that, by setting the minimum borrowing rate at 25 basis points below the average interest rate on the deposit facility, we are effectively lowering the funding costs in the economy without a generalised reduction in the main traditional policy rates.

Overall, the new conditions on the TLTRO help to significantly ease the funding conditions that determine the supply of credit provided by banks to firms and households. In particular, this will support bank lending to those affected most by the spread of the coronavirus, and especially SMEs. In order to ensure that banks will be able to make full use of our funding support, we will also investigate further collateral easing measures. Also, as demonstrated by this revision, it should be clear that adjustments to the parameters of the TLTRO programme provide an agile instrument in our monetary policy toolbox, if the circumstances so warrant.

In this context, the measures taken by the ECB's Supervisory Board also provide welcome temporary capital and operational relief to euro area banks. These decisions show that the improvements in the regulatory framework achieved over the past years allow relaxing requirements on banks in a counter-cyclical way, thereby complementing well our monetary policy decisions.

It is essential to ensure a sufficiently accommodative monetary stance, especially in an environment of high uncertainty and elevated financial volatility. The addition of an envelope of an extra €120 billion to our asset purchase programme over the rest of 2020 helps to ensure that the euro area risk-free yield curve – as captured by the overnight index swap (OIS) curve – supports favourable financial conditions for the real economy. The role of the asset purchase programme – both the private-sector purchase programmes and the public sector securities programme – is especially helpful during a 'flight to safety' episode when investors switch across assets on the basis of the correlation patterns by which some assets are classified as 'safe havens' that gain value during risk-off episodes. Under such conditions, there are deviations from the typical co-movement patterns between the GDP-weighted average sovereign bond yield curve and the respective OIS rates, which call for flexibility in the implementation of our asset purchase programme.

The addition of this extra envelope in the asset purchase programme demonstrates that it is a priority for the Eurosystem to show a more robust presence in the bond market during phases of heightened volatility. Moreover, we are committed to using the full flexibility embedded in the asset purchase programme to respond to current market conditions. This means that there can be temporary fluctuations in the distribution of purchase flows both across asset classes and across countries in response to 'flight to safety' shocks and liquidity shocks. Such deviations from the steady-state cross-country allocation are within the remit of the programme, so long as the capital key continues to anchor the total stock of our holdings in the long run.

We will not tolerate any risks to the smooth transmission of our monetary policy in all jurisdictions of the euro area. We clearly stand ready to do more and adjust all of our instruments, if needed to ensure that the elevated spreads that we see in response to the acceleration of the spreading of the coronavirus do not undermine transmission.[1]

Let me touch on a final aspect. You may wonder why, unlike many other central banks in recent weeks, the ECB did not lower its key policy rates. Decisions about the short-term policy rate should be understood in the context of the nature and expected duration of the shocks facing the economy, as well as the transmission lag of the different monetary policy instruments. For instance, a move in the short-term rate is typically most powerful if it is expected to be persistent, given the importance of the expectations channel in determining the influence of the short-term policy rate on the overall yield curve. This persistence channel is less relevant in the context of the spreading of the coronavirus. While this major shock is hitting us at high speed, our baseline scenario is that it will be ultimately temporary in duration. Accordingly, we concluded that an easing of the monetary stance through the additional asset purchases and the considerable support for credit supply through the revised TLTRO programme is the more appropriate response. However, it should also be clear that, although the deposit facility rate (the main short-term policy rate) was maintained in yesterday's decision at its current value of minus 50 basis points, the Governing Council retains the option of future cuts in the policy rate if warranted by a tightening in financial conditions or a threat to our medium-term inflation aim.

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1 The European Court of Justice has confirmed that, within its mandate, the ECB has discretion when calibrating its monetary policy tools, provided that these are necessary and proportionate to achieving the ECB's objective.

16 Bold policies needed to counter the coronavirus recession[1]

Christian Odendahl and **John Springford**
Centre for European Reform

The 2008 financial crisis was a global economic catastrophe. Millions of people lost their jobs, their homes, their savings or their businesses as banks collapsed and credit dried up. It sparked the euro crisis, from which countries recovered slowly, with many experiencing a lost decade. Some fear that the COVID-19 pandemic will be just as bad. But while the economic disruption caused by the epidemic looks likely to be large, the long-term effects on the economy will be less severe than the financial crisis, as long as governments act quickly to contain the economic fallout.

Financial crises are, in essence, collapses in trust in the financial system. Creditors fear that they are exposed to losses and seek safer assets, which in turn leads to shortages of liquidity. Riskier businesses have difficulty borrowing, rendering some insolvent. Tighter financial conditions also lead households and firms to cut spending. Thus the 2008 financial crisis became an economic one: demand cratered and international trade fell 15% from the peak to the trough as the collapse in credit rippled through the global economy. Governments and central banks intervened, but failed to support private-sector spending sufficiently, whether through fiscal and monetary stimulus or a rapid restructuring of the banking system.

The economics of the coronavirus epidemic is different, but some of the fallout will follow a similar pattern. Fears of contagion and government action to contain the spread of the disease have led to a global supply shock, especially in manufacturing. Factories and offices are closing or reducing operations in order to protect workers. As the infected isolate themselves – and other people reduce social contact – they will spend less on flights, in bars and restaurants, and on other social activities. And businesses are facing falling supply capacity and falling revenues simultaneously, as workers and consumers stay at home. This will make many companies illiquid, which if left unaddressed by

1 This chapter was first published as a Centre for European Reform Insight.

policymakers, will lead them to lay off workers or close altogether. This is a major reason why stock markets have been in free fall globally, and government bonds have jumped in value as investors have fled to safety.

However, there is a big difference between the uncertainty we faced in the Great Recession and in the euro crisis and the situation now. The scale and the severity of the financial crisis was difficult to predict in advance, or while it was unfolding. The coronavirus pandemic is more predictable to epidemiologists, and therefore to governments. At first, the virus spreads rapidly, with new infections doubling every three to four days, and sometimes faster. That rate can be lowered if containment is effective. Harvard epidemiologist Marc Lipsitch estimates that between 20-60% of the world's population will get the illness,[2] while the World Health Organisation thinks that, of those who are infected, over 96% will recover[3] (at least in countries with advanced healthcare systems).

This means that – in the absence of containment measures – the pandemic would spread rapidly, peaking in Europe in May or June,4 after which the rate of infection would drop and the economy would start to recover. But government lockdowns are intended to slow the spread of the virus, to prevent hospitals from being overwhelmed. To the extent that these measures work (and therefore persist), they will raise the cashflow problems that businesses face, requiring more government support.

However, epidemiologists say that it will be very difficult to stop the pandemic altogether. A vaccine is unlikely to be developed in time. The infection rate will start to fall when most people who will get the virus will have already done so, and the economy will then start to recover. All this suggests that the economic consequences, while extremely severe in the short term, need not be as costly as the financial crisis. There is a clear path of recovery and rebound, so long as governments enact early and aggressive economic policies to support the liquidity of firms, to offset lost wages for workers, to protect the financial system (especially in the euro area), and to stimulate the economy more broadly to aid a quick recovery after the epidemic has run its course.

2 https://www.vox.com/science-and-health/2020/3/6/21161234/coronavirus-covid-19-science-outbreak-ends-endemic-vaccine

3 https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd

4 https://www.medrxiv.org/content/10.1101/2020.02.12.20022566v1.full.pdf?fbclid=IwAR3sxNN6gSOIiNulVyTbZOjWm3uEjdnr2QPVJWncS8ZVGZ2Pd7DYoD_beWs

Supporting liquidity

The biggest threat to the economy is that viable businesses become illiquid and go bust. Temporary disruptions can have permanent effects: a wave of bankruptcies would leave permanent scars on the economy if firms that would have been successful go under. There would be scarring effects on the future wages of unemployed workers and firm-specific knowledge would be lost, dampening the level of output in the future.

Confronting this risk will require an alliance of bank regulators, public investment banks, central banks and finance ministers. Bank regulators should encourage banks to be lenient on firms in severely affected sectors of the economy, such as tourism, by rolling over existing loans. And the Bank of England and the ECB were right to loosen capital requirements to make it easier for banks to lend. But banks will not be able to alleviate businesses' liquidity problems on their own. Extending the terms of loans will lead banks to take on risk. Public investment banks should also provide subsidised credit to the more affected parts of the economy. This is usually done indirectly via private banks, which take on part of the risk of that loan and perform diligence on the company's accounts. That process limits the risk to the public bank's balance sheet. And as a result, firms that were already on the cusp of bankruptcy, such as the British airline FlyBe, would be unlikely to get publicly subsidised liquidity support. Germany's 'big bazooka' – its state investment bank will provide unlimited emergency lending to firms – is the right approach and should be adopted elsewhere, too.

Alongside targeted measures, the ECB and the Bank of England added broad-based credit stimulus to the economy in their announcements last week. They were right to do so: even well-targeted measures via private banks and public investment banks may not satisfy all of the demand for credit. Much looser monetary policy is warranted. While the Bank of England cut rates and the ECB did not, they both enacted forms of liquidity support to banks. The ECB put together a new programme of long-term refinancing operations (LTROs), which provide very cheap liquidity to banks at negative interest rates. It also tweaked the terms for its targeted long-term refinancing operations (TLTRO III), increasing the programme's scope and lowering the rate; and it added more private bond purchases to its existing programme of quantitative easing. These policies will help to curb the contraction in bank lending.

Offsetting lost wages

Finance ministers should also provide liquidity support through fiscal policy. Firms have to pay wages, even if they have been forced to reduce production for want of labour or supplies. Governments should consider short-work schemes (known as *Kurzarbeit* in Germany, where it has been in place since 1910). Companies can apply for grants if they have to reduce the working week for their staff. The German government has just announced a simplified and more generous short-work scheme as a result of the COVID-19-related disruptions. But not all workers are covered through such a policy. Precarious employees on temporary or zero hour contracts and the self-employed will be the worst hit. Governments must provide quick and unbureaucratic support to these groups. One option is to pay every citizen a coronavirus basic income of €500 per month through private banks, which will be slowly clawed back through income tax later for all those earning above-average incomes. This way, only those who need it will collect it.

To contain the pandemic, more governments will have to temporarily close educational institutions, such as schools and childcare facilities. This threatens family finances – especially single parents – if they have to take unpaid leave from work. The health risks for older people from COVID-19 mean that grandparents cannot step in (German grandparents usually provide 4 billion hours of childcare services per year). Parents need clear incentives and support to take care of the children themselves. Parents of young kids should be allowed to take paid sick leave for daycare and school closures.

Further fiscal support can be provided by deferring the collection of VAT and payroll taxes from businesses for three months. Italy has already deferred the payment of payroll taxes. The benefit of that policy is that it provides liquidity very broadly, but it is not without risks: firms on the cusp of bankruptcy will also be able to defer taxes, leaving the state holding the bag when they go under. But many governments in Europe pay negative interest rates on short-term borrowing. So finance ministries would make a profit from accepting delayed tax payments. The net effect to the government balance sheet – a slight loss because of bankruptcies – may well be worth the additional liquidity support in the longer term.

Protecting the financial system

Emergency liquidity support by governments may lead to strains in the euro area's financial system. Government bond spreads have risen, especially after ECB President Christine Lagarde's unfortunate statement on 12 March, when she said that the central bank was "not here to close spreads". The opposite message to markets is required

from euro area policymakers, who must make clear that the ECB will provide unlimited liquidity to governments who are under temporary financial stress. They should announce that the European Stability Mechanism (ESM), the euro area's bail-out fund, will be open to all member states, without imposing tough conditions as is usual for a bailout programme. Lagarde should stress that the ECB is ready to use its Outright Monetary Transactions (OMT) programme of unlimited government bond purchases if a government needs it. And the European Commission should allow member-states to break the euro area's fiscal rules this year for COVID-19-related measures.

Speeding the economic recovery

Once this year's epidemic is over, there will be some catch-up growth as businesses restock inventories and consumers make up for forgone spending. This is different from the aftermath of the financial crisis, when debts proved to be unsustainable and had to be worked down, leading to a prolonged period of lower consumption than would otherwise have been the case.

But there will be a difference between the shape of the post-epidemic recovery in manufacturing, which will probably experience a sharp rebound, and the services sector, which may struggle for a longer period of time. If consumers planned to buy a new pair of spectacles but could not buy them when supply was disrupted, they are likely to do so once the epidemic is over. Consumers will not, however, make up for the meals out that they would have eaten while they were isolating themselves. Football matches will be played in empty stadiums and concert tours will skip cities or will be cancelled altogether. 'Social consumption' – such as meals out, concerts or travel – will be hit hardest, with depressed demand possibly continuing into the summer and autumn as people fear infection even after the epidemic has run its course.

Manufacturers may be able to cope with mere liquidity support, as discussed above, because they can reasonably hope for a rapid recovery. But fiscal support will be needed to speed the recovery in services after the worst of the epidemic is over. Governments do not want to encourage people to travel and go to restaurants and other big gatherings, and they should not seek to stimulate social consumption now. But governments could announce that, after the epidemic has officially ended, there will be a six- to nine-month VAT cut for services sectors that have been hardest hit. That would also encourage banks to extend credit to these businesses, knowing that they will have higher revenues once the epidemic ends.

Even before COVID-19 reached Europe, its economy was struggling. Now that the outbreak has become an epidemic, a recession in the first half of 2020 is all but certain. This makes early and aggressive action to stimulate the economy – and to manage expectations about future stimulus – imperative. Since the virus is so contagious, the rate of infection is likely to peak within three to four months before falling back, which means that governments have more certainty than usual about the future path of an economy. If they fail to act, they risk a wave of bankruptcies and rising unemployment. They must be bold.

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17 Europe's ground zero

Ugo Panizza[1]
Graduate Institute Geneva and CEPR

It was a stroke of bad luck that the coronavirus hit Europe first in the country that has the weakest economic fundamentals and most precarious political equilibrium. At the time of writing, Italy has the second largest number of cases (after China), the highest number of cases per capita (followed by South Korea), and the highest mortality rate (Table 1).[2]

Table 1 Number of cases and mortality rates in selected countries

	China	Italy	Iran	S. Korea	Spain
Number Cases	80,994	21,157	12,729	8,162	6,391
Cases per million inhabitants	56	349	151	159	137
Number of Deaths	3199	1441	611	75	196
Mortality rate	3.9%	6.8%	4.8%	0.9%	3.1%
	Germany	France	US	Switzerland	UK
Number Cases	4,649	4,499	3,045	1,375	1,140
Cases per million inhabitants	56	69	9	159	17
Number of Deaths	9	91	60	13	21
Mortality rate	0.2%	2.0%	2.0%	0.9%	1.8%

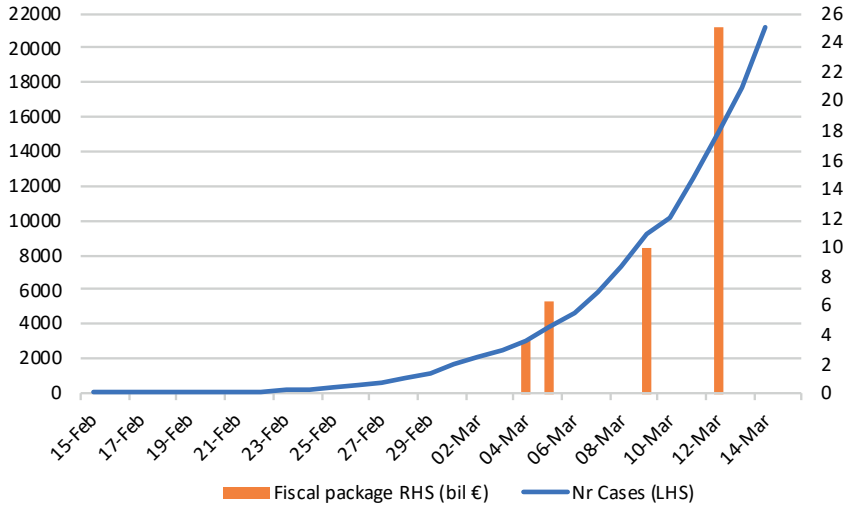
Source: own elaboration based on data retrieved on 15/3/2020 from https://www.worldometers.info/coronavirus/#countries

1 I would like to thank without implications Richard Baldwin, Carlo Alberto Carnevale Maffè, Tito Cordella, Mitu Gulati, Andrea Presbitero, Emilio Rossi, Angel Ubide, and Betrice Weder di Mauro for comments and suggestions.

2 For an interesting interpretation of Italy's high mortality rate, see https://twitter.com/kuhnmo/status/1238421146837684224. It should be noted, however, that this explanation base on cultural factors is hard to reconcile with the differences in mortality rate across Italian regions described in Figure 2.

The number of cases is still growing rapidly, and it is not clear when Italy will reach the peak of the epidemiological curve; Figure 1 shows the country is still in its acceleration phase. There are large differences across Italian regions (Figure 2), both in terms of the number of infections (from more than 1,000 infections per million inhabitants in Lombardy to fewer than 50 infections per million inhabitants in most Southern regions) and mortality rates (above 8% in Emilia Romagna and Lombardy and below 3% in more than half of Italian regions, including Veneto).

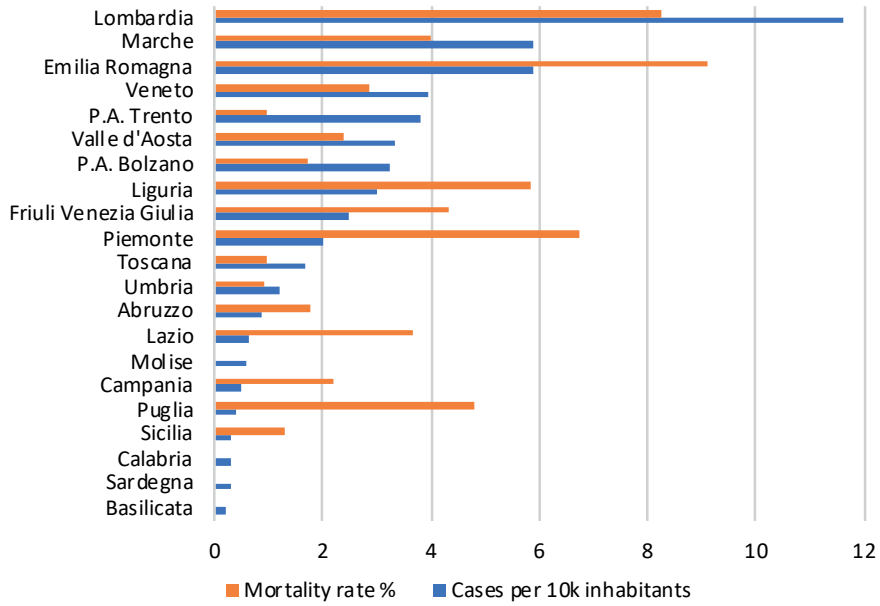
Figure 1 Evolution of infections in Italy and economic measures



Source: Infection data were retrieved on 15/3/2020 from https://www.worldometers.info/coronavirus/#countries. Fiscal package data are hand collected from Italian newspapers and official declarations by Italian authorities.

The rapid spread of the virus led the Italian government to impose containment policies that, in addition to closing all schools and most shops, ban all non-essential travel and public gatherings. These policies, which were announced on 12 March, expire on 3 April. It is likely that the containment policies will be prolonged to the Easter holiday period (12 April) and possibly to the end of April. Other European countries are now also tightening their own policies. The length of the containment period in Italy and in the rest of Europe will be a crucial element in determining the economic cost of this pandemic.

Figure 2 Prevalence of cases and mortality rates across Italian regions, 14 March 2020



Source: own elaborations based on data retrieved on 14/3/2020 from https://datastudio.google.com/u/0/reporting/91350339-2c97-49b5-92b8-965996530f00/page/RdlHB

Italy's containment policies were a missed opportunity for other EU nations

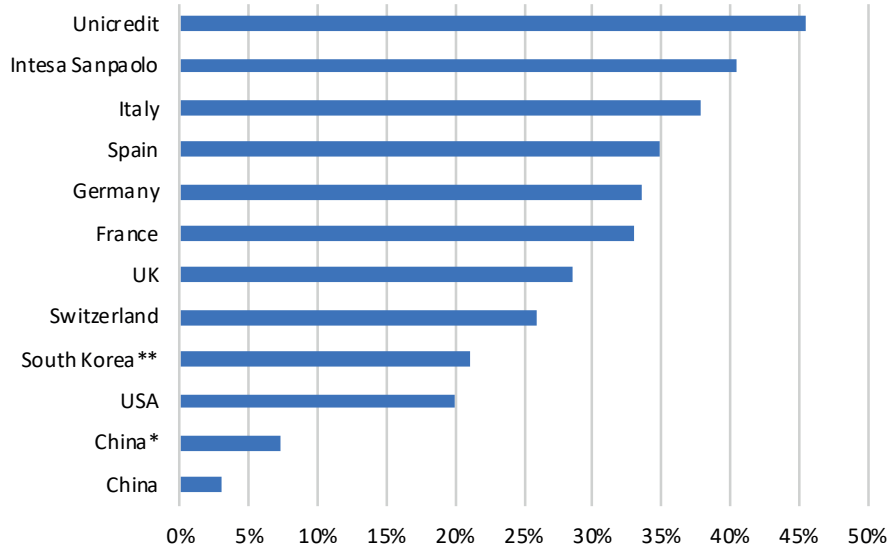
Italy's containment policies created positive spillovers for the rest of Europe. This, however, has been a mostly wasted opportunity because other European countries have been slow in reacting to the virus outbreak.

The trajectory of the spread of contagion is similar across European countries and, as pointed out by Bénassy-Quéré et al. (2020), "time lags will soon become a footnote". There are, however, at least four reasons why the economic impact could be larger in Italy:

- Low structural growth
- An economic structure that may amplify the vulnerabilities to this particular crisis
- The risk that the economic crisis may lead to a full-fledged banking and debt crisis and
- The policy response of the Italian authorities.

This higher risk is reflected by equity prices, a typical forward-looking indicator. Figure 3 shows that between 21 February (the pre-crisis peak) and 13 March, the Italian main stock index dropped by nearly 40%, with equity prices of the two largest Italian banks decreasing by 40% and 46%, respectively. While drops in equity prices where large throughout Europe, so far Italy has suffered the largest decline.

Figure 3 Percentage drop in main equity indexes and in the two Italian largest banks, 21 February to 13 March



Source: own calculation based on stock market data.

Notes: * Percentage drop between 13 January and 13 March; ** Percentage drop between 13 February and 13 March.

Low structural growth and limited fiscal space

Italy is characterised by structurally low GDP growth (over the past 25 years, average real GDP growth was about 0.6%, which is 60% lower than the euro area average of 1.6%). GDP contracted by 0.3% in the last quarter of 2019 and, before the outbreak, 2020 growth was expected to be close to 0.5%. Post outbreak forecasts predict a 2-3% contraction of GDP, depending on whether the containment policies will end on 3 April (as announced by the government) or will last until the end of April. These forecasts do not incorporate the economic spillovers of containment policies in other European countries. If the rest of Europe implements strict containment policies (France tightened its containment policies on 15 March 15) and Italian policies are extended to May, the economic contraction will be much deeper than 3%.

The crisis will lead to a rapid growth of the Italian debt-to-GDP ratio which, even in a relatively benign scenario, is expected to surpass 140% by the end of 2020. It could go much higher. Limited fiscal space will prevent the Italian government from implementing an open-ended fiscal response like those announced in the UK and Germany.[3]

> *The crisis will lead to a rapid growth of the Italian debt-to-GDP ratio which, even in a relatively benign scenario, is expected to surpass 140% by the end of 2020.*

Moreover, when the emergency is over, Italy may require a fiscal tightening. Countries with more fiscal space and higher trend growth are likely to observe a V-shaped recession, but in Italy the recovery is likely to be slowed down by the need to keep the fiscal accounts under control.[4]

Italy's economic structure

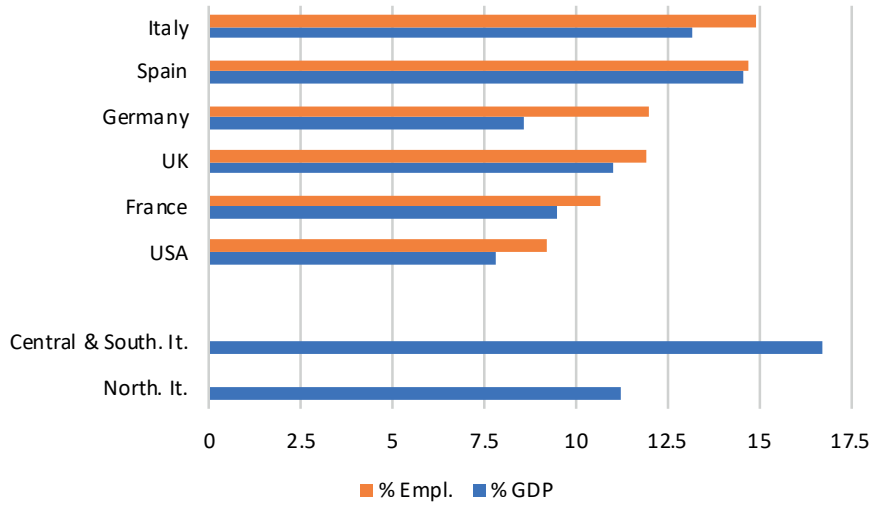
Among large European economies, Italy has the largest tourism sector as a share of employed people and the second largest as a share of GDP (Figure 4). Within Italy, tourism is particularly important in the central and southern regions which, so far, have registered a low number of cases (see Figure 2).

The negative effect of the virus will be stronger in regions with a higher number of cases. However, the regional correlation between the number of cases and their negative economic impact is likely to be stronger for the manufacturing sector and non-tourism-related services. As the whole country is locked down, the negative effect on tourism will be uniform (in proportion to the size of the sector) across the national territory. The regional concentration of the contagion in northern Italy will thus amplify its economic costs.

3 https://www.bloomberg.com/news/articles/2020-03-13/merkel-says-germany-to-do-whatever-s-needed-to-counter-virus?cmpid%3D=socialflow-twitter-politics&utm_source=twitter&utm_campaign=socialflow-organic&utm_content=politics&utm_medium=social

4 One alternative view put forward by Ubide (2020) is that fiscal space is endogenous and, with supportive policies from the ECB and its European partners and near zero global interest rates, Italy will not need a post-crisis fiscal retrenchment. Whether desirable or not, I see such post-crisis European support as an unlikely event.

Figure 4 Contribution of tourism to employment and GDP in selected countries and Italian geographical areas

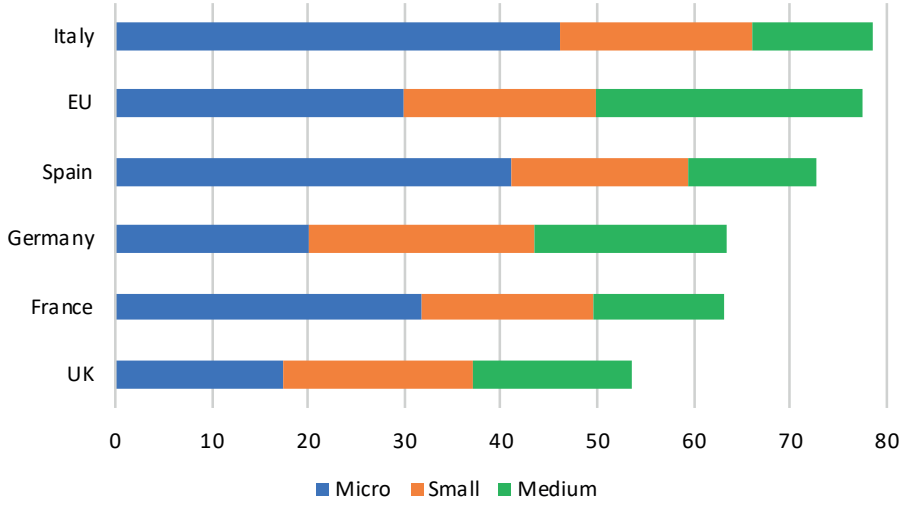


Note: The data include both direct and indirect contributions. Source: own elaboration based on data from https://www.wttc.org/economic-impact/country-analysis/league-table-summaries/ and https://www.ucer.camcom.it/comunicazione/notizie/pdf-2017/turismoinvisibile.pdf

There will be a stronger impact on manufacturing and non-tourism services where these sectors are more important and a proportionally uniform impact on tourism throughout the country, including in regions with a small number of cases but a large tourism sector. If the virus is not contained by the beginning of the summer, the economic cost for several coastal regions will be enormous.

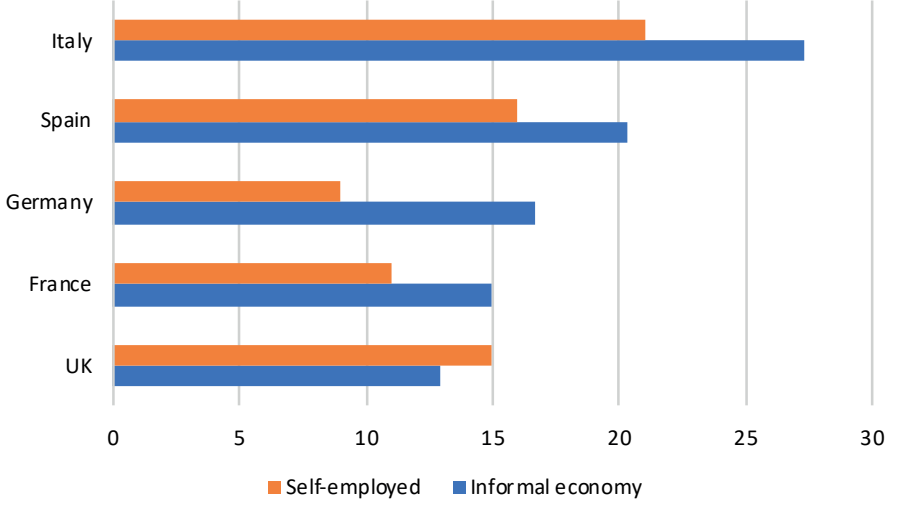
Another important structural characteristic is related to the fact that Italy has a large number of micro and small enterprises (Figure 5), a large informal economy, and a large number of self-employed workers (Figure 6). These are an important amplification mechanism because there is evidence that small and informal enterprises are more vulnerable to exogenous shocks (e.g. Fort et al. 2013), probably because they tend to have limited financial, managerial and information resources. Small and informal firms are also less likely to be able to respond to the crisis with technological solutions such as teleworking, while workers in the informal economy lack most social protection mechanisms and are difficult to reach with targeted measures.

Figure 5 Contribution of different SME size classes to employment in the non-financial business sector, 2016



Source: European Commission (2017)

Figure 6 Share of informal economy and self-employment in selected European countries



Sources: Data for informal economy are from Kelmanson et al. (2019) and refer to 2016. Data on self-employment are from https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20170906-1

The measures implemented by the Italian government include a tax credit and tax cuts for firms with a large drop in revenues and those in the tourism and logistics sectors. They also include special zero-interest long-term loans, suspension of payments of social security contributions, additional funds for the Cassa Integrazione Guadagni, and suspension of payments on mortgages. These measures will help hard-hit small and medium enterprises in the formal sector and households with a mortgage. It is, however, also necessary to implement policies aimed at protecting self-employed and temporary workers.

From recession to financial crisis?

Recessions associated with financial crises are deeper and last longer than the average recession (Reinhart and Rogoff 2011) and Italy risks a joint banking and sovereign debt crisis – but not a currency crisis, since this is ruled out by membership of the euro area.

The coronavirus pandemic requires a decisive fiscal action and the Italian government has scaled up its fiscal response from €3.6 billion on 4 March to €25 billion on 12 March (Figure 1). This is the right thing to do. Keynesians and neoclassical economists agree that in time of crisis countries should run budget deficits.[5] Unfortunately, Italy entered the crisis with a high level of public debt and limited fiscal space. As mentioned above, conservative estimates suggest that by the end of the year, Italy's debt-to-GDP ratio will reach 140% (the level at the end of 2019 was 133%, and the pre-outbreak forecast for 2020 was 134%). These estimates assume that GDP will contract by 3% and that the fiscal deficit will be close to 3% of GDP. However, the deficit may end up being larger and the GDP contraction deeper, and public debt may go well above 140% of GDP.

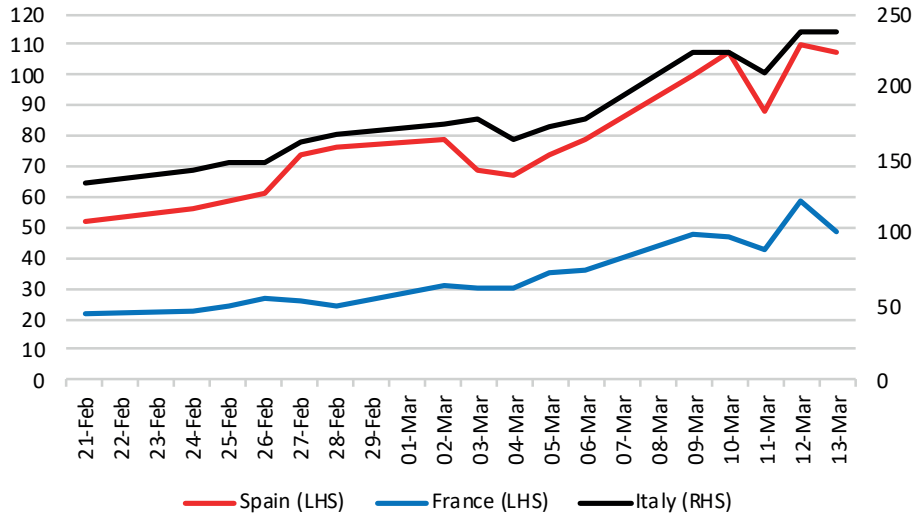
> *Recessions associated with financial crises are deeper and last longer than the average recession and Italy risks a joint banking and sovereign debt crisis.*

If interest rates remain low and Italy does not lose access to the capital market, this increase in the debt ratio should not put debt sustainability into question. The good news is that the European Commission loosened the fiscal limits for the Italian government. The risk is that markets could take the view that Italy's debt is not sustainable.

5 Fatás et al. (2019) discuss good and bad reasons for accumulating public debt.

One key message of the literature on financial crises (e.g. Eichengreen et al. 1995) is the possibility of multiple equilibria. Investors' fears can be self-fulfilling: a sudden increase in the spread on Italian Treasuries would make Italian debt unsustainable. This is not a theoretical possibility. In November 2011, the Italian spread peaked at more than 550 basis points (and the debt-to-GDP ratio was below 120%). More recently, the Italian spread grew by nearly 100 basis points after the virus outbreak and reacted badly to President Lagarde's botched comment that the ECB "is not here to close spreads." The outbreak of the virus and Lagarde's comments were also followed by an increase in the Spanish and French spreads (Figure 7).

Figure 7 Sovereign spreads in Italy, France, and Spain



Source: own elaboration based on ECB online data

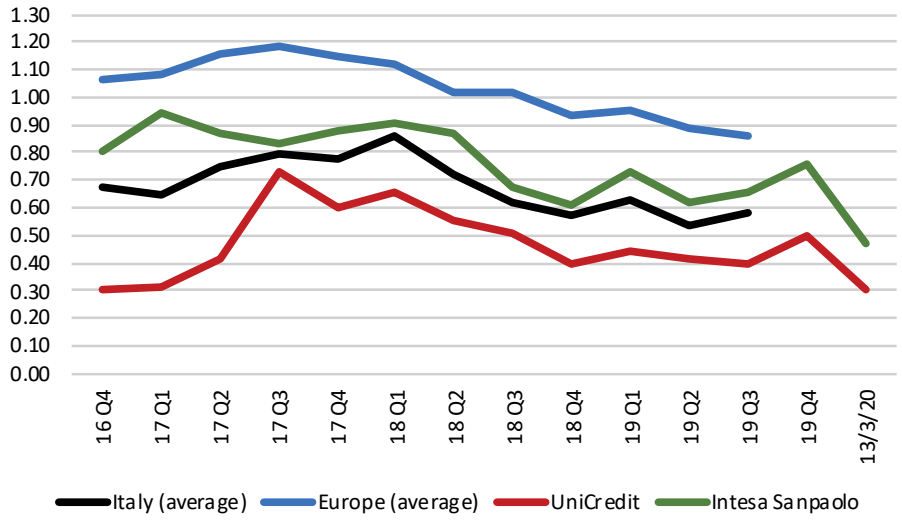
Another point of vulnerability is the Italian banking system. Italian banks have lower capital ratios than other European banks and larger shares of non-performing loans. The high risk premium and lower expected earnings of Italian banks are reflected in price-to-book ratios which, even before the virus outbreak, were well below the average of other European banks (Figure 8). A recent analysis of an Italian rating agency (Cerved Rating 2020) suggests that the crisis could push the probability of default of Italian non-financial corporate to 10%. Such a wave of bankruptcies would further weaken bank balance sheets.

While many small Italian regional banks have weak balance sheets, low price-to-book ratios also apply to the two largest Italian banks: in mid-February the price to book ratio of UniCredit was 0.5 and that of Intesa Sanpaolo 0.8 (both below the European average, plotted in Figure 8). These ratios have now collapsed to 0.3 and 0.5, respectively.

> *A recent analysis of an Italian rating agency (Cerved Rating 2020) suggests that the crisis could push the probability of default of Italian non-financial corporate to 10%.*

Italian banks also hold a large amount of domestic government bonds (about one quarter of the total stock) and a sudden increase in government bond yields could put their balance sheets under further pressure and feed the 'doom loop' discussed by, among others, Altavilla et al. (2017).

Figure 8 Price-to-book ratios of Italian and European banks



Source: own elaboration based on Bank of Italy data.

Containment with limited testing and without tracking

After a slow start, Italy adopted aggressive containment policies aimed at flattening the epidemic curve.[6] The economic impact of these policies will be large because, as pointed out by Gourinchas (2020), flattening the infection curve steepens the recession curve.

While Italy is being aggressive in its containment policies, it has not made much progress in the 'trace, test and treat' approach which has proven to be successful in South Korea and Taiwan, and that is also being aggressively pursued in Israel.[7] Italy's byzantine bureaucracy has produced a paper module which individuals need to carry with them to 'self-certify' that they are outside their home for compelling business or health reasons. However, Italian authorities have not yet developed an extensive testing and tracking system.

A second wave?

While at this stage containment policies are supposed to end on 3 April, it is likely that they will be extended to the end of April, possibly to mid-May. At some point, however, Italy will need to reopen for business and, at that point, we are likely to observe a second peak of the epidemic curve. Italy was not prepared when the virus hit the country and the response was slower than in South Korea, which had put policies in place after the outbreak of Middle East Respiratory Syndrome in 2015 had caused 36 deaths. It is now critical to devise policies which will allow for extensive testing and tracking when the country reopens. Although concrete proposals exist, the Italian government seems to be moving slowly on this. Drive-through testing is already being implemented in Germany, but not yet in Italy.[8]

6 For an economist's view of the epidemic curve, see Baldwin (2020).

7 South Korea has been able to slow-down the rate of contagion and maintain low mortality rates without imposing a complete lock-down. While schools are closed and people are encouraged to work from home, South Korea has not imposed restrictions to movement like those imposed in Italy. For a description of the South Korean approach see https://www.bbc.com/news/world-asia-51836898

8 This is the case at the national level. One region (Veneto) seems to be following the Korean model with good results (see Figure 2) https://www.ilsole24ore.com/art/veneto-come-corea-sud-tamponi-tutti-strade-supermercati-ADR2MND

What is to be done?

Policy response requires action at both the national and international level.

- At the international level, the European Commission and the ECB need to make sure that the economic crisis does not become a financial crisis.

As correctly pointed out by Olivier Blanchard, this is a truly exogenous shock and:

> "There is no moral hazard here, no need for punishment for past sins. Just help for a member country that needs help, which can be provided at likely zero cost, and in the process saving the euro zone… The constraints on the scope of intervention by the ECB are the capital key and a 33% limit on ECB holdings of debt of a particular country (which is not binding yet for Italy). Both are justified in normal times. Both can be suspended in exceptional times, and both should. The last thing the world needs at this juncture is another euro crisis. The ECB should and can avoid it."[9]

Similar points are made by Bénassy-Quéré et al. (2020) and Gourinchas (2020), who adds: "If now is not the time to borrow to support an economy on the verge of collapse, when is a good time?"

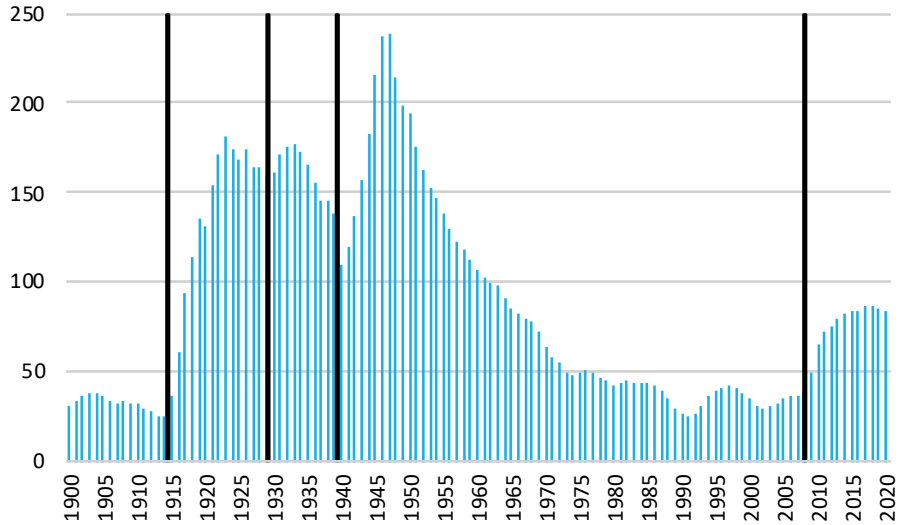
As discussed in Fatás et al. (2019) wars, epidemic, and deep recessions are the textbook example for running large deficits and accumulating large debts (see, for instance the evolution of the debt-to-GDP ratio in the UK over the past 120 years in Figure 9).

> *Wars, epidemic, and deep recessions are the textbook examples of when a nation should run a large deficit.*

There is ample evidence that action is most effective before a crisis strikes. It is thus important that both the European Commission and the ECB send the right signals. In this sense, ECB Chief Economist Philip Lane's statement that "[w]e clearly stand ready to do more and adjust all of our instruments, if needed to ensure that the elevated spreads that we see in response to the acceleration of the spreading of the coronavirus do not undermine transmission"[10] is a clear step in the right direction.

9 https://twitter.com/ojblanchard1/status/1238491393129136128
10 https://www.ecb.europa.eu/press/blog/date/2020/html/ecb.blog200313~9e783ea567.en.html

Figure 9 Debt-to-GDP ratio in the UK, 1900-2020



Note: The vertical bars indicate the beginning of World War I, the Great Depression, World War II, and the Global Financial Crisis

Source: Bank of England

- At the domestic level, Italy could act decisively along two lines: 1) guaranteeing long-term fiscal sustainability, and 2) facilitating the return to normalcy after the acute stage of the crisis.

First, Italy should be recognised that debt sustainability is a long-term concept. A country can run large deficits and accumulate substantial debt as long as lenders believe that it will be able to service this debt in the future. In this sense, Italy could reassure investors (and northern countries worried by moral hazard) by committing to reverse two misguided policies adopted in 2019: the pension counter-reform (Quota 100) and the citizenship income (*Reddito di cittadinanza*).[11]

This is not the time for restrictive policies, but a reversal of Quota 100 would not have contractionary effects even if implemented now. Paradoxically, the citizenship income – a misguided policy when it was implemented – can now be used to reach people that are not covered by the government emergency measures listed above. The government should, however, commit to cancel it when the economy starts recovering.

11 The annual cost of these policies is estimated to range between €9 and €14 billion per year. Over two years, their cost is thus similar to the emergency package just launched by the Conte government.

In countries with high levels of debt, the quality of policies is an important driver of country risk (Ubide, 2020). Quota 100 and the *Reddito di Cittadinanza* are bad policies; the reversal of these misguided policies would be good economics. The problem is that it may be bad politics, as they are very popular and supported by both the Lega and the Five-star Movement. There is thus an important trade-off: implementing the right economic policy may affect Italy's delicate political equilibrium in a period when preserving political stability is paramount.

> *To avoid the need to reinstate strict containment policies, it is necessary to implement massive testing and tracking aimed at protecting the most vulnerable (seniors and those with existing conditions) and safeguard the national healthcare system.*

Second, policymakers need to acknowledge that the medical community does not yet know whether contracting the virus makes people immune in the long term (this is the case for the measles virus, but it is not the case for other viruses like dengue). Hence, herd immunity policies may not work. A vaccine is at least one year away; strict containment policies cannot last that long. After these policies are relaxed, the virus will continue to circulate, and we may observe a second peak of the epidemic curve in the autumn or winter of 2020. To avoid the need to reinstate strict containment policies, it is necessary to implement massive testing and tracking aimed at protecting the most vulnerable (seniors and those with existing conditions) and safeguard the national healthcare system.

After a few days of initial confusion, the Italian authorities did well to take decisive action. As mentioned above, this had positive spillovers for neighbouring countries. It is now time to prepare for the post-emergency period.

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18 Economic implications of the COVID-19 crisis for Germany and economic policy measures

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Coronavirus: A China-induced but now global supply and demand shock

The coronavirus crisis started in China, where it caused massive damage to public health and economic growth. In the meantime, high and rapidly growing numbers of cases of COVID-19 have also been recorded in Japan, Korea, the US, Germany, the UK, France and above all Italy, where the number of infected per inhabitant is already six times as high as in China. The main difficulty of an efficient and effective economic policy reaction to the crisis is that it is triggering a simultaneous supply and demand shock. The massive slump on the stock markets and the flight to safe investments is a reaction to these shocks. It may trigger further shocks and intensify the downward dynamic in the real economy.

The extent of these shocks is strongly dependent on **expectations** and **beliefs**, which can be very volatile in the face of a crisis. Economic policy measures must take account of this. Therefore, the timing and communication of measures are of crucial importance. Economic policy must contain the economic effects of the health crisis in such a way that it does not turn into a systemic economic crisis with long-lasting effects on the labour market, banks and financial markets.

The coronavirus as a supply shock

In highly integrated value chains, production losses due to a lack of inputs spread rapidly worldwide. Many companies today rely on **just-in-time production** with low inventories. The components supplied are often highly specialised and tailored to the needs of the next step in the value chain. As a result, there are often no alternative suppliers who can deliver quickly and at acceptable prices for companies.

The peak of these production losses has not yet fully hit the German economy. The plant closures in China peaked at the beginning of February, but production is now slowly starting up again. Due to delays in transport, the full impact in Germany will not be felt until April. Quarantine measures in Italy, in other EU countries and in Germany itself will cause additional disturbances.

An additional supply shock occurs when employees are absent due to illness or quarantine measures. The closure of schools and pre-school facilities leads to an indirect loss of employees, as can illnesses in the family. In principle, this supply shock can be mitigated by **teleworking and working from home**. While these options are being increasingly used, they are not practicable for personal services and production occupations.

The maintenance of production chains is made more difficult by the **disruption of transport infrastructure networks** when air connections and travel in general are severely restricted.

Quarantine measures can have very sizeable economic effects: one week during which a country runs at 50% of capacity amounts to a loss of yearly GDP of up to one percent.

The coronavirus as a demand shock

China and other economies severely affected by the coronavirus will reduce their demand for German intermediate products, capital and consumer goods and tourism services in the foreseeable future. The full extent of these global effects depends on the further course of the global spread of the virus. The OECD has presented initial model-based estimates and forecasts on this (Boone 2020).

Their optimistic scenario, in which the spread of the virus remains essentially concentrated in China, is already outdated.

In the less optimistic but now more realistic scenario, the virus spreads rapidly outside China. The economic impact will then be felt not only through the decline in Chinese demand, but also directly in the countries affected. In this scenario, global GDP growth falls by 1.5 percentage points in 2020 and the volume of world trade by 3.75 percentage points.

Germany is particularly affected by these developments due to its high dependence on exports and industry. Already before the crisis, the GDP forecast for Germany in 2020 was very low.

Direct negative effects from the growing security measures will massively restrict '**social consumption**' (restaurant visits, domestic tourism, trade fairs). Prominent events (the Hanover Fair, the Leipzig Book Fair) have been cancelled and all German sports leagues have now ceased operations until April. The whole of public life in Germany has now come to a standstill.

This drop in demand is unlikely to be fully offset by a **catch-up effect** after the end of the crisis. If supply chains are interrupted, purchases and sales can be made up for. Social consumption (for example, restaurant visits or private trips) that is cancelled now will not necessarily be made up later.

This will have a strong negative impact on private consumption, which has so far proved to be a pillar of economic support for Germany. A consumption recession in the first half of 2020 has become very likely, in addition to the industrial recession that has been observed for some time anyway.

Other demand segments may also be negatively affected. The prospect of a longer quarantine has already led to **stockpiling** of certain goods. Insecure consumers could, however, shy away from buying consumer durables. Many will reduce spending on other types of consumption to build up precautionary savings.

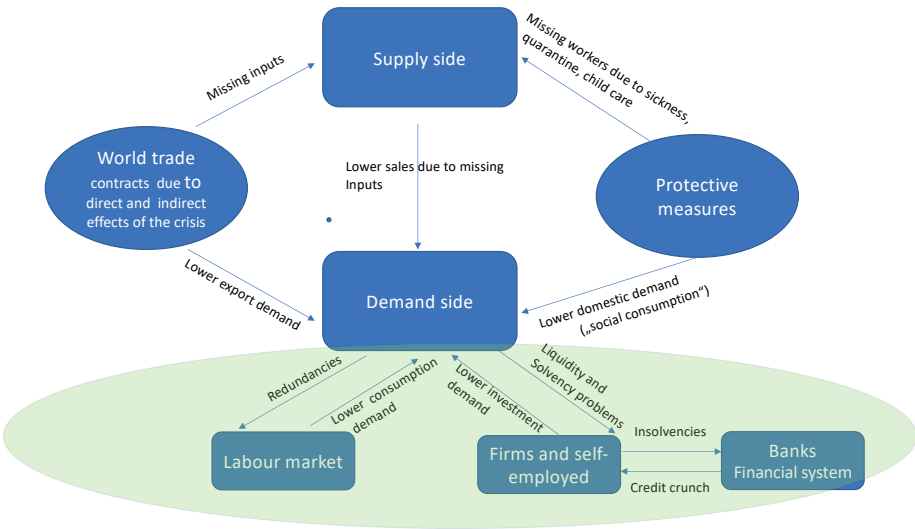
In addition, a demand contraction may be triggered by reactions in the **financial sector**. Banks may need to reduce the supply of credit if they make losses on outstanding loans to companies strongly affected by the crisis. In addition, many companies will fully use their credit lines to build up cash reserves for the crisis. This credit expansion may crowd out the bank financing of private investment and other credits.

The difference from the Global Financial Crisis

The financial crisis uncovered an imbalance in the real estate markets that had been built up over many years, with significant and long-lasting negative effects on the financial system and on labour markets. However, there was no supply shock in the context of this crisis. Policymakers were therefore able to focus on stabilising the financial system and on the consumer and investment demand.

In the case of COVID-19, the situation is more complex. It is simultaneously a supply and demand shock, and the collapse in demand for 'social consumption' for medical reasons should not – and probably cannot – be compensated for by state support for demand. In the event of supply shortfalls, government support for demand is counterproductive (Figure 1).

Figure 1



The prospects for economic recovery are better than in the Global Financial Crisis in so far as normal operations can be resumed quickly after the end of the epidemic and positive catch-up effects would support the recovery. However, this presupposes that the epidemic will soon be brought under control and that its effects on the labour market, the liquidity and solvency of companies and the banking system will be contained to the sectors directly affected.

An important parallel is that, even in the COVID-19 crisis, it is important to counteract a loss of confidence among companies in the real economy and in the financial sector in the solidity and solvency of business partners.

Functionality of medical care as a top priority

The priority for all (economic) policy measures must be to ensure the functionality of the health system and medical care.

Overcrowded or even closed doctors' practices and clinics, overtaxed health authorities, and a lack of medicines and testing facilities would lead to panic in the population, especially if this is accompanied by a further increase in the number of cases of infection. Such a dynamic must be avoided at all costs, even if this requires a targeted renunciation of 'social consumption' (such as the cancellation of major events). This is exactly what almost all governments worldwide are trying to achieve through drastic measures limiting international travel, closing borders and even requiring citizens not to leave their homes.

In the short term, one could argue that there is a conflict between medical and economic goals. Cancelling an event or closing schools slows down the spread of the virus.[1] On the other hand, these measures generate immediate economic costs – for example, when restaurants are closed, employees are not allowed to work or are tied up in childcare.

At present, however, there are many indications that **containment of the virus must be a priority**. As the course of the infection develops exponentially and the health care system reaches the limits of its capacity, a lax containment policy would lead to much more drastic quarantine measures and thus to the threat of higher economic costs in the future. In the long term, the economic impact of overly lax containment would be much worse.

Due to resource constraints (availability of medical staff and hospital beds), a credible state guarantee of universal health care is not easy to give. However, the state must do everything in its power to maintain the functionality of the health system and to provide the necessary financial resources without limit.

1 The effectiveness of targeted mitigation measures appears to be quite high (WHO 2020).

Unconventional measures should also be considered if bottlenecks occur and they are already implemented in some countries:

- The reactivation of **retired medical staff** (as in the UK) or holiday bans
- Financial incentives for part-time doctors in private practice to **temporarily extend their working hours**
- In the event of the closure of schools and kindergartens, **special care should be provided for the children of medical staff**
- The state can persuade companies whose production is at a standstill anyway to **switch their product ranges to urgently needed medical goods** (e.g. respiratory masks)
- **Employees in the public sector** who are unable to carry out their regular work due to protective measures can be **deployed in the health sector** (e.g. in health offices at citizen telephones).

Economic policy measures

In the short term, the main aim is to compensate for negative effects on **corporate liquidity** and thus also on the stability of the banking system. In the event of **longer-lasting disruption**, the focus must increasingly be on additionally stabilising the earnings situation of companies and the self-employed. Above all, negative effects on the labour market must be avoided. In view of the increasing spread of the crisis, both measures may now be necessary.

Demands for an economic stimulus package – i.e. the usual measures of stimulating the economy through monetary and fiscal policy – cannot do justice to the specifics of this crisis:

- The **stimulation of economic activity** must not lead to a further spread of the epidemic. 'Social consumption', which brings people together physically, should not be stimulated.
- The **time delay in a classical investment programme** would be far too long to make an effective contribution to mitigating the economic consequences of the corona crisis.

Once the health crisis is contained, a stimulus package in form of tax cuts or higher public investment can be sensible to move the economy as fast as possible back to its pre-crisis trend.

The role of the ECB

The ECB has an important role to play in stabilising the financial system:

- In the event of a general crisis of confidence in the stability of the financial system, which would lead to a bank run, the ECB must stand ready as a 'lender of last resort' without restrictions.
- The ECB has the necessary refinancing instruments (e.g. LTRO) to deal with liquidity bottlenecks at banks.
- The ECB has very little scope left for further reducing the interest burden of companies; interest rates on the capital market and money market are already at historic lows and in the negative terrain.
- It would be possible to increase the purchases of corporate bonds (for example, from airlines). However, such a step would not be unproblematic because many small and medium-sized enterprises would not benefit from it.
- Given the massive losses on global stock markets, one might consider the purchase of shares, as operated by the Japanese central bank, to stabilise the confidence not only of the markets but also of the whole population. However, previous experience with stock market slumps has shown that the effects on the economy as a whole are limited.
- The model of helicopter money would be technically difficult to implement, not to mention the lack of targeting. Here, direct payments from the government, as operated in Hong Kong, are the better solution.

> *With a very low debt ratio by international standards, German fiscal policy has huge potential to stabilise the economy during the crisis. It is now important to make use of this room for manoeuvre. It would be irresponsible to stick to the 'black zero'.*

Fiscal policy action is needed, and Germany has the necessary leeway

The principle of '**timely, targeted and temporary**' should apply to all fiscal policy measures (Gaspar and Mauro 2020). The COVID-19 crisis is therefore not in itself a reason for permanent tax cuts or a permanent increase in government spending. Neither the 'black zero' nor the debt brake limit the scope for action. In any case, there is no legal basis for the 'black zero'. The debt brake has an explicit exception for crisis situations (natural disasters, extraordinary events beyond the control of the state) in

Article 115 of the German constitution. The European **Stability and Growth Pact** also provides for **temporary fiscal leeway** in crisis situations, i.e. extraordinary events beyond the control of the member states.

With a very low debt ratio by international standards, German fiscal policy has huge potential to stabilise the economy during the crisis. It is now important to make use of this room for manoeuvre. It would be irresponsible to stick to the 'black zero'. The German Chancellor and the Federal Minister of Finance have already made it clear that they are clearly giving priority to combating the crisis over fiscal principles.

German government willing to provide unlimited liquidity support

The measures required to contain the epidemic are directly causing a liquidity problem for many companies and the self-employed. While their revenues come to a halt, payments for current obligations (especially for wages, rent, interest and down-payment obligations, rental and leasing obligations) must still be made. In terms of economic policy, the aim must therefore be to ensure that the crisis does not lead to a wave of insolvencies in the German economy. This requires comprehensive liquidity assistance as quickly and unbureaucratically as possible. The German government has taken this into account with the **package of measures** entitled "A protective shield for employees and companies" of 13 March 2020.[2] The finance minister, Olaf Scholz called this package a "bazooka".

- The possibilities for **liquidity support from the state-owned bank Kreditanstalt für Wiederaufbau** (KfW) are being significantly expanded, especially for larger companies. The KfW provides companies with long-term, low-interest loans that are channelled through banks or savings banks.
- In addition, a broadly based, **interest-free deferral of tax payments due** (advance payments and back payments) for income tax, corporate income tax and sales tax was agreed.

An important contribution to stabilising firms' liquidity is made by the **short-time working allowance**. This instrument enables companies to temporarily reduce the working hours of their employees, with 60% (single) and 67% (married) of the resulting loss of earnings being borne by the Federal Employment Agency. During the Great Recession, this instrument helped to largely cushion the effects on the labour market.

2 See https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Oeffentliche_Finanzen/2020-03-13-Schutzschild-Beschaeftigte-Unternehmen.html

In response to the crisis, the federal government has, in a very short time, already made the conditions for the use of short-time work compensation more flexible and increased the benefits granted. As this instrument reduces companies' wage costs, it contributes to improving both liquidity and solvency.

In our paper (Bofinger et al. 2020), we have proposed in particular a generous expansion of the depreciation possibilities for investments as further measures to improve liquidity.

Solvency aid is additionally required

The crisis not only affects corporate liquidity, it also has serious effects on the earnings situation of many companies and self-employed. As these are mainly caused by restrictions imposed to protect the health of the population, they can be regarded as negative external effects for which companies must in principle be compensated. Apart from the short-time working allowance, which plays an important role here, the German government has not yet taken any major steps in this direction.

In Bofinger et al. (2020), we propose various tax policy measures:

- A **temporary reduction in income and corporation tax** (§ 51 (3) EStG and § 23 (2) KStG), as provided for in the Stability and Growth Act. However, this would only benefit companies that can still make a profit this year.
- For companies with losses, the **tax loss carryback** instrument is therefore the better solution (§ 10d EstG). So far, the loss carryback is limited to €1 million; this amount would have to be increased significantly. It would also be conceivable to carry back the profits of 2018 and 2019.
- **Bringing forward the partial abolition of the solidarity surcharge** to 1 July 2020 as a measure mainly limited to private households. This measure is to be considered mainly for psychological reasons.
- A reduction in VAT rates does not seem to make much sense in the short term. This measure is not very well targeted as it would also benefit sectors that have only been affected by the crisis to a limited extent, such as the construction industry or the consumer goods industry. It would also promote social consumption, which is not desirable in the short term.

What is now missing above all are measures to stabilise the liquidity and earnings situation of the **self-employed and owners of smaller companies**. For these people there is no automatic stabilisation mechanism available, such as unemployment benefit or short-time work. What is needed here is short-term and administratively simple aid, which should be provided either in the form of direct transfers or loans with very long maturities and, if possible, free of interest.

Corporate rescue fund as 'ultima ratio'?

If it is not possible to stem the spread of economic shock waves and there is a greater incidence of corporate insolvency, the last resort would be to consider measures under which the state would invest equity in companies. This would be analogous to the rescue of banks under the SoFFin3 bank protection umbrella from the crisis of 2008/09. However, compared to the banking system, there is a much larger number of small and medium-sized enterprises in the real economy, so that the implementation of such measures on a broad scale would involve enormous administrative effort. From a competition policy perspective, too, such a solution does not appear unproblematic. However, in the case of large companies, especially in the transport sector, such measures will become unavoidable.

The European dimension

In this chapter we have focused on measures that can and should be implemented specifically by the German government for the German economy. We are, however, fully aware that national measures alone cannot overcome the crisis. It is a common challenge for all member states and can therefore only be successfully tackled with the help of a common and solidary European strategy. This applies both to the health policy dimension and to economic policy.

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19 Finance in the times of COVID-19: What next?

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The COVID-19 pandemic continues its march across the globe, with the epicentre having moved from Asia to Europe (WHO 2020) (with another move towards the Americas possible in a few weeks). The socioeconomic disruptions have increased the likelihood of a global recession, and with that of problems in the financial system.

What can policymakers do now and what should they be prepared to do when the damage becomes clearer once the virus has receded?

While there is a high degree of uncertainty and limited information, lessons from previous crises can come in useful to define possible policy actions and gauge actions that have been taken. In this chapter I will focus on three main policy steps:

1. Governments must stand ready as the ultimate loss absorber, in the first instance for the real economy, but also for the banking system.
2. This must happen at the EU or euro area level, given limited fiscal space for some countries.
3. This must be announced clearly and early on to create confidence.

Proactive measures needed

COVID-19 and the disruption it has caused, and continues to cause, constitute an enormous shock to both real economies and financial sectors. This is being reflected in financial market distortions, mis-aligned prices (which arbitrage should make unsustainable in normal times) and funding concerns for many market participants, including banks.

The problems originate in the economic disruption. Households that are not earning money might not be able to repay mortgages and consumer credits; not having clients or not being able to produce goods/services results in lost revenues for firms, undermining their ability to repay loans. But it is more: where they have them available, firms are drawing down credit lines to have a sufficient cash buffer during times of economic disruption. This trend is exacerbated as access to market finance is drying up for most firms that used to have access to it.

> *While banks can help their clients to overcome their liquidity constraints, they have a limited ability to do so. Initiatives such as those by the UK government and the Bank of England, as well as the German and French governments, to offer funding liquidity for banks and credit guarantees can be helpful in this context.*

Fiscal support measures can also help mitigate the negative effect of the crisis on banks' asset quality by directly targeting the source of the losses.

Making sure financial regulation doesn't exacerbate procyclicality

One of the defining characteristics of bank lending over the business cycle is its procyclicality: in a recession banks reduce lending rapidly, especially to smaller enterprises and riskier borrowers. While some of this lending retrenchment is demand-driven, agency conflicts at the core of banking point to substantial supply effects. Regulation can further exacerbate this procyclicality, requiring forward-looking loan classification (as under IFRS 9) and provisioning, as well as forcing an increase in risk weights and thus capital. Anticipating negative effects from the disruption for real economy and financial sector and mitigating these negative effects is therefore critical and urgent.

Steps taken by supervisors across Europe to:

- lower countercyclical buffers where currently above zero;
- reduce capital requirements, allowing banks to operate temporarily below the level of capital defined by the Pillar 2 Guidance and the capital conservation buffer (CCB); and
- allow banks to operate below 100% of their liquidity coverage ratio (LCR)

are adequate and can help reduce the risk of lending retrenchment.

Capital forbearance seems the correct way to go; hiding losses less so.

In addition, it seems advisable to stop the clock on the timeline for implementing further capital increases under Basel III reforms as well as to delay the European Banking Authority 2020 stress tests (as it has already decided to do; see EBA 2020).

Building capital buffers is important, but the timing is critical.

> *It seems advisable to stop the clock on the timeline for implementing further capital increases under Basel III reforms as well as to delay the European Banking Authority (EBA) 2020 stress tests (as it has already decided to do).*

While all these measures can help mitigate credit retrenchment and thus avoid a deeper recession, losses for banks and reduced equity buffers will still be a concern for markets. While these losses might not show until later this year, financial markets will price them in as soon as more information becomes available, which will require further forward-looking actions, discussed below.

Instilling confidence

Government is the ultimate backstop for absorbing losses in crisis situations like this one. One of the critical tasks for policymakers is to provide a maximum degree of certainty and instil confidence. As much as this applies to the public policy response to the health crisis caused by the virus, it also applies to the financial sector.

Communication is critical in these circumstances. We saw both good and bad examples last week, with Christine Lagarde's remarks during her 12 March press conference that the ECB was not in the business of reducing spreads causing immediate negative financial market reactions, followed by the positive reaction to the correction of these remarks in her subsequent interview and the blog by the ECB's chief economist Philip Lane the following day. Standing ready as lender and market-maker of last resort and providing clear signals that central banks will stand ready to avoid any price overshooting and market freezes is critical in such situations.

> *Government is the ultimate backstop for absorbing losses in crisis situations like this one. One of the critical tasks for policymakers is to provide a maximum degree of certainty and instil confidence.*

Planning ahead

Assuming projections on how the virus will play out turn out to be accurate, the attention will turn to economic recovery later this spring and early summer. This will also be the moment when there will be a clearer picture of the losses in the financial system and policy actions will be needed. The regulatory reforms of the past ten years, including bank resolution frameworks, will then be put to their first massive test.

As many economists, I have pointed to missing elements in the banking union – a common deposit insurance scheme and a limited funding backstop for the Single Resolution Fund (SRF). While the former has still not been addressed, there is progress on the latter, but probably not in time for the current crisis.

Another misstep, in my opinion, was that a new regulatory framework was being implemented without the legacy of the crisis being addressed first. The Italian approach to bank failures in recent years can be easily explained with this legacy. Bail-in-able debt that was politically not bail-in-able and legacy assets that had not been resolved yet resulting in taxpayer support where such support was – at least in principle – not to happen under the bank recovery and resolution directive (BRRD).

A final unfinished item on the agenda has been to cut the link between banks and governments in the euro area, which would require concentration limits for sovereign bonds and the creation of safe assets. Obviously, these are not reforms that can be introduced in time for a possible crisis later this year, but one can hope that a crisis might be the trigger for finally completing the banking union.

It is widely accepted that the bank resolution regimes established under the BRRD across the EU and at the euro area level are not adequate for a systemic banking crisis. If we see widespread bank undercapitalisation, if not failures, a flexible and systematic approach is needed, and at the euro area rather than national level.

We might easily come into such a situation later this year when authorities in the euro area are faced with several mid-sized, if not large, banks showing significant undercapitalisation. At a time when the real economy will be trying to get back on its feet and will have to rely on bank lending for this, widespread recapitalisation efforts with taxpayer support might be the only option. On the other hand, applying an approach built for idiosyncratic bank failures – including bail-ins and liquidation – might deepen the crisis further.

Some countries, most prominently Italy, might not have the fiscal policy space for such a recapitalisation of banks and might also face limits in direct support for the real sector. This is where a euro area response will be required. While the European Stability Mechanism (ESM) has the (so far unused) option to directly recapitalise banks, the total amount is limited to €60 billion. An alternative option, more adequate for a systemic crisis situation and suggested by several economists, is to establish a euro area-wide bank restructuring agency (e.g. Beck and Trebesch 2013). This temporary agency could be in charge of restructuring viable and non-viable banks throughout the euro area, funded by the ESM and possibly leveraged with private-sector funding. Such an ad-hoc approach would also signal that these are special circumstances and that the euro area is not falling back into bailout mode.

The moment for European solidarity

There has been less coordination in public health responses across EU countries than is optimal. Many countries have also taken decisive actions to address the economic disruptions caused by the virus-induced social shutdown, while there are tentative efforts at the EU level to follow suit. However, the fiscal firepower of such efforts at the EU level is simply not enough. A longer recession and increased fiscal policy demands might make some member countries' fiscal positions unsustainable, further undermining their banking sector and deepening the crisis further.

For the euro area to survive such risks, a euro area-level or EU-level approach is needed. This is the moment for European solidarity, required on the highest political level – i.e. the European Council (EU heads of state). As wrong as president Lagarde's remarks were during her 12 March conference ("we are not in the business of reducing spreads"), it is just as clear that it is fiscal policy that has to finally come to the table. Monetary policy has carried the burden for too long. Yes, the ECB will again step forward when needed, but it is clear that politically this is not a long-term crisis resolution strategy.

It is time for a fiscal policy "whatever it takes" moment in the euro area. During the euro area crisis, there was often talk of moral hazard risks coming with 'bailouts' of peripheral countries of the euro area. Wrong as these criticisms were then, there is no basis whatsoever for such concerns now, as this is an exogenous shock. It is important to stress that it is not enough for the European Commission to loosen budget guidelines for national governments, as financial markets will still price in countries' debt sustainability. Now is the time to put the money where the words are – a post-pandemic euro area budget where fiscally stronger countries help fiscally weaker and more affected countries. Addressing a possible systemic banking crisis jointly can be part of such an effort.

And even though events are still unfolding, and the final tab has not been passed on, stating upfront and clearly that euro area governments stand together and fiscally will do whatever it takes can be incredibly useful!

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20 How COVID-19 could be like the Global Financial Crisis (or worse)

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The world is living its worst scare since the Global Financial Crisis (GFC) in the form of COVID-19, now officially declared a pandemic. The virus that causes this disease, like the flu, affects the respiratory system, but it is potentially ten times as lethal. And, while the mortality rates are significantly lower than the South Asia Respiratory Syndrome (SARS), or the Middle East Respiratory Syndrome (MERS), the high contagiousness of COVID-19 has already resulted in thousands of deaths in China, and a rapidly rising tally in South Korea, Italy, the US and more than 100 countries.

Will the socioeconomic toll be as large as that experienced during the GFC?

- In the current health crisis, as in the GFC, it is apparent that the markets will not produce a solution, and that aggressive policy intervention and globally coordinated national action is needed to slow, and ultimately stop, the spread of the epidemic and to minimise the size and time length of its economic fallout.

The parallels to the Global Financial Crisis are telling.

Ubiquity

It is believed that carriers of the virus can infect others even when they are asymptomatic, which makes comprehensive early detection virtually impossible because this fraction of infected population – no matter how small – can exist undetected among the healthy.

This is, of course, similar to the subprime mortgages that were imbedded into securitised mortgage vehicles along with higher quality mortgages. While subprime mortgages were a small percent of the total (10-12%), it was virtually impossible to locate them when they started to default. This, together with efforts to selectively 'quarantine' – i.e. to bail out some but to sacrifice other financial institutions – led to a freezing-up of the banking and credit channels, and the Great Recession of 2008-09.

- The efforts to contain COVID-19 have frozen many global supply channels; while
- The fear of contagion is causing an unprecedented retrenchment in consumer demand.

The two effects combined are near to the point of causing a global recession.

Underestimation, denial, and unpreparedness

In both the GFC and the COVID-19 crisis, policymakers initially played down the gravity of the problem. Analysts were also blindsided.

- In 2007 and early 2008, rating agencies continued to attach low risk to collateralised debt obligations (CDOs) and collateralised mortgage obligations.

Analysts relied on historical models of real estate price behaviour and saw a real estate downturn as improbable.

- In the early stages of COVID-19, the Chinese government deliberately hid the high degree of contagiousness and even silenced those who voiced strong concern. In the US, there was a proactive effort to minimise the gravity of the health crisis by the Trump administration, and a very late start to testing and containment efforts.

The lack of proper assessment of the threat and the inability to identify positive cases early on is at the root of the economic fallout.

In order to avoid crushing the health system, social distancing has become the best (and perhaps only) way to slow-down the rate of contagion, and social distancing is at the root of the large-scale retrenchment of consumer demand that we are witnessing. Meanwhile, market analysts looked at the experiences of SARS, MARS, H1N1 and other infectious diseases to infer future economic and market behaviour, seemingly under-estimating how much more integrated the world has become, as well as the increased prominence of China in the world economy.

The result was that in both crises, the institutional and regulatory frameworks, as well as the investment community, were unprepared for the dimension of the crises that ultimately ensued.

The local became global

- The Global Financial Crisis was initially perceived as a problem of the subprime mortgage segment in the US real estate market.

In a few months, it engulfed the global banking and financial sector, causing a degree of economic and social damage not seen since the Great Depression of 1929.

- COVID-19 was initially seen as a Chinese or, at worst, an Asian problem.

Like SARS and MERS, it was widely believed that it would remain regionally contained. However, with the Chinese economy coming to represent one third of global GDP, and its growing role in the high-tech industry, disruptions in manufacturing became evident even before the virus began to spread much outside of China. As the infection appeared in other countries, the consumer started to fear contagion.

What lies ahead

It is apparent that the current COVID-19 epidemic, like the GFC, is exhibiting the dark side of globalisation. It will first and foremost exhibit the deficiencies and strengths of national health systems. For example, one of the reasons why the virus may spread faster in the US than in other countries is that the law does not require employers to pay for sick leave, added to the estimated 15-20% of the population who is uninsured or under insured for medical benefits. These individuals are less likely to seek testing and medical treatment. It will also test the potential of the digital society, as at least for some time many may be forced to work remotely.

The most important question is what the ultimate human and economic cost of the current crisis will be. China has managed to significantly slow the rate of contagion but at the cost of an economic recession. It remains to be seen if the epidemic resurges when containment restrictions are lifted.

Will the current and coming economic slump in the US and the rest of the world be as deep as in the aftermath of the GFC?

The degree and duration of consumer risk aversion will depend on the behaviour of the virus itself, the availability of effective antiviral treatment, and the wide availability of a vaccine. Will the virus slow down when the weather in the northern hemisphere warms up, as has been the case with the other coronaviruses? Will it become an incremental worry to our seasonal respiratory ailments? Will it mutate? There appears to be some negative correlation between temperatures in the infected geographical locations and speed of spread of the infection. But there is no certainty here, as this is a new virus and the world outside of China is still in the early stages of the pandemic. A vaccine is expected in about a year; treatments may come sooner.

From what is known about the virus, it is reasonable to assume that in 12 to 18 months, the world may have a medical answer to COVID-19.

- However, given the speed of contagion, the time horizon may as well be an eternity because at the current pace, the pandemic will overwhelm many national health systems and cause formidable economic and human damage.
- It could also trigger a sequence of self-reinforcing negative dynamics that could outlast the epidemic.

The weak link could be the global corporate credit markets. The last decade of low interest rates has led to a spree of debt issuance by corporations in China, the US, and Europe. The IMF has concluded that a downturn half as large as in the GFC would result in US$19 trillion of corporate debt for which revenues would not cover their interest expenses (IMF 2019). This could in turn threaten the health of the global banking system, extending the duration of the economic slump. President Trump recently declared that "this is not a financial crisis". His speech writers left out the word "yet".

What should the US government do?

In order to avoid extreme scenarios, like the GFC, authorities need to act swiftly in the following fronts:

- Management of the crisis: testing, containment and treatment are the top priorities in the near term. Here, due to a late start, the US has much to catch up, with important lessons from successful containment efforts in China, Singapore, Israel and South Korea.
- Easing monetary policy helps the home refinancing market but will not get frightened consumers out of their houses and into the stores.

Additionally, given the low level of rates, the power of this tool is limited. However, asset purchases and credit facilities from the Fed to the banking and corporate sector could help ease the effects of an eventual corporate cash crunch, and worsening capital ratios. It is encouraging to see that the Fed has rolled out some of this in the last few days.

- Targeted fiscal policy is likely to be more effective.

The Trump administration has announced federal funds for sick people to stay home and for their caregivers, and an extension of the tax filing deadline. Also, the administration is proposing to make available an additional $50 billion in low-cost loans for small enterprises, as well as $200 billion in undetailed liquidity into the economy, pending congressional approval.

These are good steps, but more could be done to help those most vulnerable. Examples would be a temporary suspension of the payroll tax, an extension of unemployment benefits (even for those ineligible), and free medical coverage for those treated with the virus. Free medicine and baby-sitting vouchers are other examples. While many of these measures have been included in the coronavirus relief package agreed with the US Congress, they require quick and efficient implementation.

This is also an opportunity to enact adequate reforms to health systems to ensure the provision of coverage for all who need it and require employers to pay salaries during sick leave. The government should be ready to provide support while legislation is approved.

Concluding remarks

In sum, it is likely that the impact of the current COVID-19 crisis will be more short-lived than the effects of the GFC. However, there is a non-negligible risk that this crisis could degenerate into something worse. We have discovered greater vulnerability than expected to bio-risk. And people know that there will be other viruses in the future, and there are also unknown risks due to climate change.

- How long the fear from the current epidemic will last will depend on medical science, but also on people's perceptions of having credible and timely information; adequate prevention, detection and containment policies; and effective management of resources and needs.

The world is living through 'war time' conditions, and people need to know their government has their backs.

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21 Protecting people now, helping the economy rebound later

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The coronavirus is a shock to the economy the likes of which none of us has ever seen. A hurricane hitting every place in the United States, Europe, and much of the rest of the world simultaneously. And hitting every day for weeks, months, or perhaps even a year. It is partly a supply shock as workers can no longer work and supply chains get severed. It is also partly a demand shock as people will cut back their demand, not just for restaurants and travel but likely much else throughout the economy given the extreme nervousness about their economic situation. The public health measures to flatten the curve, delaying and spreading out the extent of the virus, will necessarily and appropriately impose large economic costs. The job of economic policy is, to the greatest extent possible, to protect people from those costs now and help ensure the economy is in a position to rebound quickly when the health threat is contained. Doing this will require a multifaceted and ambitious policy response.

Human suffering in the immediate future

The human toll will be enormous. Most profound and consequential will be the toll on health – the illnesses and deaths from COVID-19 and also the collateral damage to others from an overloaded hospital system. Less profound, but even more widespread, will be the economic toll on workers who lose their jobs or see dramatic reductions in their incomes, either directly because they work in an industry that is shut down as a result of the pandemic or indirectly because they work in anything in the economy which is seeing less demand as a result of all of the income loss and dramatically worsened outlook for the future.

Prolonged reductions in economic activity

The economic problems could persist well after the pandemic is contained. It would be foolish just to think of what is happening as intertemporal substitution – people not going to restaurants today but then making up for it by going to even more restaurants next year. There are four interrelated reasons why the economic problems could be very persistent:

- Labour market matching means that unemployment rates can rise sharply but not fall sharply. In the US financial crisis, for example, the unemployment rate took less than two and a half years to rise from 4.4% to 10% but, seven years to recover. The pattern is similar in previous recoveries and in other countries, and is the result of the labour market matching process in which it is hard to connect people with jobs.
- Companies will go bankrupt throughout the economy, although the extent and magnitude will depend on the policy response. In some cases, these could be disorderly bankruptcies that separate firm-specific management capital, worker capital, and a nested set of arrangements and sever all of them simultaneously. Putting that back together will not be easy.
- Financial institutions could come under tremendous strain and, absent an ambitious policy response, the economic crisis could turn into a financial crisis. Banks had substantial amounts of capital going into the crisis, including both the required levels and additional countercyclical capital buffers in many countries, but not the United States. Business credit lines have already been drawn, loans will be extended or not repaid, and funding could be increasingly difficult – all threatening to freeze up the financial system.
- The global aftershocks could also be large. Some countries may succeed in containing the virus more quickly than others. Some countries may succeed in containing the economic and financial damage associated with the economy more quickly than others. A rolling set of epidemics in individual countries and economic crises in individual countries would create global limits on travel and continue to strain global supply chains.

Crafting a policy response during a pandemic

Policy faces three constraints during a pandemic.

The first is **uncertainty**. Macroeconomic policy is operating under substantial uncertainty at the best of times, given the impossibility of definitive evidence from randomised control trials and the fact that the key structural parameters of the economy are likely fluctuating over time. Now it is operating under massive uncertainty given

that we do not know the duration of the pandemic, the duration of the steps that are being taken to flatten the curve, the effect all of these will have on the economy, and how economic policies work in this situation.

The second is **time**. The change in economic activity has been larger and more abrupt than anything anyone has ever experienced on a global basis. The US housing bubble peaked in 2006, European financial institutions started to have problems in the summer of 2007, economic activity slowed over the course of 2007 in the United States, Bear Stearns needed to be rescued in March 2008, and Lehman Brothers collapsed in September 2008. At times events went quickly, but for the most part the economic situation unfolded slowly. In contrast, each day brings more news about the pandemic and more news about economic closures. Policies that are operational as quickly as possible are necessary.

The third constraint is **capacity**. During the financial crisis, government employees showed up at their jobs; now many are teleworking and likely all will be soon. Many are scared and distracted by the spread of the virus. Some will get sick and die, or if they do not will care for and grieve for others who do. All of this applies to the people developing policies in places like legislatures, finance ministries and central banks. It also applies to the people implementing the policies. At the best of times it is hard to implement administratively complex new policies. And these are not the best of times.

These constraints have six implications:

1. **Better to do too much rather than too little**. The current situation is one of radical uncertainty. And given this radical uncertainty, policy has to be based on a risk analysis of the cost of doing too little and the cost of doing too much. In this case the risk analysis is increasingly clear: the cost of doing too much is the time value of money, which right now is negative given the negative real interest rates. The cost of doing too little could potentially be enormous both in terms of immediate human suffering and a prolonged economic crisis that exceeds the one in the wake of the global financial crisis.
2. **Use existing mechanisms as much as possible**. Franklin D. Roosevelt engaged in "bold and persistent experimentation" in combatting the Great Depression. This process unfolded over a decade. We do not want to be combatting the economic fallout of the pandemic over the course of a decade. Increase funds under existing channels of assistance rather than creating new ones; repeat policies that have been tried and worked (at least administratively) in the past.

3. **Invent new programmes where necessary**. It will not be possible to use existing mechanisms for everything. The United States, for example, does not have paid leave or mandatory sick days so needs to invent and implement them in the middle of the pandemic. No country has sufficient mechanisms to deal with abrupt revenue stops in a large number of sectors across the economy.
4. **Diversify and do not fear duplication or unintended 'winners' in the response**. Given the uncertainty about the economic situation, the impact of policies, and the new policies that are being invented, it is worth diversifying the response. Many policies will have to be tried. Some will work; others will not. Many will be wasteful, giving money to people or businesses that do not need it – or even giving it to the same ones twice. The risk of duplication is much smaller than the risk of over-targeting that leaves many out.
5. **Enlist the private sector as much as possible**. The private sector will be operating under many of the same operational constraints as the government. But it has an existing infrastructure, can be nimble, and can form a diversification of the response. Direct government lending is hard, but loan guarantees can enlist the private sector to make the loans. The private sector will make the additional food and hospital equipment but will need financial incentives. Some will end up making a profit out of all of this, now is not the time to be squeamish.
6. **Ensure the response is dynamic and persistent**. The damage is uncertain. It may vary across places. It may last a long time. Policy needs to be ready to stay in place and even grow in the places and times it is needed. The more that policies can have triggers to automatically continue and expand in places and times they are needed, the better.

What a policy response should look like

The exact policy response will vary from country to country but here are some ways to operationalise the principles above:

- **Spare no expense on health**. Testing, hospital systems, antiviral and vaccine research and anything else that is needed should be funded.
- **Targeted assistance using existing programmes**. In the United States this means expanding eligibility for unemployment insurance (although that is hard because eligibility rules vary across the 50 states and the District of Columbia), increasing the amount of benefits ($50 per week added), and expanding other programmes for the most vulnerable, like the Supplemental Nutrition Assistance Program (SNAP). In addition, increasing federal funding for states is critical and one of the best

mechanisms for this. The United States is increasing the share of Medicaid paid by the federal government.

- **Cash payments to households**. Many people will be affected in many ways, with lost jobs, furloughs, lost savings, lost gig work, greatly reduced employment, and the like. Many will fall outside the targeted programmes that already exist or will be set up. Italy and France are delaying bill payments, but those bills will eventually have to be paid. Cash payments to households are a very efficient way to make sure broad-based help is available. This can help cushion the blow in the short run and put people in a better position to spend, driving economic recovery, after the virus passes. In the United States this should be at least $1,000 per adult and $500 per child – and importantly should continue as long as the unemployment rate is over 5.5%.
- **Assistance to businesses**. This will require the most creativity. Large-scale lending programmes will be an important part of the response, including partial or full government guarantees of loans made by banks to businesses in order to keep them able to employ people and out of bankruptcy so as to be in a position to resume activity after the pandemic ends – something Germany, among others, has launched. New procedures are needed to enable large-scale workouts and avoid costly bankruptcies and liquidations without relying heavily on government administration. Whether the government should directly cover a large fraction of payroll, as in Denmark, is worth seriously considering. Finally, ensuring banks can extend and pretend on loans while extending new loans will require not just temporary regulatory changes but also backstops for the financial system.

Conclusion

Too often in January, February and the first half of March, policymakers were days or even weeks behind where they needed to be. For public health the consequence of this delay has been enormous; when dealing with what is initially an exponential process, a delay of a few days in implementing social distancing can have a large impact on the trajectory of the virus.

Policymakers are increasingly grasping the gravity of the situation and are implementing ambitious measures to flatten the curve of the virus, help protect people now, and help the economy rebound in the future. Much, much, much more will be needed – and I fully expect that much, much, much more will indeed be done.

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22 Policy in the time of coronavirus

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"The only thing I know is that I know nothing." I've never thought of this quote attributed to my ancient Greek ancestors as frequently as in recent weeks. I have been asked to share my thoughts about appropriate policy responses during this unprecedented crisis. But what does one recommend when what is known changes on a daily basis? And when the most relevant historical experience one can draw upon is either from only two months ago (and still evolving) or from more than 100 years in the past – the Spanish Influenza of 1918-19 (CDC 2020)?

In terms of policy, the immediate need is for health, not economic policy. On the economic front, in the short term, governments need to provide calm, confident reassurance that they are there; and that economic policy will reinvigorate the world economy after the healthcare tsunami passes.

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Those shaping health policy need to show leadership, humility and consistency – the first usually implies the latter two. We need humility to acknowledge that we are in unchartered territory that defies our knowledge and experience (though some familiarity with basic maths and statistics, especially what exponential growth means, would help!).

Mistakes are inevitable – surely, there will be many ex-post accounts of what could have been done better in hindsight. Nevertheless, more important than adopting the *optimal* policy towards containing the spread and ramifications of the coronavirus crisis is the need to adopt a *coherent, self-consistent* strategy. So far, countries affected by the virus have adopted different approaches towards containing its spread:

- In East Asia, aggressive testing, tracking, quarantines and travel bans;
- In many parts of Europe, ignoring the issue for a while only to later follow up with lockdowns and travel bans;
- In other parts of Europe, intensive testing as well as information and advice campaigns without draconian quarantines or travel bans (so far);
- In the US, complete inaction by the government for many critical weeks, while segments of the private sector and universities were preparing.

To a certain extent, these differences in approach reflect differences in cultures and political systems, which imply that what works in one part of the world may not work in another. But such differences do not explain the inconsistent behaviour across time we have seen in several countries since the beginning of the crisis.

The US stands here out. Refusal to acknowledge the existence of a problem only to declare a crisis a few weeks later, then bans for travellers from China, South Korea and Iran, but not from Europe. Encouragement of people to attend restaurants in New York City, but to stay away from public transportation. Cancelation in the second week of March of many public events, while public schools in many cities remained open. Such inconsistency has not only delayed an effective response – very likely allowing the virus to spread in the meantime (we may know more about this once testing becomes more widely available) – it has also sent markets into panic, making a dire economic situation even worse.

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Appropriate economic policy

Much has already been written about the appropriate economic policy during and, more importantly, after the crisis. While the specifics vary from country to country, the clearly emerging consensus is that the tools of monetary policy are very limited at this point – aggressive fiscal measures, especially to support small and medium-sized enterprises, are a must (Gourinchas 2020).

It is hard to speculate what exact form such measures should take without knowing how long this will last; what the eventual death toll of the pandemic will be; how potential labour shortages will affect output; how individual countries, especially those that are critical to global supply chains, will be affected (the recovery of China gives one hope); and how firms and workers in specific sectors, especially transport and services, will fare.

A COVID-19 silver lining?

But despite this dire recap of where we are, looking forward, perhaps there will be a silver lining: the lifestyle and productivity changes brought on by the coronavirus. Many of the changes are viewed as short-term expedients to enable aggressive social distancing. Technology firms, for example, have closed their offices, required all employees to telecommute, and fitted them out with the computing and video technology to do so. Congestion has vanished on roads and hours spent commuting are now dedicated to work and family. Video conferences are replacing shuttling back and forth between East and West coast in the US, and between countries across the world, with enormous time savings and huge cutbacks in air pollution from jet engines.

At the same time, educators at nearly every level are scrambling to replace classroom instruction with online alternatives. Where previously a few early adopters were producing online courses, now we are seeing whole universities move to the web. With entire faculties experimenting, we will inevitably see innovation and progress and we can expect that delivery of long-distance learning will improve by leaps and bounds. Once students can return to the classroom, we should continue to leverage these innovations – in the developed world and potentially in the developing world too.

A third obvious trend is the shift from bricks and mortar shopping to digital platforms. Which brings me to the point about compensating the losers from disruptive technologies. Each of increased telecommuting, reduced business travel and distance learning have the potential to increase productivity for some, but will massively disrupt the livelihoods of others. We need to make sure we compensate the losers, especially given the speed with which the coronavirus crisis has unfolded. But we should not try to roll back progress – we should embrace it.

COVID-19, privacy, and inequality

Another trend the coronavirus has reinforced is the erosion of privacy in exchange for targeted results. In this case, however, it is not about advertising; it is about identifying those most vulnerable or likely to be infected. In Asia, the technology to track people's movements has led to very effective identification of potentially infected citizens. We have seen huge tension between privacy and health outcomes before, where the desire to protect one's health privacy prevents the medical community from connecting the dots by being granted access to full health history. Depending how the coronavirus plays out, we may want to revisit the full costs of health privacy and consider moving the needle there.

The coronavirus may have some interesting impacts on inequality. To the extent that the virus triggers a stock market correction, a good part of the recent growth in wealth inequality driven by return to capital invested in the stock market will diminish. Spatially, cities with populations crammed onto mass transit may pay a higher price than rural areas which had previously been declining; the urban-rural gap may decline. Of course, this is not the kind of inequality reduction one desires. In either case, we would have liked the bottom of the distribution to come up, not the top to come down. One may not care about the decline in stock prices, but to the extent that we value our cities as economic, technological and cultural centres, public policy will need to support them.

> *Once the crisis abates – and it will one day – we will be forced to confront the same trade-offs we have been debating in the contexts of globalisation and automation. Ultimately, the tension is between embracing change to increase aggregate productivity and protecting the people and communities who have been adversely affected.*

The impacts on other dimensions of inequality are even more worrisome. The gap between those who can work remotely and those that need face-to-face interaction will increase. Here, kudos to the Microsofts and Googles of the world who are paying the contractors who provide services at their now closed offices during the shutdown. But, like the small business owners who without support will be decimated by a multiple month loss of foot traffic, these workers need a stake in the new economy.

Concluding remarks

The coronavirus crisis is first and foremost a public health crisis. But in confronting it, we are accelerating some of the trends of the past few years (technology adoption, use of new data, distant learning and telecommuting). Once the crisis abates – and it will one day – we will be forced to confront the same trade-offs we have been debating in the contexts of globalisation and automation. Ultimately, the tension is between embracing change to increase aggregate productivity and protecting the people and communities who have been adversely affected. Whatever concrete policy measures countries adopt, it will be important to strike a balance between the two. Provide relief and support to individuals, firms, sectors and communities hit by the crisis, but at the same time resist the urge to return to the exact way things used to be. Instead, embrace the positive lessons and innovations brought about the response to the crisis – if we are ever to find meaning in what has befallen us.

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23 Containing the economic nationalist virus through global coordination

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Economic nationalism is an opportunistic infection, seizing its moment now when the global economy is already weakened by the COVID-19 pandemic. This is partly inherent to the situation. Scared people and their politicians try to look after those closest to them, and hoard everything – medical equipment and pharmaceuticals, dollar liquidity, local markets, opportunities for exports, even aid to poorer countries. They want to keep it all for themselves and judge their friends' worthiness of sharing with on an ever-rising standard. This is also partly the result of policy agendas being advanced by governments with autarkic autocratic sympathies, as emblematised by US President Donald Trump and his advisors, but also seen to varying degrees in Brazil, Hungary, India, the Philippines, Poland, and the UK (de Bolle and Zettelmeyer 2019). These ideologues see their moment in the current crisis, much like their nationalist forebears tried to seize the moment in the depression and disorder of the 1920s and 1930s.

> *The economic nationalist policies of today are no more deserving of victory than the fascist regimes of a century ago. While fear-based hoarding on a national basis is human and understandable, it is counter-productive and costly.*

The economic nationalist policies of today are no more deserving of victory than the fascist regimes of a century ago. While fear-based hoarding on a national basis is human and understandable, it is counter-productive and costly. Both public health and macroeconomics demonstrated long ago that if every national government, let alone every household, tries to self-insure in a panic, the outcome makes everyone worse off. On the economic side, demand collapses, as do asset prices; liquidity and credit disappear; and shortages of critical components, skilled labour, and supplies of, yes,

1 The views expressed here are solely the author's own.

food and medicine emerge. Over time, those countries which try to be self-sufficient across the board and decoupled from the global economy just will end up suffering more from lack of diversified sourcing and unavoidable local shocks, though this harsh reality gets obscured in the current crisis.

Economic nationalism is not deserving of victory

Protectionist self-isolating policy regimes, of the sort advocated by the nationalists in Brasilia, Delhi, Washington and elsewhere, also lead to arbitrary exercise of political favouritism and punishment in the economic sphere, country by country, business by business. This not only corrupts and oppresses, but such regimes drive trend investment and productivity downwards even in the absence of a pandemic. These regimes raise the risk of global conflict and exploitation of smaller nations (Posen 2018). Stopping these opportunistic infections from becoming chronic conditions of our economies, after the plague has subsided, is critical to our lasting economic recovery.

International economic policy coordination, however, has an uphill road to navigate beyond the political fears and scapegoating fanned by COVID-19. The Trump administration's trade wars of choice have undermined working relationships between US and other governments; migration disputes among G20 members, including intra-EU, have further created distrust; growing suspicions of Chinese ambitions and practices have limited resources as well as the ability to make decisions in the IMF, World Bank, and WTO; lasting feelings of disappointment in technocratic and collaborative solutions to the financial crisis of 2008-2012 have been played upon by the same nationalist politicians to weaken policymaking capacity (visible diplomatic failure and disorder are their desired outcomes).

The irony, and actually the good news, is that the G20 economic policy coordination need not be all that ambitious in order to make a substantial positive impact. Many economic nationalists attack 'globalism' or international cooperation as harbouring aspirations for world government. During the last crisis, however, cooperation succeeded primarily by preventing opportunistic infections from beggar-thy-neighbour actions, even though the primary lifting of demand and financial restructuring had to be done by domestic governments on their own.

In several key policy areas, there is a useful agenda building on experience which should be advocated, and which importantly in no way conflicts with public health measures or increases expenditures. Such a collaborative agenda would at the margin also encourage governments to behave in more constructive and timely manner by ruling out some bad options. It is important, though, that the long-term goals of such

collaborations be behavioural norms for governments, cast in negative or deterrence terms, and as specific limited deals between governments. Attempts to connect across visibly distinct issue areas or to emphasise governance processes – let alone to use this moment to expand international organisations – are likely to backfire in our current era. Again, such ambition is fortunately not necessary in order to be effective in contributing to economic response to the crisis.

Monetary policy should stop panics in fixed-income and jointly raise the inflation target

Monetary policy has to take a backseat to fiscal policy on the macroeconomic stabilisation front in this crisis. The capacity for and impact of monetary easing were already limited in our secular stagnation, low-interest-rate environment whatever the nature of the next recession (ASSA 2020). Monetary policy is particularly ill-suited to respond to the COVID-19 pandemic, given its aspects of sudden stop in provision of labour services and key real activities – not financial flows – and other supply shocks. To the degree that central banks can prevent deflationary expectations from setting in, and real interest rates from rising, that of course would be helpful, but there again fiscal expansion has the most important role. What monetary policy measures should emphasise is stopping financial panics in fixed-income and credit (not equity) markets, where it can make a material difference and has effectively unlimited ammunition to do so. The Federal Reserve's announcement regarding the Treasury repo market is a good example of this kind of measure.

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The best that can be done internationally on the monetary policy front is to increase the credibility of commitments to reflation, and to avoiding any premature or inadvertent tightening of policy. No one should kid themselves about the effectiveness of forward guidance as a boost to inflation expectations let alone nominal outcomes today (Posen (2012). But central banks make recurrent mistakes of tightening prematurely, as the Bank of Japan did in 2000, the ECB did in 2011, and the Fed did in 2018. No central bank should be party to exporting deflation to other economies. So the major central banks should come together in raising their long-run inflation targets – jointly, and not in mealy-mouthed fashion of 2% on average over some period of catch up (Posen (2019). If anything will raise medium-term inflation expectations independent of a recovery in the real economy, it would be a joint inflation target increase. It certainly

can do no harm. And if such a joint action proves insufficient to increase long-run nominal interest rates and inflation expectations, then we will truly know it is the real side of the economy, not expectations of policy, which drive inflation. Then the secular stagnation arguments for aggressive fiscal policy become even more compelling.

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Currency policy follows naturally as a place for international coordination, and, of course has been the channel for some of the worst beggar-thy-neighbour actions in economic history. In an under-appreciated success, the G7, China, and other large G20 members have adhered since 2012 to an agreement not to manipulate currencies against each other, unfounded claims in the most recent US Treasury report notwithstanding (Gagnon (2020). This agreement should be reaffirmed publicly by the relevant economies. In fact, the agreement could be extended to more explicitly rule out all but joint foreign exchange intervention for as long as the pandemic lasts, with an implication that exchange rates between the dollar, yuan, yen and euro – and perhaps other haven currencies (NOK, GBP, CHF) – will be stabilised around current levels. Since all major economies are being affected by the pandemic nearly simultaneously, almost all have little room to move interest rates, all should be pushing macro policy in the same expansionary direction, and since the room for even early recovering economies to expand imports is limited, there is no good reason for significant swings of bilateral rates at this time of crisis. For those who believe in measures of currency under- and over-valuation, the degree of either among the G20 and haven currencies is at relative historic lows as of recent assessments (Steil and Della 2020, US Treasury 2020: 18), so the status quo levels are not in themselves a problem.

Financial stability policy is a place where central banks can make a difference, especially in collaboration with fiscal authorities, but there is an important cross-border dimension as well. The fundamental economic challenge is to bridge the financing and employment for the particularly harshly hit sectors – tourism, entertainment and hospitality, in person retail and services, and some forms of transport. With a few exceptions like airlines and hotel management chains, these sectors are predominantly composed of small and medium-sized enterprises, with part-time, gig, informal, or other workforces short on

sick leave.[2] Rolling over of outstanding loans to those SMEs, as well as providing trade and factoring credit when demand collapses, will be extremely high impact. There are many ways to do this, including those just announced in the UK and in the euro area. At its core, some amount of enforced rollover of loans tied to availability of liquidity and forbearance by bank supervisors for credit to the worst affected sectors is necessary.

Bank supervisors should agree to mutual allowance of rollovers and avoid national ringfencing

The international cooperative aspect comes in again in preventing counter-productive nationalist policies in this area. Even after 2008-12, a substantial share of small business credit is provided by foreign headquartered banks for most jurisdictions, and loans still are repackaged and resold (if not in the illiquid, opaque securitisations of the mid-2000s). The bank supervisors should agree to mutual allowance of rollovers, done in a transparent manner, to smaller companies in the affected sectors. Otherwise, there is the risk that supervisors will tell lenders to pull credit home to their local markets. Even if it were to be a wash on net in terms of how much gets pulled back between any two economies, the gross flows and interruption of credit availability – since small borrowers cannot easily switch lenders or survive even a short-period without credit today – would be devastating. And of course this would not be a net wash, with some economies – including in, but not restricted to, the developing world – seeing withdrawals of liquidity. This risk also argues for international information sharing on the net exposure of financial systems.

> *The bank supervisors should agree to mutual allowance of rollovers, done in a transparent manner, to smaller companies in the affected sectors. Otherwise, there is the risk that supervisors will tell lenders to pull credit home to their local markets.*

Another aspect of global financial stability is the availability of dollar liquidity in times of panic. During the Global Financial Crisis, the extension of swap lines by the Federal Reserve to other economies providing loans (fully repaid!) of dollars to their financial institutions was a major piece of putting a floor under the situation (Bernanke (2016). The swap lines proved to be a lightning rod for criticism of the Federal Reserve

2 Large companies with collateral (real estate, airplanes, landing slots, drilling rights) and which had the opportunity to accumulate cash reserves in recent years should not be given these rollovers of loans and forbearance. They will be able to benefit directly from declines in interest rates and will have access to market-based refinancing or debt for equity swaps, in a way that SMEs cannot. If fiscal authorities wish to bailout these companies, as the German and US administrations have indicated they will do, that is the direct transparent way to do it – but I would advise against doing so.

in the US Congress, completely unjustified, but politically potent nonetheless. The announcement by the Federal Reserve and five other central banks of "Coordinated Central Bank Action to Enhance the Provision of US Dollar Liquidity" before markets opened on Monday, 16 March 2020 was absolutely the right thing to do. The economic nationalists in the Trump administration might nonetheless try to employ the utilisation of dollar swap lines in their efforts to gain allies in attacking the Fed. There is no easy way around this challenge, so it needs to be tackled head on – without those swap lines in the background, the financial panic seen over the last week could go from a contained side show to a major driver of economic decline. One avenue is to have the European and Chiang Mai Initiative swap lines get pre-emptively activated and built up (and pressure the US to see this as a challenge to the dominance of the dollar if they fail to back the coordinated move). Officials who remain close to the Trump administration, Congressional Republicans and other governments (Australia, Brazil, Japan, the UK, and Taiwan come to mind as possibilities) need to make the case for the importance of these dollar swap lines to US global interests – and that the only financial risk to American households comes from the world economy not having these, not from their operation.

Tit-for-tat retaliation and fearful hoarding

Trade policy is getting grimmer by the moment. The tit-for-tat retaliations in the climate of fearful hoarding are escalating. We have gone from India to the EU restricting exports of pharmaceuticals and medical equipment; the US is pursuing autarkic solutions to substitute domestic production for imports, even when imports are available or can be licensed for production and offer superior performance (as with COVID-19 test kits). Allies of 70 years, Germany and the US are reportedly fighting over an American cross-border acquisition of a German biotech firm, because the Trump administration is casting it as a way to get a vaccine exclusively for the US (DW News 2020).

Some well-intentioned idealists proposed cutting tariffs as part of a G20 response to add to fiscal stimulus and business confidence just a week or two ago. We will now be fortunate if we can simply stop the endogenous escalation of trade war, both in scale and scope (imagine if we go from households hoarding toilet paper in the US to nation-states hoarding food supplies). Even if it is the rational short-sighted reflex reaction to others' behaviour, this kind of uber-protectionism makes even the largest economies more vulnerable to the next turn what needs the pandemic generates, and hammers the availability to the poor both at home and particularly in developing economies, through cutting supply and raising prices. That in turn will further extend the spread and persistence of the pandemic and of literal biological opportunistic infections.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) member states, the EU, and China should come together and agree to a moratorium on tariffs between each other going forward.3 Implicit would be the threat of future tariff increases and trade diversion for those countries which do not join. In the sensitive area of medical equipment and drug supplies, these governments should come up with a joint reporting mechanism on the availability of supplies and production facilities. These measures could be accompanied by commitments to expanded production with clear mutual agreements to export to each other, and to developing countries – an instance of tit-for-tat and managed trade in the right direction to arrest the escalation of trade war. The US government seems to only respond on trade these days to exclusion from market openings which disadvantage it, but caves rather quickly when these are presented. We can hope this convinces American officials that it is in their interest to join in, at least by pressuring American businesses and by showing clearly better results for citizens than attempting to go it alone. These governments, and any who join them, should further suspend trade negotiations of any kind with the US, India, and other large economies which refuse to agree to the tariff moratorium. As I warned in Brussels in January 2017, Trump's trade policies would mean that China and the EU would at some point have to smack the US government upside the head – the pandemic makes that imperative (Posen 2017).

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) member states, the EU, and China should come together and agree to a moratorium on tariffs between each other going forward.

Limit beggar-thy-neighbour spirals which would sicken us all further

This agenda for international economic policy cooperation in response to the COVID-19 pandemic is not going to be an easy sell. On the economics, however, and on the deliberate modesty of working the problem (rather than trying to defend, let alone extend, current international institutions), it should have a clear path on its merits. We should not give up on the power of concerted action because it has peer pressure going for it. Already, the governing coalition in Germany has done a useful about-face towards constructive fiscal stimulus, the Conservative government in the

3 As importantly tracked and documented by Evenett (2020). There are of course a host of non-tariff barriers to trade which have been rising since the global financial crisis, and which have spiked in response to the COVID19 epidemic. Of course, to the degree that these governments can include in their moratorium these kinds of harmful measures as well as tariffs that should be done. Tariffs here is used as shorthand.

UK is turning its public health policy towards current epidemic control, and the Xi government in China has turned relatively transparent in its health reporting and begun exporting medical supplies and aid. Not only are there no atheists in a foxhole, there are no isolationists either. For all the failures of policy coordination in the 2008-12 crisis, actual and perceived, the fact remains that such efforts limited the beggar-thy-neighbour spirals which would have made the main problem worse. We can stand up to economic nationalism and prevent opportunists from taking advantage of a time of weakness to sicken us all further.

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24 The case for permanent stimulus

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Let's be clear: we knew, or should have known, that something like COVID-19 was going to happen.

I don't mean that we should have expected a pandemic, although public health experts have been warning about the likelihood of such an event for years. What I mean is that we should have known that sooner or later — and probably sooner rather than later — we would face an adverse economic shock that conventional monetary policy couldn't offset. As I liked to put it, I didn't know when we'd hit the next major bump in the road, but when it did come, we'd discover that our shock absorbers were shot.

So now we've hit that bump, taking the form of a pandemic, and policymakers are frantically trying to come up with a policy response. I will not, however, weigh in on immediate measures, except to say that the case for fiscal stimulus is overwhelming.

What I want to propose, instead, is a long-term policy that will make it easier to handle future bumps in the road. I'll make the recommendation for the US, but similar logic applies to the advanced world as a whole.

So, here we go:

- I hereby propose that the next US president and Congress move to permanently spend an additional 2% of GDP on public investment, broadly defined (infrastructure, for sure, but also things like R&D and child development) — and not pay for it.

Let me explain why this would be a prudent and productive thing to do.

Living with low interest rates

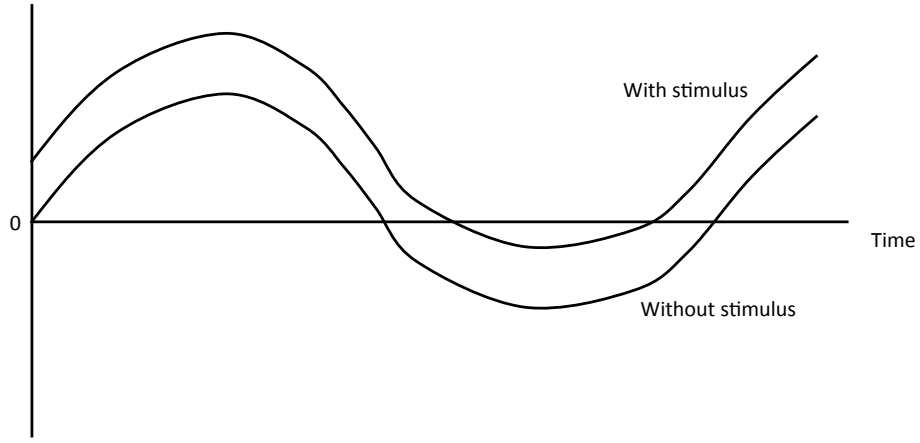
A dozen years after the global financial crisis, we're still living in a world of very low interest rates. At this point it's clear that low rates are the new normal; that is, we're in an era of secular stagnation.

Larry Summers gave his seminal speech reviving concerns about secular stagnation back in 2013, yet even now many people seem confused about the concept. It doesn't mean that the economy never grows, or even that it's always depressed. It means, instead, that on average the 'natural' interest rate — the rate consistent with full employment — is very low. There can still be periods of full employment, when a bubble or a wave of technologically driven investment temporarily lifts the economy. But much of the time private demand is depressed enough that even a zero interest rate is insufficient to eliminate the output gap.

Figure 1 illustrates the point schematically. The curve labeled "without stimulus" shows a hypothetical course over time of the output gap that would prevail at a zero policy rate. Of course, policy rates wouldn't always be zero; during good times, when the curve rises above zero, the central bank might raise rates and trim the peaks. But during bad times, conventional monetary policy would become impotent.

Figure 1

Output gap at zero interest rate



And these bad times appear likely to be common, indeed almost the norm. The US was in a liquidity trap for eight of the past 12 years; Europe and Japan are still there, and the market now appears to believe that something like this is the new normal.

So what do we do?

For now, we respond with a combination of unconventional monetary policy and, maybe, fiscal stimulus. But there are real doubts about the efficacy of unconventional policy and its longer-run implications. Meanwhile, the need to act quickly, even if we do act — and what we've seen of the politics of stimulus isn't encouraging — limits the form of fiscal stimulus. There's an overwhelming case that stimulus take the form of public investment, in both physical and human capital, given low interest rates and the clear need for better infrastructure, childhood health and nutrition, and more. But such investment can't be ramped up rapidly.

So my proposal is that we undertake large, deficit-financed public investment on a continuing basis.

The upper curve in Figure 1 illustrates what this would do. It would reduce both the duration and the depth of zero lower bound (ZLB) episodes, and ensure both that we do in fact get economic support from fiscal stimulus and that this stimulus is productive. Deficit-financed public investment might lead to some crowding out of private investment during better periods, but as Olivier Blanchard argued in his 2019 presidential address to the AEA, low interest rates suggest that the rate of return on private investment is low, so this isn't a major concern.

What about debt?

The obvious objection to a policy of permanent stimulus is that it will add to public debt — and not that long ago, policymakers were obsessed, or claimed to be obsessed, with the dangers posed by high ratios of debt to GDP.

But those concerns were misplaced, and a look at the arithmetic of debt in an era of low interest rates suggests that permanent stimulus is entirely doable.

Let's consider a stylised, round-number economy that I'll call "America." This economy currently has public debt equal to 100% of GDP. It can expect, on average, to experience nominal GDP growth of 4% a year – half real, half inflation. It can also expect, on average, to pay an interest rate of 2% on its debt. The actual numbers don't match my example exactly — right now, growth prospects may be a bit worse than that, but interest rates are even lower. But I think this is close enough to make my point.

In the long run, fiscal policy is sustainable if it stabilises the ratio of debt to GDP. Because interest rates are below the growth rate, our hypothetical economy can in fact stabilise the debt ratio while running persistent primary deficits (deficits not including interest payments.)

Let d be the ratio of debt to GDP, b be the primary balance as a share of GDP, r and g be the interest and growth rates, respectively. Then the equation for debt dynamics is:

$$d = -b + (r - g)d$$

So in my hypothetical case, where $d = 1$ (debt is 100% of GDP), the debt ratio can be stabilised while running a primary deficit of 2% of GDP.

Put the interest payments back in, and this translates to a headline deficit of 4% of GDP. Our actual deficit is a bit bigger than that, but we could get back into that range by repealing Trump's corporate tax cuts, which don't seem to be doing anything for investment anyway.

OK, now let's introduce a public investment programme of 2% of GDP, with no pay-fors. The debt ratio will now begin to rise, but not without limit. If nothing else changes, d will eventually stabilise at 2 — debt at 200% of GDP.

That's terrible, right? Um, why? Don't tell me about the burden of paying interest on the debt — that's already taken into account by the calculation. Maybe we'd have a debt crisis, but Japan has debt exceeding 200% of GDP, with no crisis in sight.

Also, 'eventually' would be a long time. That little debt-dynamics equation has a convergence rate of .02, hence a half-life of 35 years. In other words, my permanent stimulus plan would raise the debt/GDP ratio to only 150% by the year 2055. That's a level the UK has exceeded for much of its modern history.

And even 35 years is probably too long a time horizon; who knows what the world will look like that far ahead? I think a 20-year programme of public investment would count as 'permanent' in most peoples' eyes. And an 'excess' primary deficit of 2% of GDP for 20 years would only cause the debt ratio to rise from 100 to 133% of GDP, not at all an alarming number by historical standards.

By the way, if anyone is wondering why the rise in the debt ratio would be less than the cumulative deficit spending, it's because with interest rates below growth rates we experience the opposite of a debt spiral: instead of snowballing because higher interest rates mean bigger deficits, the debt ratio tends to 'melt' because higher debt means faster erosion of the ratio by growth.

Objections

OK, there is a valid objection to my argument: I've just implicitly assumed that permanent fiscal stimulus wouldn't raise the interest rate, and that's not a safe assumption. For one thing, ZLB episodes would probably be fewer and shorter than otherwise. Also, the Fed would probably raise rates a bit further than it would have otherwise during those periods when the economy isn't in a liquidity trap.

But there would also be offsetting factors.

- First, when the economy is in a liquidity trap, which now seems likely to be a large fraction of the time, the extra public investment will have a multiplier effect, raising GDP relative to what it would otherwise be.

Based on the experience of the past decade, the multiplier would probably be around 1.5, meaning 3% higher GDP in bad times — and considerable additional revenue from that higher level of GDP. Permanent fiscal stimulus wouldn't pay for itself, but it would pay for part of itself.

- Second, if the investment is productive, it will expand the economy's productive capacity in the long run.

This is obviously true for physical infrastructure and R&D, but there is also strong evidence that safety-net programmes for children make them healthier, more productive adults, which also helps offset their direct fiscal cost (Hoynes and Whitmore Schanzenbach 2018).

- Finally, there's fairly strong evidence of hysteresis — temporary downturns permanently or semi-permanently depress future output (Fatás and Summers 2015).

Again, by avoiding these effects a sustained fiscal stimulus would partially pay for itself.

Put these things together and they probably outweigh any fiscal effect due to stimulus raising interest rates.

And here's the thing: because a debt crisis doesn't seem at all imminent, there will be plenty of time to reconsider if the arithmetic of infrastructure spending doesn't turn out as favourable as I expect it will. If secular stagnation looks like less of a problem at some future date — say, during Alexandria Ocasio-Cortez's second term in the White House — we can rethink permanent stimulus then.

Lessons from Japan

Some readers may have noticed that what I'm proposing — a sustained programme of deficit-financed public investment, through good times and bad — sounds quite a lot like Japan's policies since the mid-1990s. What can we learn from Japan's experience?

Let's note at the outset that Japan's debt dynamics are much less favourable than those likely to prevail in the US, for two reasons.

- First, Japan allowed itself to slide into deflation, and has yet to convincingly exit.
- Second, Japan's potential growth is low due to extraordinarily unfavourable demography, with the working-age population rapidly declining.

As a result, Japan's nominal GDP has barely increased over time, with an annual growth rate of only 0.4% since 1995. Meanwhile, interest rates have been constrained on the downside by the zero lower bound, so Japan has spent most of the past generation with r-g near zero, rather than the -.02 I've argued is reasonable for the US. This in turn means that Japan's debt ratio has risen more rapidly than we should expect for America.

Even so, however, Japan still faces no hint of a debt crisis.

And Japan's policy of permanent stimulus has surely contributed to the nation's ability to maintain more or less full employment despite the weakness of private demand. Japan has at no point experienced the kind of mass unemployment and suffering that North America and Europe experienced for years after the 2008 crisis, and may be about to suffer again.

In other words, at this point Japan doesn't look like a cautionary tale; it almost looks like a role model. I've suggested, only semi-facetiously, that Western economists like Ben Bernanke, Lars Svensson, and yours truly who were highly critical of Japanese policy circa 2000 make a formal apology. We've handled Japan-type problems far worse than they have.

Which brings me back to my original point: there's a very good case for putting a sustained, productive program of stimulus in place as soon as possible, instead of scrambling to come up with short-term measures every time bad things happen. Because everything we see now says that bad times will be a very frequent occurrence.

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