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Economic and financial news seen through research
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The crisis and beyond: contributions from academic research

**With Christian Gollier,
Laurence Scialom,
Julie Ing and Jean-Philippe Nicolaï**

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EDITORIAL

The Covid-19 pandemic unfortunately continues to ravage the world. Since it began more than a year ago, this initially unknown virus has infected more than 130 million people, of whom more 3 million have died. Europe is the second most affected region. With the emergence of more contagious and virulent variants of the virus, the ending of the crisis has receded and will only become possible after mass vaccination of the population. In this regard, Europe lags a few months behind, forcing some countries, including France, to adopt additional restrictions to curb the circulation of the virus.

In addition to this alarming health situation, the economy, one of the pillars of our modern societies and the basis of wealth creation, presents a mixed picture. Significant losses have occurred and many sectors will have difficulty in recovering, despite strong government support. Some industries will disappear, while others will have to reinvent themselves and constantly innovate in order to survive. It will be tricky to find the right balance, with the American, European and Asian continents each playing their part, and this is one of the issues to be addressed even before we emerge from the crisis.

To successfully overcome the crisis, the mobilisation of academic research is more important and necessary than ever in supporting and guiding the public authorities in making their difficult decisions. Since the beginning of the pandemic, many researchers from the Institut Louis Bachelier (ILB) network have been contributing to discussions within dedicated working groups and governmental or European bodies. Furthermore, the latest edition of the International Risk Forum, which we organised, enabled several dozen international researchers in economics and finance to present their work on Covid-19 and to draw valuable lessons from it. This latest edition of the Cahiers Louis Bachelier deals with the current economic situation and presents some very valuable research findings. The first article looks back at some of the highlights of that high-profile conference. The second article features Christian Gollier, a leading researcher in economics and finance, who gives his views on the current crisis and, in particular, his thoughts on vaccine strategies to remedy it. The third article discusses research, jointly produced by Laurence Scialom, on banking supervision, an area that needs to be extended to take into account the extreme risks entailed by pandemics and climate change. The fourth and final article discusses the debate on state aid coupled with ecological constraints when companies are supported with public money.

Enjoy your reading!

Jean-Michel Beacco,
Delegate General of the Institut Louis Bachelier (ILB)

COVID-19: ACADEMIC RESEARCH ADDRESSES THE CRISIS AT THE RISK FORUM

For more than a year, academic researchers from all over the world have been working on the Covid-19 pandemic and its consequences for the economy. To illustrate the contribution of research to the current crisis, the 14th edition of the International Financial Risk Forum – which took place online on 25 and 26 March – devoted part of its very varied programme to Covid-19. We here present a selection of the highlights and the main lessons to be learned.

Organised every year in March and attended by more than 500 people, the Risk Forum had to be cancelled in 2020, when France was facing the first wave of the virus and a strict lockdown to curb it. At the 2021 edition of this academic conference, organised entirely online, several dozen international researchers presented their work. After a welcome by Jean-Michel Beacco, General Director of the Institut Louis Bachelier, who stated that "academic research has proven its importance and necessity during the crisis", Marie Brière, Scientific Director of the Risk Forum, outlined the context. "The shock of Covid-19 has caused disruptions and profound changes. With this crisis, many researchers in finance and statistics are studying the dynamics of the pandemic outside the medical sphere. This field of research, linked to modelling, is particularly dynamic."

The SIR model in epidemiology extended to economics and finance

Traditionally, the contagion dynamics of an epidemic can be estimated with compartmental models, where the basic model is known by the acronym SIR – S stands for healthy individuals, I for infected individuals and R for recovered individuals –, first developed in 1927. Many researchers in economics and finance have taken up these epidemiological models to incorporate parameters from their disciplines. It was with this approach that Christian Gollier, Director General of the Toulouse School of Economics (TSE), presented the results of his work (see page 8), in which he estimated that without a vaccination campaign there would be 470,000 deaths and a fall in GDP of 34% in France. For his part, Yang Lu, a researcher at Concordia University in Montreal, has worked with Christian Gourieroux, professor of economics and researcher at the University of Toronto, TSE and Crest, on SIR modelling, with a stochastic extension that takes uncertainties into account. "The SIR model is easy and simple enough to measure the virus's R0 transmission rate and herd immunity rate. But the model has a deterministic approach with a fixed R0, while in practice it changes from day to day," Yang Lu explained. "To calculate the day-to-day evolution of the R0 transmission rate, which may be stochastic, the basic SIR model is not sufficiently flexible. We therefore extended the SIR model to a stochastic approach, which enabled us to include uncertainties and thus explain the large variability in the R0 transmission rate." Other researchers have also used SIR modelling with a stochastic approach to compare Covid-19 mortality prevention policies in the US in the period from March to November 2020, during which it suffered two waves of the virus. In their work, Jean-Paul Renne (University of Lausanne), Guillaume Roussellet (McGill University) and Gustavo Schwenkler (Santa Clara University) studied the impacts of different restriction

policies (mandatory wearing of a mask, lockdown, ban on travel to other US states) or of no action at both the state and federal levels. Their results speak for themselves: "We find that more than two-thirds of Covid-19 deaths in the United States could have been prevented by the end of November 2020 if the federal government had implemented strict policies nationwide when the first states began to adopt measures," said Guillaume Rousselet during his presentation at Risk Forum. More importantly, without any restrictive policies, there would have been a million deaths in the US over the same period. Their study also shows that strict lockdonw is very effective in reducing mortality, but is very costly in economic terms. Finally, nationwide mask wearing would have reduced the death toll by some 90,000, whereas interstate travel bans would have had little effect unless they were adopted very early.

The government shield has limited the damage to households

In addition to contagion and mortality, researchers in economics and finance have of course worked on their discipline to analyse the impacts of the crisis and the social and economic effectiveness of the policy measures introduced. If in Europe, particularly in France, the public authorities have acted as a shock absorber to avoid bankruptcy filings and a sharp increase in unemployment, what is the situation on the other side of the Atlantic, particularly with regard to mortgage loans? Three researchers from Columbia University – Agostino Capponi, Ruizhe Jia and David Aaron Rios – have studied the moratorium on foreclosures and its effects on household refinancing needs. The moratorium was introduced last year and extended to June 2021 to protect households in financial difficulty, since foreclosures and evictions can have a significant impact on the economy, as the 2007-2008 financial crisis showed. Indeed, at that time, a sharp rise in mortgage defaults precipitated a downturn in the housing market, which then caused knock-on effects throughout the global financial sector. While the current situation is certainly very different, a US housing market crash would be a catastrophe for many households and would have negative consequences for the real economy. "By preventing foreclosures, the moratorium has allowed housing prices to stabilise, which, as a collateral effect, has lowered the cost of refinancing for households and thus eased their refinancing eligibility constraints," said Ruizhe Jia. So what did it achieve? Without the moratorium, there could have been over 900,000 foreclosures and house prices could have fallen by 9%. "In times of crisis, mortgage refinancing is a crucial channel for households to benefit from the accommodating monetary policy of the central bank, which applies low interest rates," Ruizhe Jia pointed out. In such circumstances, the early introduction of the foreclosure moratorium was an effective safeguard for households, which did not necessarily need to dip into their savings or financial investments to refinance their mortgages. Especially since foreclosures can lead to lower consumption and higher mortgage delinquency.

The Covid-19 crisis is disrupting the financial sector

While households have been relatively unaffected economically, financial markets have had mixed fortunes, with a severe stock market crash at the start of the pandemic before recovering and ending the year on a high note, thanks to a surge in technology stocks, particularly in the US. In Europe, in February and March 2020, stock markets fell by 13% overall, due to the bad news about the pandemic and the restrictions put in place such as the closure of borders and the lockdown of populations. In view of this situation, Italian researchers, including Michele Costola of the University of Venice, have analysed the interconnection of the financial network in Europe in parallel with the spread of the pandemic. It is certainly the case that since the financial crisis of 2007-2008, the academic literature on the connectedness of financial networks and contagion risks has developed considerably. Without going into too much technical detail, using a model of the European financial network that contains several layers of relationships, the researchers measured different degrees of connectedness arising from interactions between returns and volatility. They then modelled the dynamics of the European financial network using data from Germany, France and Italy and measured the impact of Covid-19. "The results show evidence of the influence of the virus on the connectedness of the European financial network at the sectoral and company level, for example between industry, health and real estate," said Michele Costola. "Modelling the connectedness of financial network is a useful tool for public authorities to monitor the financial system." Apart from the stock markets, the pandemic has also shaken up the insurance industry, which has, for example, seen a surge in claims for business losses caused by the mandatory closure of businesses deemed non-essential in France. "Insurers were not prepared for the Covid-19 crisis and the economic downturn, for two reasons: the losses suffered by policyholders are indirect and not linked to insurable physical damage (fire, theft, flooding, etc.); and the high degree of correlation in the pandemic does not allow for mutualisation, because the law of large numbers cannot apply", explained Pierre Picard, researcher at Crest and the Ecole Polytechnique. He also pointed out the important role of the pandemic in the increase in systemic risk for the sector because "many SMEs have been affected, risk pooling is not working properly and the macroeconomic effects have been substantial." While extreme risks, such as a pandemic, are difficult to insure, Pierre Picard proposes that players cover this type of risk by using ➜

capitalisation mechanisms, similar to unit-linked insurance. In other words, insurers offer SMEs capitalisation contracts invested in the stock market and "based on portfolios with long-short and/or call-put options, which would allow companies to be in a much better position if a new pandemic were to occur in the future," Pierre Picard said. "This mechanism should lead insurers to base their underwriting strategy on behalf of their corporate clients on an accurate and regularly updated analysis of the stock market reaction to another pandemic." At a time when new restrictions are being imposed in Europe due to the persistence of the pandemic, the recommendations of academic research could prove useful to policymakers. ●

Further reading

The research papers presented during the Risk Forum and referred to in this article and can be accessed though the links below:

- "SIR Model with Stochastic Transmission" Yang LU, Concordia University, and Christian GOURIEROUX, University of Toronto, Toulouse School of Economics and CREST.
- "Preventing COVID-19 Fatalities: State versus Federal Policies" Guillaume ROUSSELLET, McGill University, Jean-Paul RENNE, University of Lausanne, and Gustavo SCHWENKLER, Santa Clara University.
- "The Effect of Mortgage Forbearance on Refinancing: Evidence from the COVID-19 Period" Ruizhe JIA, Agostino CAPPONI, and David Aaron RIOS, Columbia University.
- "COVID-19 Spreading in Financial Networks: A Semiparametric Matrix Regression Model" Michele COSTOLA, Monica BILLIO, Roberto CASARIN, Ca' Foscari University of Venice, and Matteo IACOPINI, Vrije Universiteit Amsterdam.
-"A Pandemic Business Interruption Insurance" Pierre PICARD and Alexis LOUAAS, CREST-Ecole Polytechnique.

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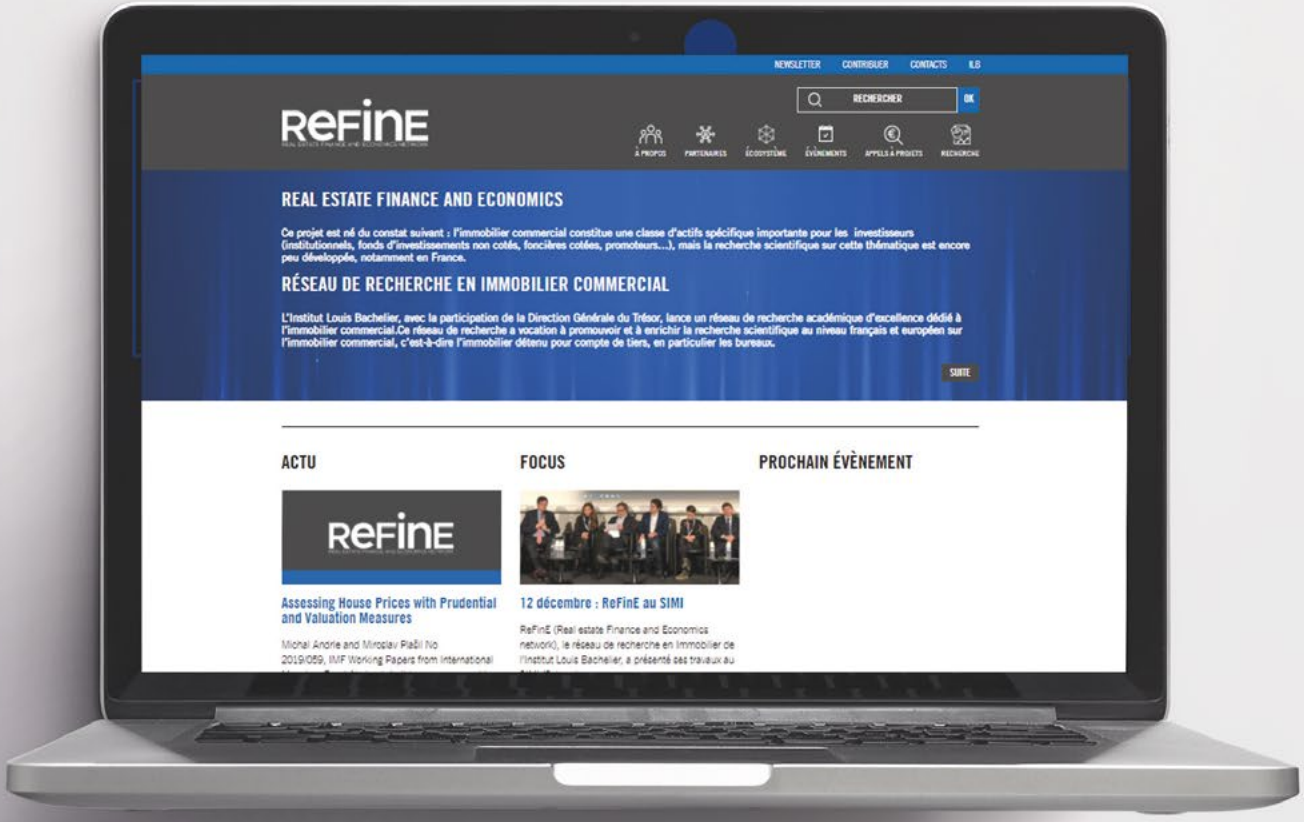

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"THE PANDEMIC IS FALSE GOOD NEWS FOR GLOBAL WARMING"

It is now more than a year since the pandemic started, and during this time Christian Gollier (see Biography) has continued his research on its dynamics. In this research he deploys SIR-type epidemiological models, frequently used in this field, and incorporates economic modules. Their results show the optimal strategies to be used depending on the human and economic losses, as well as other parameters inherent to the epidemic such as restrictions and vaccination. In this interview with the Institut Louis Bachelier (ILB), Christian Gollier provides his analysis of the situation.

ILB: More than a year after the start of the Covid-19 pandemic, what is your assessment of the health situation?

Christian Gollier: There are two aspects to consider. The first is the comparison of the predictions made a little over a year ago with what actually happened. On this point, it should be remembered that epidemiological models, working with a high viral reproduction number (R0) and a mortality rate of 1%, were predicting that 80% of the population would become infected with the virus, with 600,000 deaths, if no action was taken. Fortunately, these projections did not come true thanks to the restrictions and other measures imposed, which were generally well respected by the population. The second aspect concerns the decisions made. And here it must be admitted that we have never had a serious rational debate, or at least in-depth thinking, regarding this situation, which unfortunately requires trade-offs between the lives saved on the one hand and the economic impacts on the other. When the government imposed a strong lockdown, the main concern was the economy. And when the lockdown proved insufficient, we worried about our lives. Without a general consensus to weigh up the health and economic impacts in our collective objective function, which is used in mathematical optimization to determine the best solution to a problem, debates are doomed to fail. As a result, there has been no clear strategy put in place over time. This is a pity and I hope we can discuss this after the crisis.

ILB: The government did not reinstate a strict nation-wide lockdown in the first quarter of 2021, unlike in some neighbouring countries. What is your view on this?

Christian Gollier: This is a debate between two radically different policies. In one, the objective is the eradication of the virus or "crush the curve", the famous zero-Covid or no-Covid strategy, which is much discussed in Germany and rather less so in France. This solution is very attractive despite its short-term psychological and economic costs. But today it clearly runs counter to public opinion. At some point we will have to acknowledge the dramatic consequences resulting from this social refusal. The other strategy is to flatten the infection curve so that hospitals are not overwhelmed. This means adopting stop-and-go measures, i.e. lockdowns and their easing according to the speed of circulation of the virus, which becomes endemic. In the first wave, the government implemented the first strategy, which made sense given the estimated health and economic impacts at the time. Then the second policy took over. It must be said that this strategy is all the more attractive when a mass vaccination campaign is imminent. Its major disadvantage, however, is the longer duration of the restrictions that must be put in place to achieve herd immunity. The problem is that at the end of this winter, the proportion of French people immunized, excluding vaccination, is still only 20%. That said, if the

Christian Gollier was the co-founder, together with Jean Tirole, of the Toulouse School of Economics, and is currently its Director General. His research interests range from the economics of uncertainty to environmental economics, including finance, consumption, insurance and cost-benefit analysis, with a particular interest in long-term sustainability. He is one of the authors of the 4th and 5th reports of the Intergovernmental Panel on Climate Change (IPCC, 2007 and 2013). Christian Gollier is president of the European Association of Environmental Economists (EAERE). He is also the author of numerous books, including *Le climat après la fin du mois* published by PUF in 2019, and scientific articles in leading journals.

"In the event of infection, young people are 1,000 times less likely to die from Covid-19 than those over 65, and 100 times less likely to need hospitalization"

vaccination campaign is speeded up, it offers us an emergency exit and it is not unreasonable to continue along this path. The problem is the much more contagious, and potentially more lethal, nature of the UK variant. This bad news, predictable since January, combined with the delays in the vaccination campaign, has caused us to lose the race between this new variant and vaccination.

ILB: How about lockdown for people at risk, especially those over 65?

Christian Gollier: Although ethically it is a sensitive issue, I still believe that this measure should have been implemented. Rather than locking down the young to save the elderly, it would have made more sense to lock down the elderly, for it should be remembered that young people are 1,000 times less likely to die from Covid-19 than those over 65, and 100 times less likely to need hospitalization. Thus, if the goal is to save hospitals from being overwhelmed, locking down one elderly person has the same impact as confining 100 young people! Moreover, the cost of the pandemic might have been three or four less with this strategy. From a public interest perspective combining the health and economic impacts of the pandemic, this policy of prioritising the protection of people at risk is tending to dominate the non-discriminatory policies that have been officially followed so far.

ILB: After a hesitant start and a certain amount of mistrust, the vaccination campaign has speeded up. What is your analysis of this race against time?

Christian Gollier: At the rate of 200,000 doses a day, we could vaccinate everyone at risk by the end of April. On this assumption, we should see a reduction of hospitalization in intensive care units, given that 85% of cases concern people over 65 years old. From then on, it will be easier to relax the constraints on the economy and the restrictive measures of the sectors concerned, such as culture and catering. Of course, we can always hope for a faster vaccination rate. But we must understand that many of our problems will be solved by the beginning of May when the most vulnerable 15% or 20% of the French population will have been vaccinated. Note, however, that this scenario is only valid for the "standard" version of Covid-19, as uncertainties remain about the UK variant. And unfortunately, the increasing prevalence of the variant has led to further restrictions, in particular school closures, which will have an economic and social impact. In addressing this question, I have assumed that everyone agrees to be vaccinated. But if a 30% vaccination refusal rate is introduced, the models indicate an additional mortality of about 28,000 people - including 3,000 vaccinated, but for whom the vaccine is not effective - a far from negligible figure. At the same time, such a scenario would imply an extension of restrictive measures over time, including a curfew, which would cause a GDP loss of about 1%.

ILB: With regard to the economy, can we say that the worst has been avoided in France, particularly in terms of business failures?

Christian Gollier: Given the duration of the two-and-a-half month strict lockdown last year and the likelihood of further waves, I had estimated a double-digit drop in GDP for 2020. As it was, the economy contracted by 8%. This year growth will recover by a few percentage points, but it will not return to its 2019 level. It should be emphasized, however, that the economic shock generated by the pandemic has been unprecedentedly severe for certain sectors such as aeronautics and civil aviation, restaurants and taxis. Fortunately, in Europe, particularly in France, there are automatic mechanisms that have helped limit the damage. And on this point, the Ministry of Finance at Bercy has been effective with its capacity to provide substantial support for companies on a fairly fine scale. So far, it has to be said that there have been no scandals, even though detailed analyses will be carried out afterwards. The risk-sharing mechanism could not be organised by the financial markets, due to the severity and suddenness of the shock, so the state played its role as insurer of last resort. However, not everything was perfect and perhaps the "whatever it takes" approach was overdone. Moreover, the next steps will concern the remobilisation of workers to get the economic machine going again after the crisis, and the viability of certain sectors that have been badly affected, such as air transport, higher education and real estate, which will have to deal with the new procedures arising from the pandemic, such as remote learning. ➜

"The next steps will concern the remobilisation of workers to get the economic machine going again after the crisis, and the viability of certain sectors that have been badly affected"

ILB: What actions should be prioritised to revive the economy?

Christian Gollier: I think that this question is too broad and that instead we should analyse to what extent the state should support sectors in difficulty. Secondly, the principle of entrepreneurial freedom needs to be reaffirmed, as it provides a solid basis for wealth creation and business confidence. But businesses will have to pay greater attention to the problems of global warming and the possibility of limiting it, in particular with more appropriate carbon pricing. Policy orientations will be crucial in this respect.

ILB: In fact carbon emissions in the energy sector have started to rise again worldwide, after last year's salutary pause. is this a bad sign for the climate transition?

Christian Gollier: The pandemic caused a predictable transitory shock to carbon emissions from energy production due to the decline in economic activity. Once the virus is behind us, there is no reason to believe that things will change as the economy picks up and that the pandemic will have a hysteresis effect on climate change by making it disappear. The pandemic is false good news for global warming, because the temporary effects have very little impact; it is the structural changes that have an impact on achieving the long-term goals. On the other hand, the pandemic has allowed the democratisation of new uses of new technologies and, even though these emit carbon, they are much less polluting than would be the case if everyone were commuting to work or attending meetings in person. Let us not forget that mobility is responsible for about 25% of CO_2 emissions worldwide. So if the need for mobility is halved, that is still a net gain.

ILB: In conclusion, does the fight against global warming necessarily involve carbon pricing?

Christian Gollier: My opinion has not changed on this issue. The global war on climate change requires the mobilisation of all – consumers, investors, companies, banks – without exception. To achieve our collective ambition, a multitude of actions need to be taken by a multitude of actors, and only a carbon price can take us there. In France and elsewhere in Europe, it is still believed that if we leave it to the authorities to decide, prohibit, normalise and impose choices, everything will be resolved. This is a completely retrograde view of how our society works. Without incentives, it will be impossible to achieve our climate ambitions. We are facing something that is hugely complex, namely the decarbonisation of our economies. And the development of new technologies, for example, in relation to electricity storage or carbon capture, will not be enough to achieve this goal. To illustrate this idea, let's take the example of Europe, with its target of carbon neutrality by 2050. There are major uncertainties, as no one knows what a decarbonised economy might look like three decades from now, despite the many existing models and attempts to make forecasts. If Europe manages to meet its ambitious targets, there are bound to be economic difficulties and many stranded assets for the most polluting sectors, which could increase the factors contributing to financial instability. Not to mention the many questions linked to the management of climate risks or the social acceptability of certain decisions. So there is still a lot to be done and it will take time. ●

You can watch the video interview with Christian Gollier on:
sur https://www.institutlouisbachelier.org/multimedia/ilb-brief/

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WHY DOES COVID-19 CALL MACROPRUDENTIAL REGULATION INTO QUESTION?

Despite its evolution in the aftermath of the 2008 financial crisis, macroprudential policy, aimed at reducing systemic financial risks, is still calibrated on market-dependent variables and metrics. However, in the view of researchers specialising in ecological economics, the Covid-19 crisis shows that this approach is not suited to certain systemic financial risks, particularly those stemming from climate change.

The 2008 financial crisis marked a turning point in the awareness of systemic risk by global regulators. In the aftermath of the crisis, governments of the world's major economies, through the G20, adopted stricter regulations than in the past to increase the resilience of the financial system in the event of a shock and thus limit global financial risks. Key measures include higher capital ratios for banks, the identification of global systemic banks with additional capital requirements, and additional countercyclical capital buffers that could be mobilised in a crisis.

BANKING SUPERVISION IS BASED ON MARKETS

The purpose of these various tools is to reduce the likelihood of financial crises occurring and to control systemic risk in its two dimensions. The first dimension is temporal and manifests itself in the procyclicality of the financial system, which amplifies both boom and bust phases. The second is cross-sectional and concerns the interconnections among financial institutions and the concentration of risk at any given time. "Before 2008, banking regulation focused on micro-prudential requirements applied separately to each banking institution. It is true that post-crisis regulation has evolved towards macroprudential measures but these have been conceived as a simple adaptation of the previous microprudential tools", says Laurence Scialom, adding that "Macroprudential policy still attaches great importance to market values and prices, because regulatory requirements are still calculated on the basis of risk-weighted assets. However, systemic risk is defined as a generalised market failure. As such, addressing it through market-based measures of systemic risk is inappropriate."

"The researchers have suggested that the current pandemic crisis is a kind of foreshadowing of future financial risks caused by global warming"

THE COVID-19 CRISIS IS A FORERUNNER OF CLIMATE-RELATED FINANCIAL RISKS

In addition to analysing the regulatory and supervisory framework for systemic risks, the researchers have suggested that the current pandemic crisis is a kind of foreshadowing of future financial risks caused by global warming. It is evident that the two phenomena have common roots and similarities. "In both cases it is human activities on their ecosystem that are at stake. Scientists have been warning us for many years about the risks of zoonotic pandemics and of global warming. Moreover, the notable lack of preparation is attributable to the relatively short-termist economic system. The current situation, characterised by the difficulties faced by certain sectors, and even their collapse, illustrates one of the identified future financial risks of global warming," observes Laurence Scialom. What's more, the pandemic and climate change are plunging us into a world of radical uncertainty, which makes decision-making more complex. And this is where

Based on *Better Safe than Sorry: Macroprudential Policy,Covid 19 and Climate change*, by Gaëtan Le Quang and Laurence Scialom, and on an interview with Laurence Scialom.

Professor Laurence Scialom is co-director of the Master's degree in Economic and Social Sciences and director of the Master's degree in Institutions, Economics and Societies at the University of Paris Nanterre. She is also a member of the Scientific Councils of the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and of the Nicolas Hulot Foundation for Nature and Mankind. Her work focuses on banking regulation, financial stability, central banking, regulatory capture and conflicts of interest in the financial sphere and the transformation of finance in thelight of the ecological transition.

Methodology

The researchers produced an analytical working paper/policy brief setting out policy recommendations for reforming the regulation of systemic risks, in particular climate risk. To this end, they cross-referenced the abundant financial literature with scientific knowledge on the impact of global warming on the economy. They then analysed macroprudential regulation and its relevance to these new extreme risks. Having drawn parallels between the financial aspect of pandemic risk and climate risk, the researchers suggested ways in which these two risks could be better understood.

the problem lies, because macro and micro-prudential policies, based on market prices and their volatility, are only relevant in a world of probabilistic risks, not one of radical uncertainty. The latter does not allow for the quantification of extreme risks generated by pandemics and global warming. As a result the public authorities, which normally govern on the basis of figures, feel ill-equipped, because past data cannot be used as a guide for decision-making. Worse still, the "inaction bias" that characterises all macro-prudential policy is even more palpable in relation to global warming, which has been a known danger for over thirty years. "Guarding against climate risk is a global public good – the preservation of a habitable Earth for our species – but it is clear that it cannot be financed by markets that do not price externalities and are unable to consider the depletion of the carbon budget. Therefore, public decision-makers must quickly make a paradigm shift to take into account the planetary limits and integrate respect for them into future public policies," argues Laurence Scialom. The challenge is to avoid a climate catastrophe, given that the current trajectory of carbon emissions is tending towards warming of 3 to 4 degrees by the end of the century, far higher than the ambition of the Paris Agreement to keep warming to below 2 degrees maximum.

SUPERVISION OF SYSTEMIC CLIMATE RISK NEEDS TO CHANGE

Financial regulations based on market values do not allow systemic climate risks to be measured. These prudential policies therefore need to change. "The market is disqualified from measuring systemic climate risks. Other tools should therefore be used, some of which already exist. One of the priorities would be to drastically strengthen capital requirements for the financing of high-carbon sectors, whether through risk weightings or sectoral leverage ratios. For example, new fossil fuel deposits should be financed entirely by equity, because if we burn all the carbon already valued on the balance sheets of the extractive industries, we are on a warming trajectory of over 4 degrees. It is therefore essential to discourage exploration, both in terms of risk to the lender and in terms of climate. For existing exposure, risk weightings should be conventionally increased significantly. Leverage ratios by sector could also be applied to reduce banks' exposure to carbon-intensive sectors," Laurence Scialom says. Only time will tell whether the lessons of the current crisis will be heeded and allow for better preparation against climate risk. ●

Key points:

- The economic and financial systems have an obligation to take planetary limits into account more rapidly. This paradigm shift must, in the long term, be applied to all public policy in order to preserve the global public good represented by an Earth that remains habitable for the humankind.
- Decision-making methods in situations of radical uncertainty need to be reviewed, as governance by means of indicators measured from historical data has shown its limitations.
- Macro-prudential climate regulation needs to make a radical break with market-based pricing and methodologies, as this approach is unable to quantify financial climate risk.

SHOULD STATE AID FOR COMPANIES IN DIFFICULTY BE MADE CONDITIONAL ON THEIR ENVIRONMENTAL COMMITMENTS?

Public aid to rescue companies in times of crisis often gives rise to debates about possible quid pro quos. The bailout of several large French companies in April 2020, during the first wave of the Covid-19 pandemic, proved highly controversial. Researchers have studied this issue and their report sheds light on it for governments.

Based on *COVID-19 and Climate Change: Should Governments Tie Corporate Bailouts to Environmental Efforts or Strengthen Current Environmental Policies ?*, by Julie Ing and Jean-Philippe Nicolaï, and on an interview with the authors.

Although the end of the health and economic crisis caused by the Covid-19 pandemic does not yet seem to be in sight in Europe, particularly in France, a quick look in the rear-view mirror is in order. Last year's situation was particularly alarming, with fears of bankruptcies and cascading failures due to the halt in economic activity resulting from the first lockdown. In April 2020, the French government decided to bail out companies in difficulty through massive public aid, with some 20 billion euros paid out to companies described as strategic, such as Air France, Renault and Vallourec. Admittedly, from an economic and social standpoint, this state support undoubtedly limited the losses, which last year for Air France and Renault amounted to a staggering 7 and 8 billion euros respectively. However, many voices, including NGOs and the High Council on Climate, have been raised to demand environmental commitments in return for such aid – and all the more so for companies whose business models are closely bound up with fossil fuels.

A SITUATION THAT HAS LITTLE IN COMMON WITH 2008

When the state provides aid to companies, the question of quid pro quo arises. During the financial crisis of 2007-2008, the objective was to avoid contagion effects in the financial system and to allow banks to continue their activities, which are essential for financing the economy. In 2008, one of the main issues was whether the state should take a stake in banks that had been bailed out. This approach makes it possible to sell the holdings and generate tax revenues when the crisis is over. In 2020, on the other hand, the Covid-19 crisis concerns all economic sectors. At the same time, the fight against climate change remains a massive challenge. In view of this dual context, the researchers asked themselves whether the provision of state aid should be conditional on environmental efforts or whether it would be preferable to make existing environmental policies more stringent.

"Many voices, including NGOs and the High Council on Climate, have been raised to demand environmental commitments in return for such aid"

CONDITIONAL AID MAY GIVE RISE TO PROBLEMS

It is certainly tempting for the government to make the rescue of one or more companies conditional on quid pro quo measures. Very often, state aid is negotiated on the basis of maintaining employment, without including – to the dismay of environmental NGOs – any ecological constraints. But what are the advantages of this type of measure? "Conditional aid makes it possible, above all, to safeguard national champions operating in sectors that are strategic for the state, while at the same

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Methodology

The researchers produced an analytical report to identify possible ideas on the benefits of making public aid to companies conditional on ecological commitments compared with strengthening environmental policies. In addressing this research question, they used an analytical approach and theoretical reasoning without mathematical modelling.

time being acceptable to public opinion, which is increasingly aware of environmental issues. This acceptability constraint is all the stronger for the aviation sector, which is seen as particularly polluting. However, making aid conditional comes up against various problems: lack of information on the efforts made by companies; the reversibility of decisions taken by companies, for example the postponement or cancellation of investments in less polluting production methods; and the absence of any economic incentive if there are no penalties in the event of non-compliance with commitments," Julie Ing says.

STRENGTHENING EXISTING TOOLS WOULD BE MORE RELEVANT

To overcome the pitfalls of conditional aid to companies in exchange for environmental commitments, the researchers recommend tightening existing environmental policies instead. This approach could involve introducing or augmenting taxes on emissions. "It would be possible, for example, to make environmental taxes more widespread or to introduce a tax on aviation fuel. Ideally, this type of instrument should be set at EU level, but tax regulations have to be adopted unanimously by the Member States, which hinders the introduction of such instruments," Julie Ing says. It would also be possible to strengthen the European Union's emissions trading scheme by, for example, reducing the number of allowances in circulation. Pending more environmentally friendly reforms, the EU recently voted in principle to introduce a carbon tax at its borders on certain goods from countries with more flexible environmental legislation, which could be implemented from 2023. ●

"To overcome the pitfalls of conditional aid to companies in exchange for environmental commitments, the researchers recommend tightening existing environmental policies instead"

Key points:

- Making aid conditional is difficult to implement and easily circumvented by companies.
- Tougher environmental policies would be more economically effective than tying state aid to companies to environmental constraints.
- Which of the two approaches to choose depends on its acceptability to public opinion and on public support for stronger environmental policies.

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