

FINANCE *21*

ANDREW BAILEY LOOKS
AT RECENT INNOVATIONS IN
PAYMENTS AND THE CHALLENGES
THEY BRING TO REGULATORS

COVID-19 HAS AFFECTED
TRADE MASSIVELY. GRAHAM
BRIGHT SAYS TECHNOLOGY
CAN BOOST THE RECOVERY

ALEXANDER LEHMAN AND
MARK PLANT DISCUSS THE
CHALLENGE OF CLIMATE
FINANCE

21ST CENTURY FINANCE

Foreword

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elcome to Finance **21**, a *World Commerce Review* supplement. This publication has been prepared in response to readership demand for an overview of the financial sector in these turbulent and unique times.

All aspects of the sector are examined, with the most respected authors providing the reader with the most comprehensive information available. Our brief is to provide all the data necessary for the readership to make their own informed decisions. All editorials are independent, and content is unaffected by advertising or other commercial considerations. Authors are not endorsing any commercial or other content within the publication. ■

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Using technology for trade

COVID-19 has had a drastic effect on global trade.
Graham Bright discusses how technology can
boost the recovery

Over the past 8 months, we have become all too aware of the effects of COVID-19 with continued clouds of recession, unprecedented economic disruption, excessive levels of debt and threats to basic normality of private and public life, employment and wealth creation.

Despite the gloom, trade is essential to every economy and must continue, even if volumes are expected to temporarily fall by between 13% and 32% in 2020. This reduction is not exactly a surprise, principally due to long standing trade tensions between the US and China affecting general economic slowdown.

Today, the rebuilding of supply chains, and getting trade re-energised with effective and cost-competitive flow of goods may only be work through international co-operation.

Whilst a number of free trade agreements are in place, there should be confidence in the supply and movement of ethically sourced, fit for purpose goods, without sanction.

However, the continued threat of trade barriers, isolationism and a constantly changing superpower stance on tariffs could seriously derail the efforts of emerging countries and all those fighting to protect their citizens and industries from economic wellbeing and future sustainability.

Competing nations need to put aggressive competitiveness on hold at least in the short term, as industries switch to production of health-related PPE. Buyers have radically changed buying habits, with home workers more concerned about food delivery than the latest fashion.

The travel industry, in particular air transport has been hard hit. With the Government forced into daily updates, u-turns and draconian health measures 'following scientific advice' regarding safe air corridors, isolating on

return, lockdowns and fear have reduced passenger numbers at Heathrow by 88%. Some airlines are withdrawing completely from strategic sites and regional hubs. With less planes comes less cargo space, with the price of air cargo and hence delivery of cost-effective goods rising on some routes up to 60%, especially affecting demand and availability of health-related items.

Marine traffic, the other lifeblood of trade has also been heavily impacted. Rather than free movement of goods, additional measures such as quarantine and closures have added significant documentation requirements. Containers and ships are in the wrong place, staff to handle them are on furlough, or required to wear expensive protection with new health measures, all adding cost and time.

*Confidence... is the key to a return to a new normal.
More people are venturing out, high-street activity
is increasing, although the demand for previous
luxury goods and services will be different*

Expensive goods are languishing at warehouses, with no demand, taking up expensive storage space. And lockdowns and social distancing have severely restricted the effectiveness of those inspecting and certifying goods to those checking the seaworthiness of vessels.

Massive cruise ships are at a standstill, empty, dormant dead assets, with only the prospect of a return to safe activity in 2021. What is clear is that joint coordinated activity, collaboratively between government and private enterprise, assisting importers with reduced tariffs and helping exporters through the minefield of trade documents and process to underpin a return to previous operating levels.

And now is the perfect time to push aside isolationism, nationalism, protectionism, tariffs and tax barriers. With this background, how are technology and innovation going to resolve the issues of re-establishing confidence, maintain supply flows, ease any export restrictions and serve customers without vested interests? Can blockchain and AI enabled solutions satisfy the immediate and long term demands of the industry.

Let us immediately dispel the myth that technology and innovation are the universal panacea. Technology for technology sake will not miraculously re-energise the trade industry, boost confidence, bring back footfall to the failing retail sector and spark an international trade boom.

However, there are specific sectors where technology and innovation can make a significant difference. With such diversity, the first challenge to which technology is suited is in combatting fraud.

Unlike the world of payments, with standard information of payer, payee, bank account numbers, credit or debit and amount, the ecosystem of international commerce covers a complex, expansive, non-standard group of companies, activities, legalities and challenges.

Losses due to fraud in the trade sector are projected to exceed \$3.5 trillion each year, and, as criminals exploit and develop more inventive methods, companies are spending more to ensure they can quickly and effectively identify manage and mitigate risks. And yet recent press reports stated that compliance will be reduced in the coming year by up to 25% due to cost and overhead.

Trade fraud is sophisticated, well planned and with heavy financial consequences, but in no way a new phenomenon. Records show trade fraud as far back as 300 BC, when a fatal bid to sink a barge of corn and claim insurance failed. Since then a litany of inventive schemes have become enshrined in history with the latest scams being COVID-19 antibody testing, and more alarmingly substandard, or non-delivered masks and medical supplies.

Domestically, COVID-19 has seen individuals working remotely spending time online, and more cases reported of phishing, credit card scams, online shopping fraud, investment scams, counterfeit goods, and identity theft.

The pace of fraud continues unabated with fraudsters using even greater sophistication, data breaches, duplicate invoices, card and identity theft involving hundreds of millions of customers. Despite all assertions to the contrary, it is not a case of 'if' security will be breached, but when.

A recent Hong Kong case saw the illegal simultaneous sale of the same non-existent goods to different international parties, backed by forged documents. The buyers, supported by experienced commodity banks, and following formidable due diligence, were duped. It appears that no matter how many checks are done, fraud can still take place.

This time, four major banks and creditors were out of pocket to the tune of \$3.5 billion, leaving a trail of recrimination, huge financial loss and loss of confidence in future business.

The immediate impact is that banks are even more cautious to support new projects, revising their investment and support criteria. Through this bad experience, additional pressure has been placed on financing and support of smaller companies, now financially disadvantaged and left uncompetitive.

But whilst banks have been hit financially in this case, they are not immune from reproach for their own poor performance and in some cases criminal behaviour. The UK markets watchdog, the Financial Conduct Authority levied £4.3 billion in penalties for industry misconduct such as the Libor scandal (2.5 billion), with the US authorities fining banks over \$75 billion.

Recently touted technologies such as blockchain and artificial intelligence technologies are well suited to be employed as part of KYC, openness, speedy implementation exchange, risk reduction and transparency, as key components in systems and processes fighting cybercrime and fraud.

Would these have stopped the Hong Kong case? For example, would technology have saved the investors from misplacing trust in Madoff or Ponzi cases in what investors perceived as stable, sustainable, trusted schemes? And would they have provided early warnings of misrepresentation, alerted the regulators and mitigated the risks?

Probably not, as intent and means to pay, especially when large sums are involved, are not always guaranteed. Technology may have assisted in communicating immutable documents speedily, transparently and economically to all parties, but not immediately identifying possibility of criminal activity.

The value of technology comes in providing a common base for example in timelines, audit trail and supporting evidence for forthcoming legal proceedings.

Implementing the technology

Recognised for our international awards and technology capabilities, our institution has always looked at use and integration of automated exception processes and how they may be enhanced, easily maintained and kept relevant.

We took early steps implementing blockchain capabilities inside our trade platform with a standard Hyperledger approach, leading to participation with Ripple with their secure, frictionless distributed ledger capabilities with xCurrent, to their inspired On-Demand Liquidity services. This uses XRP digital assets rather than costly fiat currency in the exchange process between local currencies.

The complexity of the ecosystem, the parties involved and differentiation of automation levels (ie. between shippers, banks, insurers, inspection agencies etc) have meant us investing in document digitalisation, which provides the solid foundation for information exchange with speed, standardisation, re-useability and rationalisation.

The challenge of implementing this type of technology in the worlds' importers and exporters is immense. Globally, there are almost 150 million micro, small and medium businesses, where small and medium sized enterprises accounted for 99% of the number of importing enterprises and 98% of exporting enterprises. One can only speculate at the level of automation and readiness in these firms.

With this market perspective, care and investment is imperative in delivering the right service, in accord with compliance, due diligence, governance, regulatory adherence, treating customers fairly, sanctions, PEP lists, FATF and with knowledge of ever changing legislation such as International Emergency Economic Powers Act (IEEPA) and the Trading with the Enemy Act (TWEA).

In our day-to-day operations our growing sales teams in over 24 countries are armed with real-time systems in their quest for new business, liaising with companies anxious to control cashflow through appropriate collateral to trade competitively and efficiently cross border.

We continue to be surprised at the diversity, volumes and types of goods we see today, with evidence of US Dollars being used less in international trade as nations find alternative financial instruments to conclude their trades due to availability and cost of using the currency. First out of the blocks come Russia and China, actively reducing their dependency of dollars for bilateral trades, and opting for euro and local currency.

Euro Exim Bank are well ahead in systems innovation with our blockchain and AI integration and usage, but there is another technology making a profound impact on manufacturing, bringing economies of scale, innovation, low cost and almost unlimited potential across the globe, namely 3D printing.

The technology is already nearly 40 years old, but its commercial large-scale availability and reduced costs now make it exciting, multifunctional and economically viable.

For emerging markets, complete factories might be constructed on-site this way, with no imported or complex building process to navigate, and no heavy carbon emissions associated with use of concrete. And, creating and supplying new product of almost any size may be as easy as receiving an email with a computerised design, uploading to a large-scale machine, and there are the goods, locally produced and managed.

By radically changing the source and content of goods, the cost model for effective international trade using cheap, affordable, sustainable 3D printed housing could be a game changer for emerging markets to increase wealth and wellbeing.

Using technology for trade

By re-engineering business processes through document digitising, improvements in ecosystem interoperability, faster goods certifications and linked insurance, quicker customs clearance without human intervention, less delay in ports, technology would be providing a helping hand to kick start to remove inherent inefficiencies and ease flow of goods again.

Key technology already in place in our institution is enabling connectivity of all parties, with integration of e-contracts, electronic signatures on application and indemnity forms, and use of electronic payments. This is especially of value as we operate across multiple territories, enabling client anywhere to correspond and settle electronically throughout the lifecycle of the transaction.

Confidence

This is the key to a return to a new normal. More people are venturing out, high-street activity is increasing, although the demand for previous luxury goods and services will be different.

Many countries are analysing their supply chains, looking at points of origin, costs of transport, and bottom-line costs to do business. India, for example, are looking at more domestic providers, rebuilding the economy with home manufactured goods rather than the time-honoured reliance on China.

And this trend is being repeated across Africa and Europe. Britain is also looking to rebuild manufacturing and tourism and look at specialist service industries keeping income within national boundaries.

Conclusion

International trade has been going since pre-historic times and often it feels like nothing has changed. But in the past few years, communications have dramatically enhanced, with mature supply chains and emerging market opportunities, and electronic means to exchange value.

Despite recent shortcomings of fraud, cybercrime and instrument complexity, and of course the uncertainty and dramatic economic effects of pandemics, we firmly believe that trade will continue and flourish, and we stand ready to support all initiatives and participants in its continuance.

Technology, especially with blockchain, has not yet reached the extent of its possible application. Document digitalisation will be the first major milestone and once all players across the entire global ecosystem are fully apprised, ready and able to use the technology, it has the benefit and capability to reduce the inefficiencies, inaccuracies, time and level of proprietary information requiring human intervention and cost so prevalent in trade today. ■

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Blockchain: a catalyst for change?

Mark Legard believes that blockchain will be a catalyst
for change, and we will all reap the benefits

The blockchain principle was initially proposed in 1991, where it uses a distributed database that autonomously maintains a continuously growing list of public transaction records in units of 'blocks', secured from tampering by time-stamping and encrypted hash links. Blockchain was developed further in 2009 when Satoshi Nakamoto proposed the cryptocurrency Bitcoin. This has led many to associate blockchain with Bitcoin.

However, the potential use of blockchain goes well beyond the world of cryptocurrencies. For some, it is a revolutionary technology that will change our lives, while for others it is a mere pipe dream. No technology has stirred up so much debate since the advent of the internet. However, despite the numerous headlines on blockchain, the technology remains difficult to comprehend for many.

At its core, the blockchain is a technology that permanently records transactions in a way that cannot be later erased but can only be sequentially updated, in essence keeping a never-ending historical trail. Blockchains also enable assets and value to be exchanged, providing a new, speedy rail for moving value of all kinds without unnecessary intermediaries.

A brief explanation of how blockchain works is needed. For blockchain to work a distributed ledger is required. Each block in a chain contains data, a hash of the block (a hash can be compared to a fingerprint, and is always unique), and a hash of a previous block.

The hash of a previous block creates the chain and makes the blockchain secure. If a block is changed all the other blocks are invalid. With today's computer power it is possible to change a block, and all hashes.

Therefore, a proof-of-work mechanism is used to slow down tampering. Blockchains also use a distributed P2P network, where all members of the network have a copy of the blockchain.

When a block is changed all members receive the change. This creates a consensus where all members agree on which blocks are valid. Tampered blocks will be rejected by other nodes (members) in the network.

So, to successfully tamper with a blockchain you will need to alter all blocks on the network, redo proof-of-work, and control more than 50% of the P2P network. Only then will your tampered block be accepted by everyone else. This is almost impossible to do.

There are various ways to categorise blockchains. There are public (no specific entity manages the platform), private (the platform is controlled by a single entity), or managed (by a consortium of companies) blockchains.

... blockchain technology presents an opportunity to fundamentally transform the way financial markets work

Another category that is sometimes used is permissionless (the blockchain is open to everyone – for example Bitcoin) or permissioned (restrictions can access the blockchain).

In practice there are many variants of blockchains depending on the objectives being sought. Many applications in the field of international trade fall into the category of permissioned/consortium blockchains. One thing to note is that though blockchain is only one type of distributed ledger technology the term is now often used to refer to distributed ledger technologies in general.

This seemingly simple functional description has massive implications. It is making us rethink the old ways of creating transactions, storing data, and moving assets, and that is only the beginning. In the trade arena possible applications of blockchain encompass a diverse set of areas including trade finance, customs and certification processes, transportation and logistics, insurance, distribution, intellectual property and government procurement.

Multiple consortia have been formed, comprising mixes of large-scale corporations and start-ups, to explore common open source blockchain technology solutions for particular industries. The biggest banks formed a group called R3CEV, for example, before expanding to a membership of greater than 100 that included many non-banks.

Hyperledger, which has been building private enterprise solutions, is similarly large and includes big players such as IBM, Cisco and Intel. Meanwhile, blockchain consortia have also been formed for the music, advertising, energy, Internet of Things (IoT), real estate and various other industries.

Government agencies, non-government organisations and international development agencies are also now exploring multiple use cases aimed at enhancing official information, streamlining government-citizen relationships and boosting financial inclusion.

The applications of blockchain technology and smart contracts are broad. Many have gone beyond merely proofs of concept. Blockchain-based peer-to-peer payments are the best-known examples. Bitcoins, Lightning, Ripples, LITEX, and others make value transfers on decentralised networks possible, without relying on trusted third parties.

Trade finance, an industry with a \$10 trillion annual volume, in particular is suitable for blockchain applications. Large institutional players or consortiums such as Barclays, IBM, Walmart, and R3 CEV have all developed their own trade finance blockchains. The first global trade transaction, shipping butter and cheese between Ornuva and Seychelles, was completed in 2016.

In general, blockchains interact with dispersed record keepers to reach a decentralised consensus. Similar to third party arbitrators or witnesses in the traditional economy, they receive signals on the true state of the world, and may have incentives to tamper with those signals, or manipulate them.

With the help of fast-developing real-time communication technologies, blockchains can mitigate individual misreporting incentives, allowing for better information aggregation and more efficient contracting. Nevertheless, to generate a more effective consensus, decentralised record-keepers need to be able to observe and receive greater amounts of information.

Consequently, blockchain applications feature a fundamental tension between decentralised consensus and information distribution. The impact on welfare and consumer surplus can be ambiguous.

One needs to ask what are the benefits of blockchain in global trade? International trade is a \$16 trillion market that accounts for the exchange of capital, goods, and services across international borders or territories.

It is broadly split into two categories: a variety of goods, typically shipped by shipping containers or ground transportation, and commodities.

From a shipping and transportation viewpoint the trade and financing industry primarily suffers from a lack of trust and coordination between exporters and importers, particularly within emerging to developed markets.

Additionally, the industry maintains various operational inefficiencies due to the complex nature of operational processes in the international trade of goods and commodities.

For instance, shipping and trading still heavily rely on human resources and are affected by manual and paper-based processes which are very costly, slow and error-prone.

Exporters and importers face challenges to finance or guarantee their transactions, which stymies growth and limits the benefits from globalisation.

Over the past decade or so many start-ups and technology companies have attempted to develop products with mixed success— until the emergence of blockchain technology for which international trade is identified as a primary use case.

The potential impact of blockchain technology on international trade finance has spurred many companies and consortiums to update their outdated technology. Beyond ushering in the era of digitisation, blockchain enables the tokenisation of existing documents, letters of credit, and more.

Smart contracts will improve coordination between exporters and importers through the automation of agreements, business events, and other manually intensive processes. The global adoption of blockchain technology will create even greater benefits for cross-border coordination, trade settlement, and standardisation.

Commodities trading represents a quarter of international trade and is comprised of energy, base and industrial metals, agriculture and soft commodities. More than half of commodities trading is financed by banks and other financial institutions or funds. Software and new technologies have emerged to serve this industry over the past two decades with varied successes.

But like the international trade of container goods, commodities markets remain affected by operational inefficiencies and costs including:

- Fraud: the widespread use of paper documents increases opportunities for malicious behaviour (double financing, etc.).
- Delays: it takes 90-120 days to book the shipping of a commodity, request trade financing, collect documents, provision the documents to buyers, and facilitate payments.

Loss of income and opportunity: these fractured processes and high operational costs hinder innovation for the entire industry and cause billions of dollars worth of annual losses in income and opportunity.

Blockchain technology can reduce fraud through a distributed and immutable ledger where information cannot be manipulated without notifying all parties involved. The entire history of transactions is easily accessible utilising the inherent properties of distributed ledger technology.

Additionally, blockchains native ability to create and transfer digital assets enhances various existing commodities trading processes outlined above. The real-time data and transactions enabled by smart contracts has the potential to reduce delays and automate manual processes.

The inefficiencies throughout the commodities trade industry result in a loss of income and opportunities for businesses. As blockchain technology grows in adoption, it will help firms, investors, and the other parties involved in commodities trading realise greater gains and increased profitability.

Based on estimates from \$4.4 trillion commodities markets, approximately 30% of the benefit from trade financing is claimed by banks, financial institutions, institutional investors, or funds.

For example, the Asian Development Bank highlighted the potential for growth of the global trade finance market by identifying a \$1.6 trillion gap between supply and demand for trade finance, particularly for trade flows to and from emerging markets. This gap stems from know-your-customer (KYC) and compliance issues as well as poor profitability due to labour-intensive costs (operational, KYC, due diligence).

Blockchain technology can be implemented to overcome the various issues that occur throughout the KYC and regulatory compliance process. The historical record and transparent ledger provided by blockchain networks provide near real-time monitoring of transactions for multiple parties involved.

Regulatory agencies can gain access to permissioned blockchain consortiums improving anti-money laundering or auditing. Finally, blockchain has the potential to facilitate greater access to trade finance on both the supply (alternative investors) and demand side (SMEs from emerging markets).

Blockchain could have a significant impact on business processes and supply chain management. Blockchain can digitise, secure, streamline, and ultimately accelerate operational processes and supply chains across global markets.

Transactions in international trade can take up to four months to complete. Moving away from paper-based processes towards digitally verifiable and legally enforceable documentation means more rapid industry operations and the reduction of fraud.

For gas and power, where problems center around reliable data sharing— blockchain will enable information alignment, quicker imbalance resolution and settlement processes, and also more efficient delivery practices.

For renewable energy, where problems centre around reliable reporting of industrial carbon emissions or energy produced through renewable assets — blockchain offers increased trust through network transparency and governance systems that connect all stakeholders.

The movement of huge volumes of basic materials that are needed to fuel and feed the world is complex. It requires multiple counterparties that lack effective coordination because many producers are found in remote locations and emerging economies. As markets become more efficient, commodity trading is evolving into a low-margin service business.

Increasingly, traders make their living by providing a solidly reliable logistics service between producers and consumers. These facets inherently raise the risk of transactions, contributing to the limited access for new or growing companies. Blockchain's cost-reducing capabilities will increase margins while its deterministic trust structure will drive accessibility within the market.

Blockchain will impact trade finance. As an extension of international trade, trade finance undergoes the same cumbersome operations processes. Most rejections of trade finance requests submitted by SMEs in emerging markets to financial institutions stem from compliance problems, lack of trust, and low profitability.

Blockchain solves many of these issues by authenticating documentation, streamlining operational processes, and facilitating coordination between multiple stakeholders. In addition, blockchain simplifies access to alternative investors through marketplaces, thereby increasing sources of funds for smaller players.

What happens when a trade is completed? Current practices around trading are commonly viewed as inefficient for having too many intermediaries involved (security trade brokers, custodians, and payment agents), for being prone to settlement risks, and for having settlement cycles that are unpredictable and time-consuming.

Blockchain technology has the potential to dramatically simplify the chain of post-trade operations, guaranteeing and facilitating the consolidation of securities registers, all while enabling a higher speed of execution, reducing transaction costs, and enabling real-time settlement.

Across supply chain management, commodities logistics, and post-trade settlement there is significant long-term potential to develop trade and finance-focused marketplaces in order to simplify access for both supply and demand parties, increase liquidity, stimulate competition, and heighten efficiency.

Blockchain technology offers greater transparency and a single source of truth for participants using supply chain networks. Intelligent track and trace of orders, goods, and delays via blockchain could expedite the sending and receipt of goods. In particular, blockchain provides the following benefits:

- Digitisation. Most non-integrated supply chains still rely on insecure and inefficient physical processes. By using blockchain, stakeholders digitise physical processes with smart contracts to address these issues and enhance productivity.
- Authenticity. Producers, manufactures, retailers and customers all face difficulties in verifying product' authenticity. This boosts counterfeiting. With blockchain, products may be linked with non-fungible tokens at the moment of creation. These tokens may then be used as digital certificates. A non-fungible token is a special type of cryptographic token which represents something unique; non-fungible tokens are thus not mutually interchangeable by their individual specification.

NFTs are used to create verifiable digital scarcity, as well as digital ownership, and the possibility of asset interoperability across multiple platforms. NFTs are used in several specific applications that require unique digital items like crypto art (rare art), crypto-collectibles and crypto-gaming.

- Distribution control. Most brands and retailers cannot control distribution outside of their own channels. With blockchain, they can use smart contracts to define specific rules to manage distribution across multiple channels.
- Post-sale services. Many retailers are not able to provide comprehensive after-sales services— including recall, warranties, and maintenance— because they lack information about a product's provenance.

With blockchain, they can use product life-cycle information secured in smart contracts to develop additional after sales services.

- Transparency. Customers expect to have transparent information about products' raw materials and manufacturing processes. With blockchain each stakeholder across the supply chain can provide verified information.
- Verified ownership. Customers face difficulties in proving product ownership. This boosts theft and counterfeiting. With blockchain, customers can collect and manage NFTs, associated with physical products, and use these tokens to prove product authenticity and ownership, enabling safe secondary markets.

Despite its infancy, blockchain technology presents an opportunity to fundamentally transform the way financial markets work.

The challenge is to reduce the cost of trust, to protect against criminal interference – money laundering and terrorism, for instance – to ensure that the technology is appropriately adopted, utilised and governed.

When and if these problems are solved, blockchains could provide enormous economic, social, and political benefits to society.

While the technology opens interesting opportunities to enhance the efficiency of a number of processes and cut costs in these areas, it is not a panacea. Carefully weighing the costs and benefits is essential.

Nevertheless, blockchain will be a catalyst for change, and the public, blockchain technology and the financial system will all reap the benefits, sooner rather than later if the stakeholders take advantage of the opportunities that blockchain offers. ■



Reinventing the wheel (with more automation)

Andrew Bailey looks at recent innovations in payments and the challenges they bring, reiterating the Bank of England's interest in CBDCs and stablecoins

Introduction

Even central bankers can sometimes be accused of overusing language. So, the world is always more uncertain than ever – except that at the moment it really is. And, innovation is all around us except in the productivity numbers. One area where innovation really is around is the world of payments, the focus of this article.

Innovation is a good thing. As authorities and regulators it is not in our interest – the broad public interest – to stop innovation. Moreover, when supported by clear standards and expectations, innovation can support the pursuit of public interest objectives such as greater inclusivity and network resilience. Making such standards clear early is much preferred to attempting to claw back the ground later, and particularly if that comes after things go wrong.

This is the backdrop to innovation in payments, particularly in the area of so-called digital currencies, developed to offer new forms of ‘money’.

The way we pay for things is changing rapidly. As people increasingly turn away from transactional use of cash, which comes after the decline of cheques, innovative alternatives are flourishing. The focus of use of such innovation has so far more been within domestic markets. The picture of payments going across borders is less encouraging. It can still take as long as 10 days to transfer money to different jurisdictions and the transaction cost can sometimes be 10% of the value of the transfer¹.

As part of a global G20, Financial Stability Board (FSB), and Committee on Payments and Market Infrastructures (CPMI) initiative, the recent report on *Enhancing cross-border payments: building blocks of a global roadmap* clearly sets out the challenges and frictions that exist².

These include significant barriers to entry, long transaction chains with multiple currencies and intermediaries involved, legacy technology, limited operating hours, and high operating costs from compliance checks and funding requirements.

The CPMI Task Force on Cross Border Payments; involving the Bank of England, other central banks and standard setting bodies, has led this work, and has set out an ambitious plan for a joint public and private sector vision; global regulatory, supervisory and oversight coordination; improvement of existing payment infrastructures; enhancing data quality; and exploring the potential of new innovations.

We have reached the point in the cycle of innovation in payments where it is essential that we set the standards and thus the expectations for how innovation will take effect

But, with these benefits comes risks and challenges for authorities. We should treat this as being in the nature of change. The Bank of England's Financial Policy Committee has set out principles to respond to the significant changes in the payments landscape. Payments regulation should reflect the financial stability risk, rather than the legal or technological form, of payment activities.

Firms that are systemically important should be subject to standards of operational and financial resilience that reflect the risks they pose, with sufficient data available to monitor emerging risks. These may sound like common sense points, but innovation is increasingly challenging regulators' ability to ensure they are met.

Money and cash

Returning to the theme of central banks and their particular use of language, an important distinction we often refer to is between central bank and commercial bank money. Literally, this is the distinction between money which is a direct claim on the balance sheet of a central bank and money that is a claim on the balance sheet of an authorised and regulated commercial bank to which the local deposit protection rules apply.

Central bank money takes two forms. Reserve accounts are held by banks and other financial institutions and provide part of the stock of high quality liquid assets and from that the balances used to effect the making and settlement of payments between themselves. They are also a crucial part of how central banks set monetary policy. Cash is the only form of central bank money accessible by the general public.

Another important term to bring in here is fiat money. Fiat money is state-backed money denominated in the national currency. Cash is a form of fiat money. Commercial bank money is only acceptable for wide scale use in the UK if it is denominated in sterling, convertible into sterling fiat money at par, and convertible on demand.

Private providers of commercial money need to demonstrate they can meet these obligations so that individuals and business can have confidence in being able to regard different types of money as indistinguishable from cash, and be able to change it 1-for-1 on demand.

Until recently in the UK, cash accounted for the largest number of payments (by number not value)³. But in the UK the use of cash in transactions was declining before the COVID pandemic. With the impact of COVID and the UK lockdown, cash withdrawal volumes have dropped further.

At their lowest during the UK lockdown, cash withdrawals were 60% lower in April 2020 than a year before. Even as the UK lockdown has eased, cash withdrawal volumes have remained low - in July they were around 40% lower than the year before⁴. The increased use of non-cash payments places even greater importance on payments systems, which underlies the work the Bank is doing to upgrade RTGS.

But, there is an increasing paradox in the area of cash. I can speak from personal experience on this as a former Chief Cashier of the Bank of England. When I became Chief Cashier at the start of 2004 the value of notes in circulation (NIC) was £34 billion. When I moved on in March 2011 it was £49 billion. Today it stands at £77 billion. It took 310 years to get to £34 billion and then just over 16 years to move on to £77 billion, and it has not fallen⁵.

The paradox of cash is obvious: use in payments is declining but the value of the stock in issue is not. For the sake of brevity, I'm not going to discuss the possible explanations of the paradox here.

Meanwhile, innovation in payments picks up pace.

Traditionally, outside the use of cash, payments have been made in commercial bank money using systems that settle in central bank money across the reserve accounts held by banks. Central banks have increasingly brought these systems under regulatory oversight with the intention of ensuring appropriate legal finality of settlement and operational resilience.

More recently, innovation has started to strain at this framework in a number of ways. I will set out three forms that this innovation takes, and why it raises questions.

I will start with crypto-assets, such as Bitcoin, which have appeared in the last ten years or so. They have no connection at all to money. They may have extrinsic value – you may like to collect them for instance, and as such they are a highly risky investment opportunity. Their value can fluctuate quite wildly, unsurprisingly. They strike me as unsuited to the world of payments, where certainty of value matters.

The next innovation is alternative payments such as e-money, which in Europe has grown under the auspices of the Second Electronic Money Directive (EMD2) and the Second Payment Services Directive (PSD2).

To be clear, this has been translated into the UK as part of the on-shoring of EU law in the context of Brexit. This regime creates something which is more money-like in the sense of commercial bank money, but doesn't have the same direct link to fiat money, and the safeguarding regime does not have all the features of deposit protection. It is therefore a hybrid.

We must ensure that users fully understand the difference in protection, and I suspect at the moment that is not widely the case. The standards are less developed than those for banks, there is no depositor protection scheme, and firms are subject to only limited capital and liquidity requirements.

Finally, there is no resolution or administration regime. This means that if firm failed, holders of its 'money' would be forced to pursue any recovery through a corporate insolvency procedure, which would neither be quick nor guarantee their funds back.

The third innovation, and the one on which I will focus more, is so-called stablecoins.

Where many earlier forms of crypto-assets, such as Bitcoin, have proved unsuitable for widespread use in payments, stablecoins, and particularly global stablecoins, aim to do just that. Not all stablecoins are intended for use in making payments. Some stablecoin proposals may be used to facilitate investments.

However, where a stablecoin is used to facilitate the transfer of 'money' for buying goods and services and the settling of debts, then it may become widely used a means of payment and store of value.

Global stablecoins seek to apply new technology, stemming from the world of crypto-assets, as well as changing some of the fundamentals of the underlying payment chain. They change not only how you pay but what you pay with – rather than a transfer of money between bank accounts, stablecoin systems transfer the asset itself – the stablecoin – from one person to another.

Stablecoins could offer some useful benefits. For example, they could further reduce frictions in payments, by potentially increasing the speed and lowering the cost of payments (particularly if global stablecoins were to be established). Stablecoins may offer increased convenience, including via integration with other technology, such as social media platforms or retail services.

If stablecoins are to be widely used as a means of payment, they must have equivalent standards to those that are in place today for other forms of payment types and the forms of money transferred through them. This will ensure that they are safe and resilient and that consumers can use them with confidence.

To reiterate, a key principle for payments is that users can be confident that the instrument they use to transfer value can be converted into fiat money at any time. And, in the rare circumstances that the entity that issued that instrument fails, that there are clear rules and protections for the payment recipient and for the consumer.

It is this assurance that stabilises the value of the transfer asset so that all parties in the economy can rely on it. Banks achieve this by giving the customer a money claim at par, supported by banks' access to central bank facilities and extensive regulation of banks' activities, including a protection scheme for customer deposits up to a certain amount.

It is these protections that mean that individual shop owners don't worry about scrutinising which bank issued your debit card before you tap it to pay.

It is these protections that prevent a return to the literal Wild West in which individual banks issued their own private currencies, which were worth different amounts depending on recipient's assessment of the soundness of the issuing bank.

What is not acceptable is to fall between regimes – for instance to argue that by holding backing assets such as sovereign bonds that are in general much safer than those on a bank's balance sheet, this is good enough to ensure convertibility into fiat money at par. Low risk is not the same as no risk.

This is why the FPC set out in its *Financial Stability Report* that stablecoins used in systemic payment chains should meet the standards equivalent to those expected of commercial bank money in relation to stability of value, robustness of legal claim and the ability to redeem at par in fiat.

Some major stablecoin proposals do not appear at present to meet this expectation
Some stablecoin proposals do not include a legal claim for coin-holders. And some stablecoins propose backing in instruments that may have material market, credit and liquidity risk, but do not have the money protections I have outlined.

While this might be acceptable for speculative investment purposes, it would not be for payments widely relied upon by households and businesses. Stablecoins need to offer coin-holders a robust claim, with supporting mechanisms and protections to ensure they can be redeemed at any time 1-to-1 into fiat currency.

Some may ask if this would rule out a multi-currency stablecoin? Such a proposition is the wrong place to start – it raises questions around the value of the coin, and the underlying money it represents. The starting point for a global stablecoin should be based on single currencies. We should not run before we can walk.

Setting standards early on

We must therefore set standards early on so that innovation can take place with confidence on what will be required. This gives certainty not only to regulators and users but also to innovators.

Indeed, the international community has agreed that *“no global stablecoin project should begin operation until the legal, regulatory and oversight challenges and risks... are adequately addressed, through appropriate designs and by adhering to regulation that is clear and proportionate to the risks.”*⁶

However given the novel form, existing standards do not necessarily easily apply. There need to be minimum international standards for stablecoins. In addition any stablecoin with potential for wide scale use in the UK must meet our domestic expectations. A stablecoin which intends to launch with sterling-based activities in the UK should first meet relevant standards and be appropriately regulated.

And if a sterling retail stablecoin wishes to operate at scale in the UK, then we will strongly consider the need for an entity to be incorporated in the UK. This is similar to the subsidiarisation of banks that we require if they are holding UK retail transactional customer deposits above a de minimis level⁷.

But a global stablecoin is a cross-border phenomenon. It can be operated in one jurisdiction, denominated in another's currency and used by consumers in a third. The regulatory response must match this.

As in banking and traditional payment systems, the regulatory response must be grounded in internationally-agreed standards. Global issues require a global response, particularly for multi-currency stablecoins intended for cross-border transactions.

Along with the G7, the Financial Stability Board has been leading co-ordination of the international response to global stablecoins. The FSB consulted in April on the regulatory and supervisory challenges they present, with a final report due in October, and the Bank of England supports the efforts to set a baseline set of expectations. These include that stablecoins should be regulated based on the functions they perform and risks they create, and that there should be comprehensive domestic and international regulation and supervision.

Global stablecoins should have robust governance and risk management, and be transparent about their stability mechanisms and coin-holders' rights.

This baseline set of expectations will help avoid regulatory fragmentation and is an important and necessary step. But alone it is not sufficient. Existing standards must be examined and updated where necessary.

There needs to be a clear G20 mandate for the various sectoral standard-setting bodies to consider their standards and whether they need to be refreshed or clarified in light of stablecoins. This is necessary to truly deliver on the principle of same risk - same regulation.

The Committee on Payments and Market Infrastructure (CPMI) and International Organization of Securities Commissions (IOSCO) are working to ensure that it is clear to stablecoin developers how international standards of regulation and supervision for financial market infrastructures, including payment systems, (the Principles for Financial Market Infrastructures – PFMI) will apply to them, including where stablecoins are used in systemic payment systems.

Other standards setters, such as the Financial Action Task Force (FATF) and the Basel Committee on Banking Supervision (BCBS), will need to respond as well.

Coordination between regulators is essential too. In particular, host regulators of global stablecoins must, and are, working with other regulators in other jurisdictions to ensure that they are appropriately regulated and gaps in coverage, opportunities for regulatory arbitrage, do not emerge.

The Bank looks forward to the conclusions of the FSB's consultation, and the subsequent finalising of international work, to ensure a comprehensive framework can be in place.

Current proposed global stablecoin offerings will need to demonstrate how they meet these key domestic and international standards. They must do so before the global regulatory community can be comfortable with their launch and widespread adoption.

Central Bank Digital Currency

A very reasonable and important question is whether a better outcome would be for central banks themselves to harness much of the technological and IT systems innovation and directly digitise cash? A Central Bank Digital Currency (CBDC) would be an electronic form of central bank money that could be used by households and businesses to make payments.

Digital central bank money would surely address the decline in the use of paper money without the complications of creating the protections required around stablecoins? Yes and no is I suspect the answer. The question is a good one and should be considered (and is being so) but the answer is not in yet. It's a very big question.

Offering a CBDC would allow broad access to central bank money in a digital form. But any launch of a CBDC requires careful prior consideration to fully explore all the issues and implications in order to make an informed decision, including ascertaining that there would be demand for such a thing.

CBDC, whilst offering much potential, also raises profound questions about the shape of the financial system and the implications for monetary and financial stability and the role of the central bank. There are fundamental questions in play.

What might a CBDC mean for monetary policy transmission – would it bring new tools and fuller, faster transmission of policy choices? To what extent would a CBDC ‘disintermediate’ the banking sector, and what impact would this have on the cost and availability of credit, and the resilience of banking business models and funding?

And what services and infrastructure should a central bank offer as part of a CBDC and what might best be left to the private sector?

The paper from Brookings in July on *Design Choices for CBDC* helpfully explored a number of these issues, as well as key technological points on the need for interoperability and connectivity between and among central and commercial bank systems for CBDC to function effectively⁸.

Such standards are even more important in a world where there might be a need for interoperability and friction-free movement between CBDC, private stablecoins and other payment mechanisms. We, along with international counterparts are considering these closely.

The Bank of England is exploring these issues and published its *Discussion Paper* on CBDC earlier this year⁹, setting out key considerations and an illustrative model based on a central bank core ledger and private payment interface providers offering overlay services to users. The paper received a wide range of responses.

We are currently working through the responses, continuing to engage with stakeholders and look forward to setting out more information next year. We are also working closely with our international counterparts who are facing the same questions.

Stablecoins and CBDC are not necessarily mutually exclusive. Depending on design choices, they could sit alongside each other, either as distinct payment options, or with elements of the stablecoin ecosystem, such as wallets, providing consumers with access to a CBDC. So there will likely be a role for the private and public sector working together in the future of payments.

As well as not being exclusive, stablecoins and CBDC are not the only ways to meet changing demands and reducing frictions in payments. We need to continue to enhance existing infrastructure, including by renewal and harmonisation of RTGS systems. This work will continue in parallel with other developments. There are also initiatives like the UK's New Payments Architecture, which offers a consolidated and open retail payment infrastructure.

Public policy questions raised by digital currencies

The rise of stablecoins and the emerging proposition of CBDCs pose fundamental questions about the role and responsibilities of private firms and central banks in the world of payments.

I have outlined the key role of authorities in ensuring the stability of money, through issuing and ensuring confidence in central bank money (from monetary policy through to making it hard to counterfeit), and regulating banks to ensure commercial bank money is stable and convertible on demand. Oversight of payment systems transferring this money ensures they are resilient and can be used with confidence.

But the changing nature of money causes us to pause and consider the importance and implications of money which extend much further than a simple exchange of value or financial transaction, and the policy implications are much greater than the specific mission of a central bank. In short, money has social, and not just financial functions.

Who should be responsible for the integrity and security of the digital payments architecture? Digital currencies will create not just a novel form of money, but also a new payment infrastructure, which while likely bringing benefits to payment efficiency, raises questions around transparency and how resilience and consumer protection will be ensured. Central banks might be involved in this infrastructure too, but where might the role of the central bank start, and stop?

Privacy and data protection issues are also a key question. Digital currencies, depending on their design, could provide considerable information on how people spend their money, and we cannot compromise on the protection of our privacy.

Private firms might seek to use these data, with appropriate user consent, to offer improved services, but we've seen widespread miss-use of data in the past. Digital payments could entail greater data on users' identities and transactions being centrally visible. The data generated could have huge opportunities for the detection and prevention of financial crime, but this must be balanced with the risk of surveillance into private financial matters.

These questions, as well as issues of encouraging inclusion and promoting competition, are not ones for central banks and regulators alone to answer. They go the heart of how we use money and who should be responsible for safety and security. There needs to be a wider debate between policy makers, governments and society as a whole.

Conclusion

We have reached the point in the cycle of innovation in payments where it is essential that we set the standards and thus the expectations for how innovation will take effect. It should not happen the other way round, with the standard setting playing catch up.

The answer is not to strangle innovation, and it does therefore require a strong dialogue between the parties, which I think we have. It also requires the sort of thoughtful input that Brookings scholars have made.

If I can end with one overarching point, I think the public expects its payments to carry the assurance of value that comes with money. At this point, my mother would have said firmly to me, “Thank you for that statement of the blindingly obvious.” To which I would say, “I look at the debate going on and it isn’t so obvious anymore, but it should be.” ■

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Endnotes

1. *The Financial Times*, 13 July 2020, ‘Cross-border payment systems have been neglected for too long.’ <https://www.ft.com/content/a241d7e0-e1de-4812-b214-b350cbb7d046>
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7. The PRA may require subsidiarisation where firms have material retail banking operations. In making that judgement,

the PRA takes account of the value and type of retail deposits and the extent to which they are covered by the FSCS. We expect branches to have under £100m of retail deposits, and also take account of the number of depositors and the number of retail and small-company customers with transactional accounts. See: SS1/18, 'International banks: the Prudential Regulation Authority's approach to branch authorisation and supervision.' <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2018/ss118>

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The background of the slide is the European Union flag, featuring a blue field with twelve five-pointed gold stars arranged in a circle. The flag is shown with a slight wavy texture, suggesting it is a flag in motion.

Europe needs a fully-fledged CMU

The coronavirus crisis makes progress on CMU even more important. Luis de Guindos, Fabio Panetta and Isabel Schnabel outline priority areas for reform to foster European capital markets

The capital markets union (CMU) is one of the cornerstones of the euro area's financial architecture. But progress in developing it has been slow. Since the agreement on establishing CMU in 2015, many sub-projects have been launched, and some completed, but European capital markets are still far from being fully integrated.

Despite the fact that the coronavirus (COVID-19) crisis has made CMU more important than ever, progress has unfortunately slowed, notwithstanding the substantial headway made on the fiscal side with the agreement on the European recovery package (Next Generation EU).

Financing the post-crisis recovery is one of the most pressing challenges Europe is facing today. Capital markets will be crucial. The new bond issuance by the European Commission, in the context of Next Generation EU, relies on well-functioning capital markets¹.

But public funding cannot do the heavy lifting alone; it will have to be complemented by substantial private financing. With the banking sector under pressure due to the pandemic, private bond and equity markets can play an important role in complementing bank financing.

In order to recover from the pandemic and strengthen the euro area's growth potential, a new push is needed towards the long-term ambition of creating a genuine single European capital market that is deeply integrated and highly developed.

This will not only mobilise the resources needed to reboot the euro area economy after the global contraction. It will also help meet the additional challenges posed by external developments, such as Brexit and global trade tensions².

In addition, it will provide opportunities for accelerating the transition to a low-carbon economy – thereby supporting the European Union’s ambition to be a leader in green finance – and for funding the transition towards the digital economy. A single capital market will also strengthen our common currency’s role on the global stage.

And last but not least, a deeper and more integrated financial system is also needed from a monetary policy perspective, as integrated capital markets improve the transmission of our single monetary policy to all parts of the euro area. In turn, this will help limit the risk of growing asymmetries among member countries as our economies recover from the COVID-19 shock at different speeds.

The COVID-19 pandemic has re-emphasised the importance of the CMU project and the need to make rapid progress

Our aim with this blog post is to re-emphasise the importance of strengthening efforts to advance the CMU project, in the light of the European Commission's forthcoming new Action Plan³. First, we explain why CMU is important, especially due to the COVID-19 crisis.

Second, we describe the current state of play regarding capital market development and integration in the EU, and identify the areas where progress is needed most.

And third, we set out a roadmap of policy measures that would remove core barriers to further integration.

Following this roadmap would benefit the euro area, the EU and its citizens. It would stabilise funding sources for households, companies and governments, foster cross-country risk-sharing and consumption smoothing, and stimulate growth and the post-COVID-19 recovery.

The measures we propose are broad in nature and require strong commitments, in line with the ECB's long-standing view that the CMU project has to be ambitious⁴. Accomplishing these reforms could trigger a virtuous cycle of better economic outcomes and further reforms, strengthening the European project. We recognise that developing and integrating European capital markets will primarily be a market-led process, so the measures we propose are designed to enable market forces.

Why is CMU even more important due to the COVID-19 crisis?

Even before the pandemic, the ECB was a strong supporter of the CMU project. CMU aims to deepen and further integrate capital markets in order to establish a genuine single capital market within the EU, which would allow investors, savers, firms and market infrastructures to access a full range of services and products, regardless of

where they are located⁵. Let us explain why CMU matters, and why it is particularly important due to the COVID-19 crisis.

First, European firms would benefit from more diverse funding sources, which would allow them to adapt more effectively to changing funding conditions. Easier access to market-based financing instruments would lessen firms' reliance on bank financing when the banking sector has been weakened by a shock, such as the COVID-19 crisis. This would also support the smooth transmission of monetary policy.

Second, progress towards CMU would increase private risk-sharing across countries and actors, generating positive effects from a macroeconomic stabilisation perspective and making economies more resilient to local shocks. This is particularly important now, with the risk of diverging economic development within the euro area due to the shock from the pandemic.

Within Europe, increasing cross-border ownership of stocks and debt securities and cross-border business financing would be an important way of sharing risks and thereby stabilising households' consumption and firms' investment over time⁶. Equity markets tend to have particularly strong risk-sharing properties. Several studies also emphasise that equity funding is more resilient to shocks than debt funding, and can be considered more stable from a risk-sharing perspective⁷.

Third, boosting capital markets through policies aimed at increasing equity financing would support growth and innovation. Research suggests that firms with higher growth potential generally resort more to (public or private) equity financing than debt financing and that capital markets are better at financing innovation and new sources of growth⁸.

This makes capital market funding particularly attractive with a view to boosting Europe's potential growth after the pandemic. A fully fledged CMU would improve funding conditions for innovative firms, which would mean brighter prospects for jobs and growth in a more sustainable economy, thereby helping to successfully implement the structural changes that will be unavoidable after the crisis.

Fourth, advancing CMU would speed up the transition to a low-carbon economy. Recent analysis suggests that an economy's carbon footprint shrinks faster when it receives a higher proportion of its funding from equity investors than from banks or through corporate bonds⁹. Given equity investors' propensity to fund intangible projects, equity markets might be more successful in funding green innovation and supporting the reallocation to green sectors.

Fifth, integrated euro area capital markets would strengthen the international role of the euro, as deep and liquid financial markets are fundamental to a currency's ability to attain international status¹⁰. By reducing transaction costs, deeper markets would make using the euro more attractive for international financing and settlement. More liquid markets also mitigate rollover risk and are thus perceived as safer by investors.

A stronger international role for the euro would benefit our monetary policy, including through greater policy autonomy and improved monetary policy transmission, with positive spillbacks and lower external financing costs¹¹. It would complement other measures supporting the international role of the euro, such as the expansion of euro liquidity facilities during the COVID-19 crisis¹².

Finally, progress on CMU would dovetail with another key EU objective: completing the banking union. Banks and capital markets complement each other in financing the real economy, so the two projects are mutually reinforcing¹³.

On the one hand, more integrated capital markets support cross-border banking activities, as banks exploit economies of scale and offer similar capital market products across the EU.

More cross-border holdings would also allow banks to have more diversified collateral pools for their securitised products and covered bonds. This could ultimately make banks more resilient, as they would benefit from a wider investor base for capital market-based funding instruments and a broader market to which they could sell non-performing assets.

On the other hand, a more resilient and integrated banking system supports the smooth functioning and further integration of capital markets. Just as with CMU, the benefits of banking union become even more visible due to the pandemic.

Where do European capital markets stand today and what has happened during the pandemic?

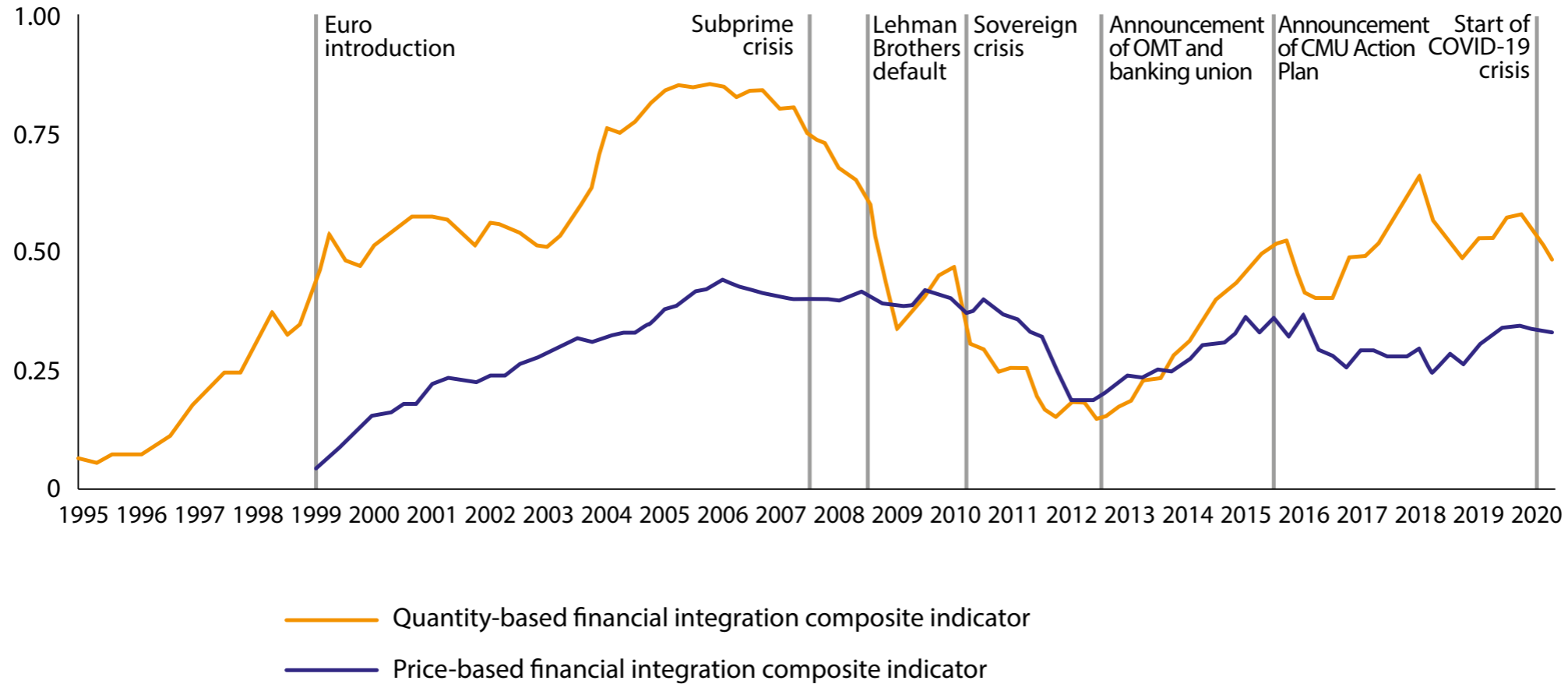
The first CMU Action Plan of 2015 has generated some positive developments in European capital markets. Among other things, it led to some progress on harmonising and improving insolvency frameworks¹⁴. and on establishing a new EU framework for covered bonds and simple, transparent and standardised securitisations. But a significant 'CMU effect' has yet to be seen in the data – partly because these measures have only been implemented recently and their full impact will take some time to emerge¹⁵.

European capital markets – and especially equity markets – remain underdeveloped and insufficiently integrated at the European level. While there was a strong positive trend in capital market integration following the great financial and euro area crisis, as shown by the price- and quantity-based indicators in Chart 1, the integration of equity markets has stagnated since 2015 and has even declined since the fourth quarter of 2017.

Chart 1. Price and quantity-based indicators of financial integration

Quarterly data:
Q1 1995 - Q2 2020

www.worldcommercereview.com



Notes: The indicators are bound between zero (full fragmentation) and one (full integration). The result of the quantity-based composite indicator for Q2 2020 is based on money market and equity market benchmark data from Q2 2020; for the bond market, Q1 2020 benchmark data are used. For a detailed description of the indicators and their input data, see the [Statistical annex](#) to the ECB report "Financial Integration and Structure in the Euro Area" (see source below) and Hoffmann et al. (2019).
Source: ECB (2020), [Financial Integration and Structure in the Euro Area](#), March 2020.

Cross-border holdings of debt have increased, but this is mainly true for shorter maturities, which are less stable than longer-term debt¹⁶. Another notable trend is that investment funds are playing an increasingly important role in cross-border integration¹⁷. However, overall risk-sharing is still low compared with the levels typically observed across regions or states within a single country or federation¹⁸.

While it is too early to fully assess the impact of the COVID-19 outbreak on EU capital markets, some initial indicators show that the pandemic has triggered a refragmentation within euro area financial markets, mainly through bond and equity markets. At the height of the pandemic, this meant that our private purchase programmes could not reach the non-financial corporations (NFCs) of all euro area countries in the same way¹⁹.

Capital market development is also lagging behind²⁰. While the US economy is financed through capital markets to a significant degree, the euro area economy continues to be mainly financed by banks and through unlisted shares.

Nevertheless, the role of capital markets in providing a stable source of funding to the European economy is expanding, thereby moving the euro area's financial structure towards a more balanced composition²¹.

NFCs have gradually diversified their funding structures and are increasingly financing themselves in the market by issuing debt securities. At the same time, however, corporate bond markets are very uneven across euro area countries.

Even though the share of all equity instruments in total financing in the euro area is comparable to other countries, financing through equity traded on public markets (listed shares) remains relatively uncommon, and well below the levels seen in other major economies²².

Conversely, loans and unlisted shares account for particularly large proportions of financing in the euro area economy. Similarly, the EU is lacking in early-stage private equity investment (see Chart 2). Data on venture capital investment relative to GDP show that even in Finland and Estonia, which are the most advanced EU countries in this area, the ratio is less than one-fifth of that in the United States.

Early-stage financing is not the only ingredient missing for innovative firms to flourish: the EU is also lagging behind the United States as regards an ecosystem that promotes the next stages of growth when firms mature and need to scale up their businesses²³.

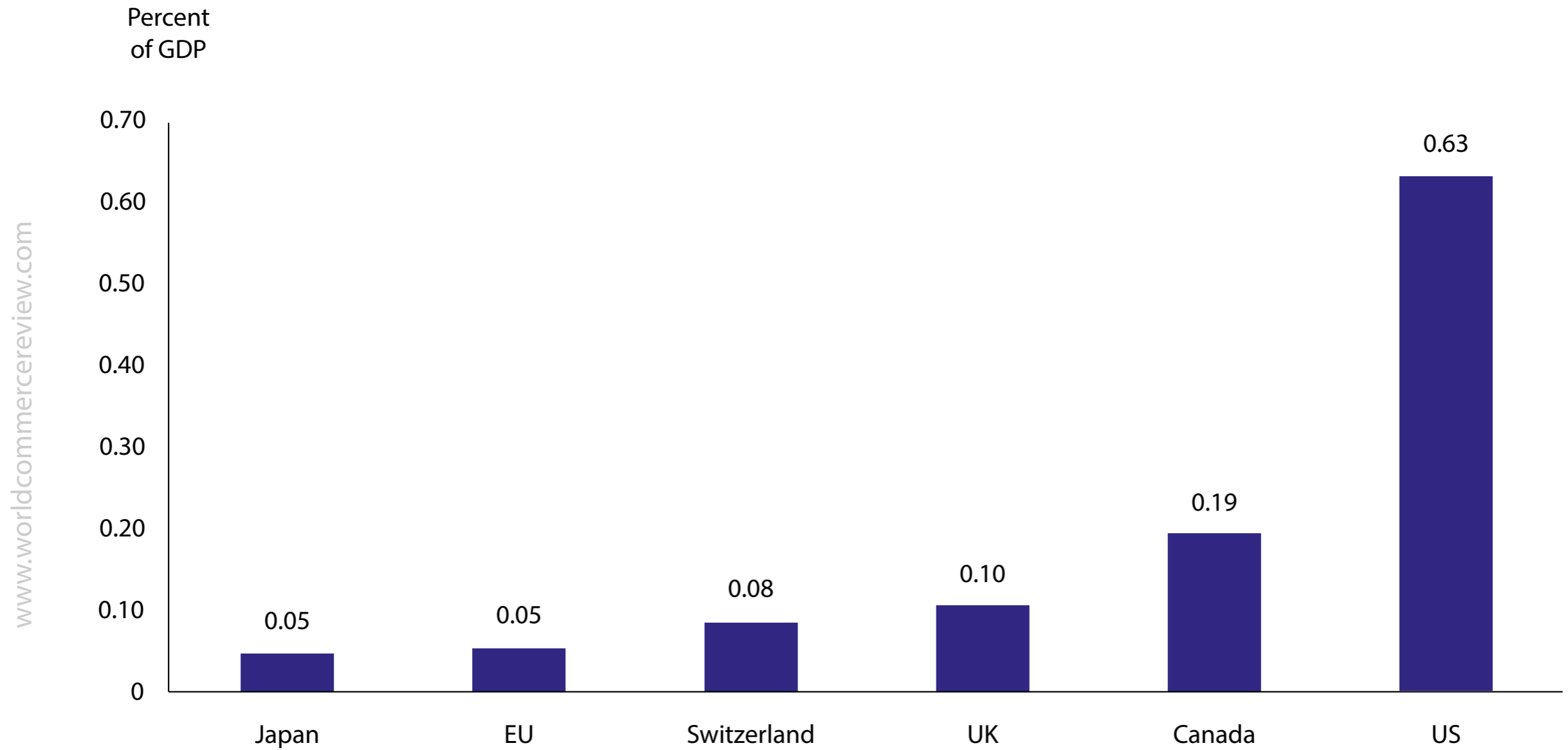
European equity markets are underdeveloped for a number of reasons, all of which influence both the supply of, and demand for, equity finance²⁴. One important element is investor behaviour: equity ownership by investors, in particular retail investors, is low despite the growth of the investment funds sector, and skewed in the population compared with the United States.

At present, only 9% of the adult population of the euro area own publicly traded shares, compared with 52% in the United States. The picture across the euro area is mixed, both in terms of retail investors' preferences across asset classes and in the overall level of household investments (see Chart 3).

Unsurprisingly, the equity share of private pension investment is particularly low in countries with large pay-as-you-go systems²⁵. By contrast, countries with large funded pension systems and, therefore, large aggregate private retirement savings, typically have the most developed capital markets²⁶.

The flip side of Chart 3 and the limited investments in capital market products is that European savers hold large amounts of bank deposits. Appropriate equity shares in funded pension systems would help to ensure satisfactory

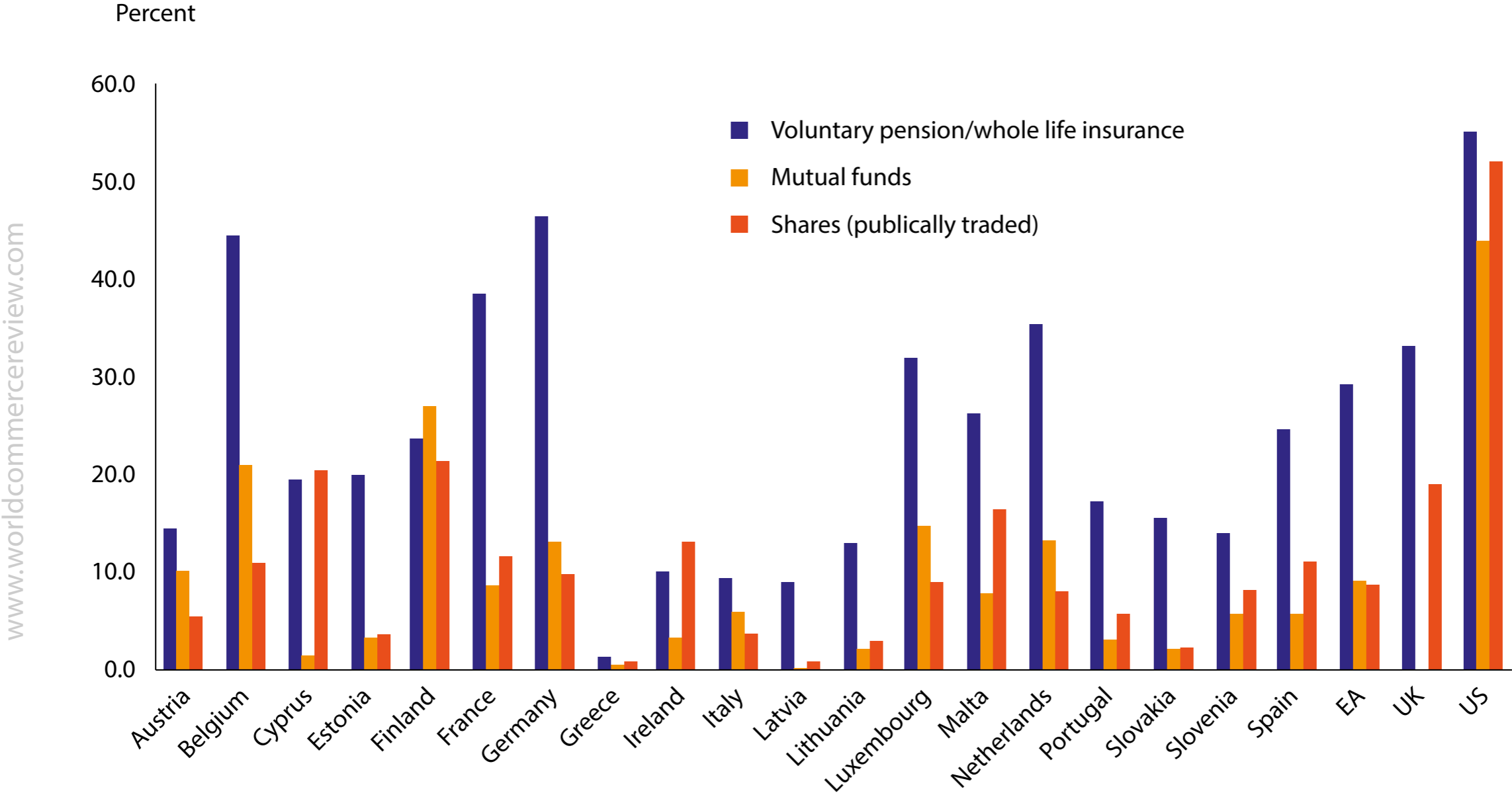
Chart 2. Venture capital investments in 2019



Notes: For Japan only 2018 data are available. Data for the EU show the average for all EU countries for which data are available. Data are not available for Croatia, Cyprus, Malta and Slovenia.

Sources: OECD and IMF World Economic Outlook.

Chart 3. Share of households holding different asset classes by country



Notes: Chart shows shares of asset types relative to the value of real assets by household (in percentages) from the ECB's Household Finance and Consumption Survey. All data are from 2014 with the exception of Estonia, Ireland, Malta, Netherlands, Portugal and Finland (2013) and Spain (2011). Data on mutual funds for the United Kingdom were not available. Sources: ECB's Household Finance and Consumption Survey, Forbes, ICI and Gallup.

returns for citizens over the long periods of time relevant for retirement savings. Adequate diversification rules across European countries in the new pan-European Personal Pension Product would help improve private financial risk-sharing.

Another element is the interconnection between the structure of the EU economy and that of EU financial markets. Depending on the sectors in which they operate, firms may be better served by bank or market-based finance²⁷.

On the one hand, firms relying more on bank finance can be protected from the vagaries of investor sentiment²⁸. On the other hand, a lack of market-based financing, particularly equity financing, can impede innovative firms in Europe from flourishing and becoming global champions, since banks – by contrast with venture capital or private equity firms – tend to finance less risky projects.

The size of firms also matters for financial structure. The large share of loans and unlisted shares in euro area NFCs' external financing sources (see Chart 4) partly reflects the larger share of small and medium-sized enterprises (SMEs) in the euro area.

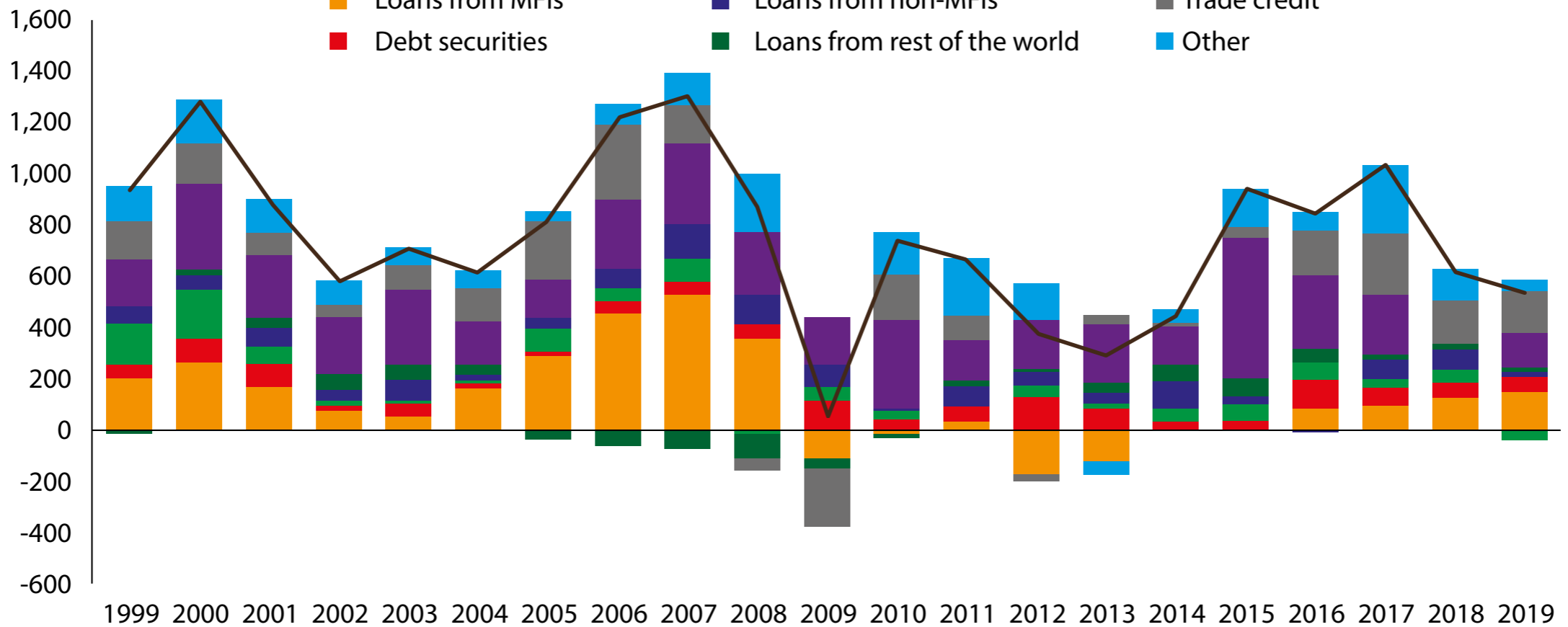
Research analysing the willingness of European SMEs to pay for external financing shows that they are willing to pay a non-negligible premium for debt funding, in particular in the form of bank loans, over external equity funding²⁹.

As this cannot be explained completely by factors such as the debt-equity bias in taxation, the same research suggests that the bank-based system may have created a bias towards those types of firms that are better served by debt finance rather than equity finance, which may hamper innovation.

Chart 4. External financing of euro area NFCs by instrument

Annual flows;
€ billions;
1999-2019

- Total external financing
- Listed shares
- Unlisted shares and other equity
- Loans from MFIs
- Loans from non-MFIs
- Trade credit
- Debt securities
- Loans from rest of the world
- Other



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Notes: "MFIs" stands for "monetary financial institutions". Non-MFIs include other financial institutions as well as insurance corporations and pension funds. "Other" is the difference between the total and the instruments included in the chart, and includes inter-company loans and the rebalancing between non-financial and financial accounts data. 2019 data refer to data for the end of the third quarter of 2019.

Sources: ECB (euro area accounts) and ECB calculations.

While additional research would be needed to pinpoint other factors explaining the reluctance of EU firms – especially smaller ones – to become publicly listed, oft-cited drivers include the burden of the increased transparency and reporting requirements that result from public listing, a preference for relationship-based funding, or concerns about loss of control and dilution of existing shareholders.

Legislative proposals recently published by the European Commission in response to the COVID-19 crisis intend to reduce some of the red tape associated with listing³⁰.

A roadmap for CMU

The European Commission's new CMU Action Plan should be ambitious and aim to bring out the full potential of well-developed equity markets and integrated EU capital markets in order to stimulate both the demand for, and supply of, capital market instruments and services. Priority should be given to the following mutually reinforcing areas³¹:

1. Regulation and legal frameworks
2. Supervision and oversight
3. Fiscal policy and public debt markets
4. Financial market development
5. Securitisation

Regulation and legal frameworks

EU capital markets must be able to rely on common rules and regulatory policies that support a level playing field for all market participants. The single rulebook must be strengthened and applied consistently throughout the EU.

Despite the objective to create a single European market for financial services, non-EU service providers still have to navigate a patchwork of regimes adopted at member state level in order to access national markets. A single, unified approach is needed, particularly in view of the level playing field challenges that might appear after Brexit.

Standardisation and harmonisation are instrumental in developing new markets. A case in point is the green bond market where the EU is already the global leader³². A reliable, verifiable and transparent EU green bond standard based on the EU Taxonomy would significantly enhance the credibility of this asset class. To serve its purpose and prevent greenwashing, the EU green bond standard must strike a balance between being selective in financing investment projects and avoiding disproportionately strict rules for issuers.

Collecting, processing and disclosing data will become ever more relevant for market players. For example, it is still challenging for investors to perform due diligence in relation to the management of European equity portfolios since relevant company information is widely scattered across multiple databases and has generally not been harmonised across borders.

An adequately designed European Single Access Point, developed under the lead of the European Securities and Markets Authority, would provide investors with centralised access to all relevant financial, trading and regulatory information on European companies and their securities.

In the longer term, further harmonisation of general legal frameworks would be desirable. Investors must be able to trust the predictability of the legal framework.

In particular, market participants would find it easier to invest in firms located in different member states if core elements of insolvency regimes, such as the definition of insolvency triggers, avoidance actions and the ranking

of claims, were harmonised at best-practice levels³³. If full harmonisation of these regimes seems unfeasible, the development of dedicated EU-level regimes or procedures should be considered.

Supervision and oversight

Given that risks do not stop at the EU's internal borders, there is a strong case for implementing EU-wide supervision of capital markets. This could also ensure consistent implementation of the single rulebook to provide a level playing field for investors and market players.

In particular, capital markets can only function smoothly if they can rely on efficient and robust market infrastructures. Additional efforts to better integrate and supervise key market infrastructures are essential to ensure a level playing field for issuers and investors.

This could include genuine EU-level supervision of systemically important EU central counterparties and greater supervisory convergence for central securities depositories by promoting the centralisation of supervisory powers (or at least enhanced cooperation at EU level), as well as launching efforts to ensure that reliable infrastructures are in place to deal with more sophisticated cyber threats³⁴.

Fiscal policy and public debt markets

To promote the development of capital markets, national tax frameworks should avoid distorting incentives for firms and investors regarding capital structure. In particular, the existing bias in favour of debt over equity should be addressed in a decisive manner to facilitate the issuance of listed equity by firms³⁵.

Further simplification and cross-border convergence of withholding tax procedures would reduce the administrative burden for cross-border investors. This could pave the way for the development of a common,

adequately designed, sovereign safe asset, which could have important benefits for financial stability, integration and development in the euro area³⁶.

The issuance of a low-risk security at European level would enhance the financial system and would be an important component in developing a proper euro area term structure³⁷.

The EU joint debt issuance for the establishment of the European recovery fund could represent a first step in this direction, as the current proposal includes a plan to issue EU-level bonds with different maturity dates between 2028 and 2058. A safe asset of this nature could lead to the emergence of a genuine single securities market in the EU.

In contrast to other currency areas, financial integration and risk-sharing among market participants in the euro area is impeded by the current lack of a pan-European, neutral and harmonised channel for the issuance and initial distribution of debt securities that would address the fragmentation of debt markets along national lines.

Financial market development

Efforts to improve financial literacy would support the CMU agenda and, more importantly, allow households to reap the benefits of capital markets. Citizens would then be better equipped to critically assess investment advice and broaden their long-term investment options³⁸.

We would welcome initiatives from the European Council and Commission to make financial literacy a priority in lifelong learning and to develop an EU competence framework. The same goes for proposals that seek to ensure the provision of adequate and fair advice and thus improve retail investors' trust in advisers and capital markets³⁹.

It would be useful to identify best practices for financial education initiatives, and member states themselves could devise further initiatives with a broad impact in the long term, such as incorporating financial education into secondary school curricula.

A further major determinant of financial market development is the structure of pension schemes. While we recognise the profound social choices involved in designing national pension systems, we also note that increasing private retirement savings rates in response to demographic changes could have a strong positive impact on European capital markets⁴⁰.

Adequate options for portfolio compositions, including various choices about the equity share and (European cross-country) diversification (as embedded in the new pan-European Personal Pension Product, for example), would offer households opportunities to improve their retirement incomes.

The European long-term investment fund was designed to address the lack of equity funding for innovative and young firms. However, this instrument has so far not worked as expected and should be amended in a targeted fashion, for example by increasing the investor pool and simplifying applicable tax rules. Firms could then attract more cross-border and retail investors.

In addition, in the light of the unavoidable increases in debt in order to finance the post-COVID-19 recovery and potential defaults, European markets for trading impaired assets should be better developed and integrated.

Securitisation

Securitisation allows banks to transfer parts of the risks associated with their lending to other investors and can therefore broaden companies' investment bases and funding conditions.

While the new European framework for simple, transparent and standardised securitisation (finalised in 2017) has dealt with the weaknesses and excesses that contributed to the financial crisis of 2008, it has not proven fully effective in reviving the much-reformed EU markets.

A review should be conducted to explore how existing rules could be improved. This could include options for facilitating the securitisation of impaired assets.

Conclusion

Advancing CMU is not just about capital markets and financial institutions. It will be of benefit to all of us, entrepreneurs, employees, savers and citizens alike. The COVID-19 pandemic has re-emphasised the importance of the CMU project and the need to make rapid progress. We should be realistic that the benefit to be gained from some measures will take longer to emerge than others.

For instance, while further harmonising insolvency frameworks or integrating financial literacy into school curricula could have a very significant impact, it will be many years before we see the related effects.

But other measures, such as the creation of a European Single Access Point for company information or the removal of the tax advantage of debt, could be implemented over a relatively short time period and would have near-term implications.

Nevertheless, these reforms should be pursued jointly and immediately in order to achieve the desirable level of ambition, as many of them create synergies. Progressing with reforms in all these areas is particularly crucial in view of the COVID-19 pandemic. It could speed up the European recovery and increase the growth potential, which would also strengthen public finances.

Most importantly, it could facilitate the structural changes that have become unavoidable as a result of the pandemic and support the transition to a low-carbon and digitalised economy. The COVID-19 crisis is thus a wake-up call to strengthen CMU and make the EU economy more robust and resilient. ■

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Endnotes

1. See Panetta, F (2020), *"Sharing and strengthening the euro's privilege"*, The ECB Blog, 12 June.
2. See, for example, Bergbauer, S et al. (2020), *"Implications of Brexit for the EU financial landscape"*, Financial Integration and Structure in the Euro Area, March, ECB.
3. Several recent reports include suggestions on CMU from market participants and policymakers. See European Commission (2020), *"Final report of the High Level Forum on the Capital Markets Union - A new vision for Europe's capital markets"*; The Next CMU High-Level Expert Group (2019), *"Savings and Sustainable Investment Union"*; Panagiotis, A and Wright, W (2019), *"Report: Unlocking the growth potential in European capital markets"*, New Financial; Lannoo, K and Thomadakis, A (2019), *"Rebranding Capital Markets Union: A market finance action plan"*, CEPS-ECMI Task Force; Bhatia, VA et al. (2019), *"A Capital Market Union for Europe"*, Staff Discussion Notes, IMF; and AFME (2018), *"Capital Markets Union: Measuring progress and planning for success"*.
4. See ECB (2017), *"ECB contribution to the European Commission's consultation on Capital Markets Union mid-term review 2017"*, May.
5. For the ECB, *"the market for a given set of financial instruments and/or services is fully integrated if all potential market participants with the same relevant characteristics: (1) face a single set of rules when they decide to transact in those*

financial instruments and/or services; (2) have equal access to the above-mentioned set of financial instruments and/or services; and (3) are treated equally when they are active in the market". See Baele, L et al. (2004), ["Measuring financial integration in the euro area"](#), Occasional Paper Series, No 14, ECB, April.

6. See Beck, R, Dedola, L, Giovannini, A and Popov, A (2016), ["Financial integration and risk sharing in a monetary union"](#), Financial Integration in Europe, April, ECB.

7. Equity contracts imply gains for stock owners in good times but losses in bad times, whereas debt contracts are characterised by fixed payments over the life of the contract. Studies showing the positive effects include: Artis, MJ and Hoffmann, M (2012), ["The Home Bias, Capital Income Flows and Improved Long-Term Consumption Risk Sharing between Industrialized Countries"](#), International Finance, Vol. 13, No 3, pp. 481-505; Forbes, KJ and Warnock, FE (2014), ["Debt- and Equity-Led Capital Flow Episodes"](#), in Fuentes, M, Raddatz, CE and Reinhart, CM (eds.), Capital Mobility and Monetary Policy: An Overview, Chapter 9, Central Banking Series, Central Bank of Chile, pp. 291-322; and Milesi-Ferretti, GM and Tille, C (2011), ["The Great Retrenchment: International Capital Flows During the Global Financial Crisis"](#), Economic Policy, Vol. 26, No 66, pp. 285-342.

8. See Bongini, P, Ferrando, A, Rossi, E and Rossolini, M (2019), ["SME access to market-based finance across Eurozone countries"](#), Small Business Economics; and Hsu, P, Tian, X and Xu, Y (2014), ["Financial development and innovation: Cross-country evidence"](#), Journal of Financial Economics, Vol. 112, No 1, pp. 116-135.

9. See De Haas, R and Popov, A (2019), ["Finance and carbon emissions"](#), Working Paper Series, No 2318, ECB, September; and Popov, A (2020), ["Does financial structure affect the carbon footprint of the economy?"](#), Financial Integration and Structure in the Euro Area, March, ECB.

10. See Hartmann, P (1998), Currency Competition and Foreign Exchange Markets: The Dollar, the Yen and the Euro, Cambridge University Press; Portes, R and Rey, H (1998), ["The emergence of the euro as an international currency"](#), Economic Policy, Vol. 13, No 26, pp. 306-343; Detken, C and Hartmann, P (2000), ["The euro and international capital markets"](#), International Finance, Vol. 3, No 1, pp. 53-94; Eichengreen, B, Mehl, A and Chițu, L (2017), How Global Currencies Work: Past, Present and Future, Princeton University Press; and Ilzetzi, E, Reinhart, C and Rogoff, K (2020), ["Why Is the](#)

Euro Punching Below Its Weight?, NBER Working Paper Series, No 26760, National Bureau of Economic Research.

11. For the different dimensions of how the international role of the euro affects monetary policy transmission, see Cœuré, B (2019), *"The euro's global role in a changing world: a monetary policy perspective"*, speech at the Council on Foreign Relations, New York City, February; and Gräb, J and Mehl, A (2019), *"The benefits and costs of the international role of the euro at 20"*, *The international role of the euro*, June 2019, ECB.

12. See Panetta, F and Schnabel, I (2020) *"The provision of euro liquidity through the ECB's swap and repo operations"*, *The ECB Blog*, 19 August.

13. See Constâncio, V (2017), *"Synergies between banking union and capital markets union"*, keynote speech at the joint conference of the European Commission and European Central Bank on European Financial Integration, Brussels, 19 May.

14. Through [Directive \(EU\) 2019/1023 of the European Parliament and of the Council of 20 June 2019 on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt](#).

15. See de Guindos, L (2019), *"Building the EU's capital markets: what remains to be done"*, speech at the Association for Financial Markets in Europe Conference, Supervision and Integration Opportunities for European Banking and Capital Markets, Frankfurt am Main, 23 May.

16. See ECB (2020), *Financial Integration and Structure in the Euro Area*, March.

17. See, for example, Giuzio, M and Nicoletti, G (2018), *"Integrating euro area corporate bond markets: benefits and potential financial stability challenges"*, *Financial integration in Europe*, May. Funds that are domiciled in financial centres facilitate the diversification of asset holdings across euro area countries, see Vivar, LM, Lambert, C, Wedow, M and Giuzio, M (2020), *"Is the home bias biased? New evidence from the investment fund sector"*, *Financial Integration and Structure in the Euro Area*, March, ECB.

18. See Giovannini, A, Horn, C-W, Mongelli, FP and Popov, A (2020), *"On the measurement of risk-sharing in the euro area"*, *Financial Integration and Structure in the Euro Area*, March, ECB.

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20. One way of defining financial development (or financial modernisation for an already highly developed financial system like that of the euro area) that is also applicable to capital markets is the process of financial innovation, as well as institutional and organisational improvements in the financial system that reduce asymmetric information, increase the completeness of markets and contracting possibilities, reduce transaction costs and ensure a high level of competition. See the preface to ECB (2020), *op. cit.*; and ECB (2008), [“Financial development: concepts and measures”](#), Financial integration in Europe, April.

21. The data in this paragraph are taken from ECB (2020), *ibid.*

22. Stock market capitalisation was 56% in the EU27, 163% in the United States, 149% in Japan and 110% in the United Kingdom. The data are taken from the [2019 ECMI Statistical Package](#).

23. See Lannoo, K and Thomadakis, A, *op. cit.*

24. These include cultural barriers to equity investment, unavailability of uniform firm information, biases in taxation, low levels of financial literacy, the design of pension systems and products, low public investment in fundamental research and more market-oriented research and development, and the lack of technology clusters.

25. The equity share is less than 20% in the median EU country, compared with 30% in Switzerland, 44% in the United States and 51% in Australia. See, for example, Giovannini, A, Hartmann, P, Imbs, J and Popov, A (2018), [“Financial integration, capital market development and risk sharing in the euro area”](#), keynote speech at the 8th International Conference of the Financial Engineering and Banking Society, 4 June.

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28. See Kremer, M and Popov, A (2018), *“Financial development, financial structure and growth: evidence from Europe”, Financial integration in the euro area, May, ECB.*

29. See, for example, ECB (2020), *op. cit.*; and Brutscher, PB and Hols, C (2018), *“The corporate equity puzzle”, EIB Working Papers, 2018/03.*

30. European Commission (2020), *“Coronavirus response: Making capital markets work for Europe’s recovery”, 24 July.*

31. Some of these proposals were included in the High Level Forum’s report on CMU and in other reports mentioned above (see footnote 3 for more details).

32. In 2019 more than half of global issuance was concentrated in the EU and almost half of global green bond issuance was denominated in euro. For more details, see ECB (2020), *“The international role of the euro”, June.*

33. Research finds that improving insolvency frameworks in euro area countries towards best practice enhances private financial risk-sharing through capital markets. See, for example, Giovannini, A, Hartmann, P, Imbs, J and Popov, A (2018), *op. cit.*

34. The ECB has played a key role in fostering public-private cooperation, for example by launching a new cyber-threat intelligence sharing platform for market infrastructures under the Euro Cyber Resilience Board. See Panetta, F (2020), *“Protecting the European financial sector: the Cyber Information and Intelligence Sharing Initiative”, introductory remarks at the fourth meeting of the Euro Cyber Resilience Board for pan-European Financial Infrastructures, February.*

35. As part of the 2015 Action Plan on Building a Capital Markets Union, the European Commission proposed relaunching work on the common consolidated corporate tax base, including a *legislative proposal*, which has still not been agreed on by the European Council. Research shows that allowing firms to deduct a notional interest rate on equity against their profits (on top of the existing deductibility of interest expenses) is likely to be beneficial for financial stability as, in the case of Belgium and Italy, it effectively reduced firms’ leverage. See, for example, Hebous, S and Ruf, M (2017), *“Evaluating the*

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37. See also Panetta, F (2020), *“Sharing and strengthening the euro’s privilege”*, *The ECB Blog*, 12 June.

38. Research finds that levels of financial education vary widely across the euro area, and that financial literacy enhances capital market participation and fosters private financial risk-sharing via capital markets. See, for example, Giovannini, A, Hartmann, P, Imbs, J and Popov, A (2018), *op. cit.*

39. See the High Level Forum’s report on CMU (European Commission (2020), *op. cit.*) for specific proposals regarding inducements for financial advisers and how to enhance the quality of financial advice.

40. For example, an estimation of the impact for the euro area if all member countries increased the share of equity investments in their pension savings to a “regular” level for diversified long-term portfolios (about 39%) shows that the additional equity demand would amount to about 3.7% of total equity market capitalisation. See, for example, Giovannini, A, Hartmann, P, Imbs, J and Popov, A (2018), *op. cit.*

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The background of the slide features a composite image. The top half shows a view of the Earth from space, with blue oceans and green landmasses. The bottom half shows a human brain, with the top half of the brain appearing to be composed of or merged with the Earth's surface. The entire image is set against a dark green background.

Financing the EU: new context, new responses

Clemens Fuest and Jean Pisani-Ferry consider the EU budget, which has to be reassessed in light of the Next Generation EU programme

Roughly two thirds of the European Union's budget is financed out of member states' national tax revenues. These resources, based on gross national incomes, are transparent, fair and in line with the principle of subsidiarity but they lead to political debates that emphasise the cost of EU spending rather than the benefits, and add to the perception of the EU budget in terms of net balances, rather than value added.

The financing of the EU budget must be reassessed in the light of the July 2020 decision to launch the Next Generation EU programme. Budget resources could include a plastics charge, a carbon border adjustment mechanism, a digital tax, revenues from emissions trading and a financial transactions tax.

We evaluate these options against four criteria: whether the origin of the revenue can be assigned to a particular member state; whether the revenue can be raised in isolation or requires pan-European tax coordination; whether the new resource can help reduce tax distortions in the EU; and whether the resource is related to EU policies.

Revenues from emissions allowances fit these criteria best. Carbon emissions do not primarily cause damage only where they occur. Taking the EU cap on emissions as a given, additional emissions in a particular member state should be regarded as a negative externality on other member states. Emission reduction objectives are set at EU level.

Whoever auctions off an allowance, wherever the corresponding emission occurs in the EU, and wherever the resulting good or service is consumed, the impact on common policy outcomes is the same. In this regard, proceeds from the sale of emissions trading system allowances are not that different from customs duties.

Compared to the ETS, the other candidates for EU own resources are less convincing. Carbon border adjustments are intended to limit international competitive distortions rather than to generate revenue.

Digital taxes and minimum corporate taxes are best left to the process underway in the Organisation for Economic Co-operation and Development. On a financial transactions tax there is no agreement within the EU.

Total ETS revenues up to 2050 would approach €800 billion in a realistic scenario and possibly even €1.5 trillion assuming the scope of the ETS and the share of auctioned permits are increased. ETS revenues therefore would be largely sufficient to repay the Next Generation EU debt.

However, they would generate distributional effects, and so part of the revenues should finance grandfathered rights that would accrue to the member states. The EU can tackle the distributional issues involved in the reform of own resources.

The decision to introduce new resources is ultimately political and the discussion about it is likely to involve strong distributional aspects

Introduction

The debate on the financing of the European Union budget is never-ending. Because it is overly loaded with quasi-constitutional, and at any rate highly political considerations about the nature of the EU, it has consistently served as a battlefield between those who regard the EU as a confederation of sovereign states and those who believe in its federal destiny.

We have no intention of reopening the existential debate. But we posit that two new facts call for a pragmatic re-examination of the financing of the EU budget:

- The decision by the European Council to launch the Next Generation EU (NGEU) recovery programme in response to the COVID-19 crisis.

In its conclusions, the European Council of July 2020 requested from the Commission proposals for new own resources that could be used for early repayment of NGEU borrowing;

- The emergence of potential new resources that have an intrinsically pan-European character.

We start by reviewing the financing of the EU. We then turn to arguments for or against reforming the existing system, before putting forward criteria for assessing potential new resources.

We then take up the potential revenue implications of climate policy, dealing first with the emissions trading system and second with the taxation of carbon at the border.

We discuss digital taxation and other potential candidates for own resources, especially the financial transaction tax. As this analysis leads us to conclude that there is a strong case for turning ETS revenues into an EU own resource, we return to the issue to discuss implementation issues.

The financing of the EU budget

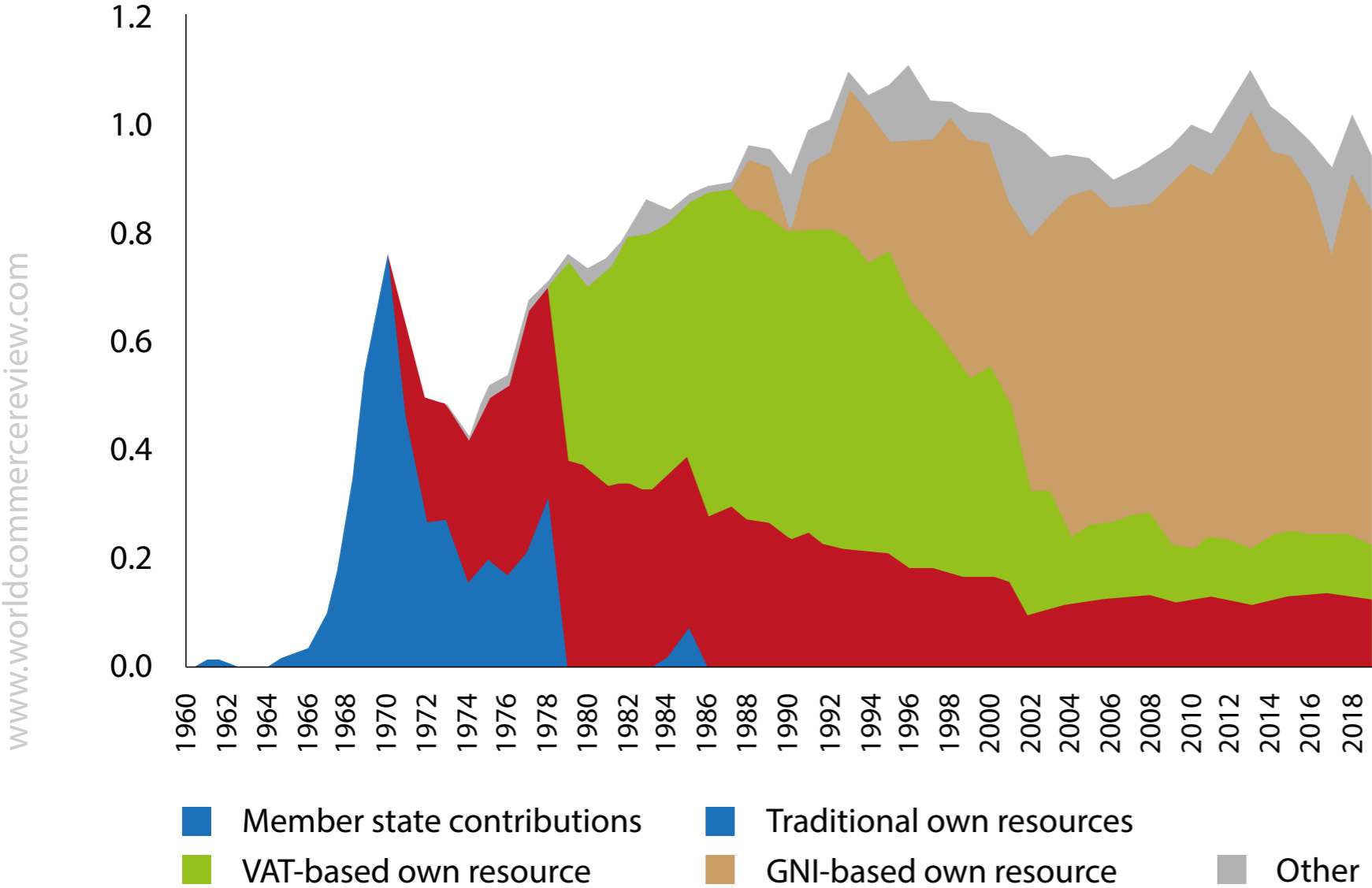
The EU budget has a number of characteristics that make it unique. There is a fixed ceiling on revenues and spending, and there is no debt financing – with the exception of the recent €750 billion EU Economic Recovery Fund (Next Generation EU), which was announced as a one-time measure.

The revenue comes from so-called 'own resources'. This is a misnomer that combines genuine own resources (the 'traditional own resources', mostly tariffs) and statistical aggregates (the VAT resource and the gross national income resource). Custom duties are true own resources because they are levied at the port of entry of foreign merchandises, but result from demand emanating from wherever in the EU the corresponding goods are consumed or utilised.

After deducting a fee for administration costs (currently 20 percent of the revenue), the remainder goes to the EU. The VAT resource and the GNI resource, however, are levied by each and every member state and are widely considered by them as national contributions to the EU budget, not as resources 'owned' by the EU.

In recent years the EU budget has been financed essentially by the GNI resource. However, this resource was only introduced in the early 1990s (Figure 1). Earlier budgets were mostly financed by the VAT resource and the custom duties, the share of which in total revenues was about one-half in 1980.

Figure 1. Structure of own resources of the European Community/EU, 1958-2018



Source: European Commission, DG Budget

In fact, the structure of EU budget resources has been remarkably unstable over time, evolving from an exclusive reliance on national contributions (before 1970) to a combination of genuine own resources and a VAT top-up (from the mid-1970s to the 1980s) and to a renewed predominance of national contributions (from the 1990s onwards) (Cipriani, 2014).

Today, the GNI resource provides roughly two thirds of the overall financing of the EU budget. Given this revenue structure, it is fair to say that the EU budget is primarily financed through contributions made by the member states out of national tax revenue.

This instability results from a legal factor and an economic factor. The legal factor is that although Art. 311 of the Treaty on the Functioning of the European Union (TFEU) states that *“Without prejudice to other revenue, the budget shall be financed wholly from own resources”*, it does not define what is meant by that, nor does it provide any detail on possible resources.

It basically leaves to the Council the responsibility of deciding by unanimity what these resources should be: the Council *“may establish new categories of own resources or abolish an existing category.”* The economic reason is that the genuine own resources the EU relied on after the 1970 decision to *“replace financial contributions from member states by the communities’ own resources”* were unstable: revenues from tariffs dwindled as a consequence of trade liberalisation, and other specific revenues were too limited in the first place to provide stable revenue streams¹.

Why change the system of own resources?

In the debate about reform of the own resources system, it is important to distinguish two questions. The first is whether the EU should have its own – possibly limited – power to levy resources through taxation, rather than relying on the fiscal sovereignty of its member states.

This debate is about fundamental changes to the institutional setup of the EU, which would move it closer to a federal structure.

The other question is whether the system of own resources should be changed given the current institutional setup, with a fixed ceiling on expenditure, no deficit financing and national fiscal sovereignty as the bases for the financing of the EU.

We focus on the second question, that is on reforming the own resources system, taking as given the current EU institutional setup.

Discussions about reform of the EU own resources system often start from the (undisputable) observation that the existing system of financing is dominated by the GNI resource. Whether this dominance is good or bad is disputed.

The GNI resource has a number of advantages: it is transparent, it leads to a distribution of the financing burden between member states that is proportional to their respective capacities, and it allows member states to finance their contributions through the taxes that are best suited to local conditions and local preferences, which is in line with the principle of subsidiarity.

There are two main critiques of the dominance of the GNI resource. First, it is perceived as having a distorting effect on political decisions in the member states about the EU budget.

The High Level Group on Own Resources (HLGOR), which was created in 2014 to propose reforms to the own resources system, described this issue as follows:

“Member states that are net contributors to the EU budget first look at their contribution on the revenue side — and try to minimise this amount as much as possible. The costs are immediately visible whereas the consequent benefits are often indirect and more dispersed.”²

A related observation is that the dominance of GNI contributions encourages thinking about the EU budget in terms of net balances. Perceiving benefits from the EU budget as being reflected by net balances would be appropriate if the budget consisted purely of transfers between member states, essentially leading to a zero-sum game.

But EU spending on public goods that benefit all member states and their citizens, and that creates added value that benefits the EU economy as a whole, cannot be looked at through such a lens. Therefore, to the extent that European public goods are financed through the EU budget, net balances are a misleading measure of national benefits from this budget³.

The second critique is that, in the same way customs duties were naturally allocated to the common budget in a customs union, the financing of the EU through GNI contributions ignores potential resources that, because of their genuinely European character, should be regarded as an efficient source of funding of the EU budget.

This applies, first, to tax bases that have by nature a pan-European character and cannot be mobilised by individual member states, and second to mobile tax bases that can only be taxed if member states coordinate their policies.

Potential candidates for such new own resources are for example levies on the carbon content of imports, which should not accrue to the country where the port of entry is located and whose ultimate destination inside the

single market is hard to trace; or taxes on profits of multinational companies if they evade taxation through profit shifting unless states coordinate their policies.

Naturally, the existence of such resources is not by itself a justification for spending more at EU level, and the corresponding revenue could simply be redistributed to the member states proportional to their GNI. It would however be more efficient to allocate these resources directly to the financing of the EU budget.

Criteria for introducing new resources

Irrespective of the pros and cons of GNI-based resources, it is fruitful to discuss options for introducing new own resources. Most likely, these resources would complement but certainly not entirely replace GNI-based contributions.

Taking the volume of spending in the EU budget as given, introducing new own resources would imply a reshuffling of the burden of the financing of the EU across member states. GNI-based contributions would presumably keep the function of balancing the budget at the margin, but their weight would be mechanically reduced.

In the case of a new own resource based on existing national tax instruments, the impact would essentially be distributive, to the extent that the incidence across member states of the new resource differs from the distribution of GNI. There would be no first-order efficiency gain to speak of.

But if the tax base was genuinely EU-wide, or if it is sufficiently mobile to avoid taxation by individual member states, the introduction of the new own resource would lead to lower taxation on other factors.

It would therefore result in a change in the structure of taxation and a reduction of existing tax rates, potentially yielding efficiency gains.

The decision to introduce new resources is ultimately political and the discussion about it is likely to involve strong distributional aspects. However, it is important that this decision be based on objective criteria. We suggest the following:

- Whether the origin of the revenue can be assigned to a particular member state;
- Whether the corresponding revenue can be raised in isolation or requires pan-European tax coordination;
- Whether the introduction of the new resource can help reduce tax distortions in the EU;
- Whether the resource is related to EU policies.

More than one of these criteria should be satisfied. For example, revenues that can be assigned to a member state and can be raised without coordination do not add anything to the public finance equation and therefore are not suited in any particular way to serve as an own resource, even if they correspond to the EU's political priorities.

The focus should be on where a strong case can be made for using tax instruments as a basis for own resources. This applies in particular to revenues that are European by nature because they can only be levied via a common decision, or cannot be ascribed to any particular member state in a meaningful way.

The introduction of such resources would both broaden the tax base, potentially reducing distortions, and increase the proportion of the EU budget that is financed from 'truly' European revenue sources.

Customs duties, for instance, were particularly suited as an EU own resource because it would not be appropriate to allocate the revenue to the country where the port of entry for the imported goods is located.

In addition, customs duties are related to trade policy, which is a competence of the EU. At its meeting on 17-21 July 2020, the European Council decided that the EU should work towards the introduction of new own resources.

The council conclusions explicitly mention a charge on non-recycled plastic, a carbon border adjustment mechanism, a digital tax, a reformed emissions trading system (ETS), and finally a financial transaction tax.

The timing of these potential new own resources is important. The plastics charge is agreed to start already in 2021, the border adjustment mechanism and the digital levy are to be introduced in 2023. There is no specified timetable for the ETS.

The financial transaction tax is mentioned as a potential project for the next MFF, which implies that it will play no role in the current reform of the own resources system. The revenues are to be used, among other things, to service the debt incurred for the EU Recovery Fund⁴.

In the following, we focus primarily on the suitability of two types of potential new resources: carbon-related levies (through the auctioning of emission allowances within the framework of the ETS, and through a potential carbon border adjustment mechanism), and taxes on the profits or the revenues from the cross-border provision of digital services.

We also discuss a number of other potential bases for own resources, albeit with less detail: the financial transaction tax, the tax on non-recycled plastic and the corporate income tax.

Some of the candidates for new own resources, such as a corporate income tax or financial transaction tax, have a presumably permanent character, while others have a temporary character, either because their tax base is set to shrink (not least because that is the very purpose of the taxation), as is the case for carbon levies, or because they are temporary fixes (as for the digital services tax, if international discussions on new cooperative arrangements for corporate income taxation lead to a comprehensive redefinition of taxing rights).

Clearly, the EU budget should be financed by permanent resources, but as a consequence of recent decisions, temporary revenue is needed to service and pay down the debt incurred in the context of the NGEU Fund. Given this, a revenue source which is available for a limited amount of time may be appropriate.

Of course, the EU will need own resources for other purposes, but using temporary resources for a transition period would buy time to develop other options.

Revenues from the emissions trading system

The EU has ambitious climate policy objectives. All but one of the member states have endorsed the goal of reaching EU-wide climate neutrality in 2050, but this political commitment has not yet been translated into an operational strategy⁵. Current climate policy is based on a framework that includes EU-wide targets and policy objectives for the period from 2021 to 2030.

This framework, which also represents the EU contribution to the Paris Agreement, notably entails a 40 percent greenhouse gas emissions reduction target by 2030 (compared to 1990), as well as renewable energy and energy

efficiency targets. President von der Leyen has committed to revise this framework, raising the emissions reduction target to 50-55 percent by 2030.

The main EU policy tool to translate these objectives into practice is the ETS, which covers emissions from the power sector, industry and intra-EU flights (ie. about 45 percent of total EU emissions). Non-ETS sectors (ie. transport, buildings and agriculture) are dealt by the Effort Sharing Regulation (ESR, Regulation (EU) 2018/842), which requires member states to pay fines if they fail to reach them.

In the medium term it would be desirable to expand further the scope of the ETS and to bring in more sectors. The same carbon price would then apply to all participating sectors, which would ensure consistency and efficiency. Ultimately, all sectors could be brought in.

It would also be desirable to give up national objectives, because they are incompatible with the EU-wide, cost-efficient reduction of emissions. The proper basis for sharing efforts between member states should be the marginal cost of emission reductions.

If a member state can exceed its national objective at cost that is lower than the cost for another member state to reach its goal, the common interest dictates that the first country should make the effort, even if it is not in accordance with preassigned objectives.

Consistent with this approach, ETS revenues should accrue to the EU, rather than to the member state where the emissions take place.

Allocation of revenues from the ETS to a particular member state is perfectly feasible: the location of emissions is precisely defined. But there is no reason why proceeds from the sale of emissions permits should accrue to the country where emissions are taking place. The emitting industry does not impose any particular damage on that country in terms of its carbon dioxide emissions.

Rather, taking the EU cap on emissions as a given, an additional emission in a particular member state should be regarded as a negative externality on the other member states (because it forces them to reduce their own emissions, or accept that their common objective will be missed)⁶.

The basic reason why ETS revenues should be allocated to the EU is that the corresponding policy is fundamentally a common policy. Emission reduction objectives are set at EU level in view of common Nationally Determined Contributions put forward within the framework of the United Nations Framework Convention on Climate Change conferences.

Whoever auctions off an allowance, wherever the corresponding emission takes place in the EU, and wherever the resulting good or service is consumed, the impact on common policy outcomes is the same. In this respect, proceeds from the sale of ETS allowances are not that different from customs duties.

Moreover, the bulk of emission allowances destined for auction are allocated to member states on the basis of historical emissions (and a remainder is allocated on distributional grounds to the least wealthy member states). Revisions are infrequent.

Emission allowances therefore have the character of a rent that is granted to member states. The higher the ETS carbon price, the more member states benefit from it. In this set-up, a decision by the EU to increase the pace of

decarbonisation and to reduce the overall volume of emissions may paradoxically result in a higher rent, especially for carbon-intensive countries.

These are strong reasons why, on pure economic grounds, proceeds from the auctioning of emission permits should be allocated to the EU and not to any particular member state. Obviously, a shift from national resources to an EU resource would raise significant transitional and distributional difficulties.

Like any 'Pigouvian' resource, ETS revenues will fall as the EU moves towards reaching its CO₂ neutrality objective. But for a time of transition, which is likely to last until 2050 at least, the ETS will continue to generate revenue (Box 1).

Moreover, proceeds from the auctioning of permits are likely to exceed the 2019 level of €15 billion in the years to come. This is because although global emissions volumes are set to decline, three factors will gradually contribute to increasing revenues:

- The increase in the carbon price;
- The substitution of free allowances by auctioned allowances;
- The broadening of the ETS scope to sectors currently not covered.

Simulations indicate that total ETS revenues in the 30 years to 2050 would amount to about €300 billion in an exceedingly conservative scenario (Box 1, scenario 1: no price rise, no reduction in the share of free allowances, no widening of the scope of the ETS).

But the amount could approach €800 billion in a more realistic scenario (Box 1, scenario 3: price rise in line with revised carbon neutrality objective, reduction in the share of free allowances), or even €1.5 trillion, or €50 billion per year on average in a maximalist scenario (Box 1, scenario 5), in which most free allowances would be eliminated and most sectors would be covered. We are therefore speaking of a potentially significant resource.

Taxing carbon at the border

One of the challenges for carbon pricing policy in the EU is that it may generate leakage effects and undermine the competitiveness of producers of carbon-intensive goods. If the carbon price increases in the EU but not in other countries, European companies will lose domestic and foreign market shares and production could simply be relocated to other countries. This would be counterproductive in terms of both climate protection and economic development in Europe.

A carbon border adjustment (CBA) mechanism has been proposed as a way of preventing this leakage effect. In principle, a CBA could be applied symmetrically to imports and exports. Its logic is similar to that of border adjustment in the case of indirect taxes such as value added tax and excise taxes.

Goods imported to the EU would pay a charge which reflects their 'carbon content' – that is the CO₂ emissions generated by their production (the charge being calculated so that the overall price on these CO₂ emissions is the same as the EU carbon price).

Symmetrically, goods exported to other countries would get a rebate reflecting the difference between the carbon price paid for their production in Europe and the carbon price in the destination market. A symmetric CBA would level the playing field between producers facing different carbon prices in the countries where their production is located⁷.

Box 1. Potential future revenues from ETS auctions

The ETS is the world's largest carbon market. Being a cap-and-trade system, it sets a maximum level of emissions, a cap, and distributes emissions permits to firms that produce emissions. Each year's emission allowances are either given out for free (approximately 40 percent) or auctioned. The free allowances are meant to reduce the risk of carbon leakage (transfer of production to countries with laxer emission constraints) and to support new entrants. Currently, the cap is reduced yearly by approximately 48 million tonnes in accordance with the EU decarbonisation objective.

In addition, since 2019, the Market Stability Reserve (MSR) has operated, with the objective of reducing the surplus of allowances that are on the market as a consequence of past recessions, during which demand for emissions was below the cap. In 2020, the MSR reduced the total amount of allowances by a little below 400 million tonnes. The current recession is bound to increase further the surplus of allowances in circulation given the significant drop in industrial production, potentially justifying additional allowance- withdrawal measures. In order to get a sense of the magnitude of the potential revenues from the ETS until 2050, we ran a couple back-of-the-envelope computations. In line with preliminary data on the decline in industrial activity due to the pandemic, we estimate that 50 percent of the allowances distributed or auctioned in 2020 will not be used, further increasing the total number of allowances in circulation. This implies that the MSR will reduce the number of new allowances by nearly 600 million in 2021.

In all scenarios, we assume that the EU will reach its 2050 carbon neutrality objective.

This means that the pace at which the ETS cap is reduced must increase compared to what is currently planned. Scenarios 1 through 4 assume the current scope of the ETS is maintained, with a linear reduction of allowances to achieve the 2050 objective of zero net carbon emissions.

In scenarios 1 through 3, the share of ETS allowances auctioned remains unchanged at approximately 60

percent. Essentially, this means that the EU does not pair the ETS efforts with a border adjustment mechanism meant to reduce the risk of carbon leakage.

Scenario 1 considers the very conservative assumption that the price of carbon will remain more or less constant (at around €25/tCO₂) despite the decrease in supply. It can therefore be viewed as a lower bound for the generated revenue over the next decades. Scenario 2 takes the intermediary price trajectory put forth in the Commission's 2016 EU Reference Scenario (€25/tCO₂ in 2030, €50 in 2040 and €85 in 2050). Note that the predicted price for 2030 has already been attained.

In order to be in line with our assumption that the EU will achieve carbon neutrality in 2050, we consider a third price trajectory, which is put forth in the 'decarbonisation' scenario from the background material to the 2050 Long-Term Climate Strategy. In this scenario, the price reaches €50/tCO₂ in 2030, €100/tCO₂ in 2040 and €200/tCO₂ in 2050.

While scenario 3 maintains the assumption that only 57 percent of allowances are auctioned, scenario 4 assumes that the share of auctioned allowances reaches 80 percent. This decrease in the provision of free allowances to sectors heavily exposed to international competition could result from intensified international cooperation in the reduction of global emissions, or from the creation of a border adjustment mechanism aimed at reducing the risk of carbon leakage.

Finally, in scenario 5, the overall scope of the ETS is broadened in order to include 50 percent of agricultural and transportation sectors. Again, we consider a linear decrease in the amount of emissions. For the sake of simplicity, we assume for scenarios 4 and 5 that the corresponding changes in the functioning and the scope of the ETS take place already in 2021.

Estimates for the revenue generated in 2021-2050 range from €329 billion to €1.5 trillion, depending on the scope and the projected price of carbon.

Table 1. ETS revenue scenarios

	Share of auctioned allowances	Scope of ETS	CO ₂ price trajectory	Generated revenue (€ billions, 2021-2050)
Scenario 1		Current scope	Constant price (€25/tCO ₂)	329
Scenario 2	57%		2016 EU Reference Scenario	442
Scenario 3				789
Scenario 4		Expansion of the ETS to cover 50% of the agricultural and the transport sectors	'Decarbonisation' price scenario	1120
Scenario 5	80%			1500

Source: Bruegel.

Despite the Market Stability Reserve, ETS revenues would potentially remain volatile. The EU could possibly introduce a floor price to stabilise the carbon price, thereby providing a cleaner signal to economic agents and contributing to a steadier income stream.

If a CBA was indeed symmetric, it would by itself generate little revenue – in fact its revenue could even be negative if the carbon content of exported products was higher than that of imports⁸.

A CBA applied to both imports and exports would also imply that the EU would not be able to effectively steer the carbon content of domestic economic activity. This is because carbon pricing with full and symmetric border adjustment implies that the carbon price effectively applies to domestic consumption but not domestic production.

Production in the EU could remain highly carbon-intensive as long as the produced goods are exported. Whether this would be perceived as compatible with climate protection objectives is doubtful.

In fact, the EU intends to introduce a CBA which is restricted to imposing a levy on carbon-intensive imports (European Commission, 2020). This has consequences for leakage and competitiveness issues.

The competitive disadvantages of EU production relative to production outside the EU would be neutralised for sales in EU markets, but not in markets outside the EU. Nevertheless, a properly designed CBA restricted to imports could make a significant contribution to reducing carbon leakage (Box 2).

Digital taxation

The European Council conclusions of July 2020 mentioned the possibility of an own resource based on a digital levy. In recent years the implications of digitisation for taxation have attracted great attention in the international tax policy debate. The view is widespread that current principles for allocating taxing rights are not suitable for companies with digital business models, and that as a consequence these companies do not pay taxes where they should and as they should.

Box 2. The design of a carbon border adjustment mechanism

Setting up CBA raises a number of questions about the design of the import levy. Policymakers need to decide which goods are covered, which emissions will be taken into account, how the CBA levy is calculated, whether carbon pricing in the countries of origin should be recognised and, last but not least, how it can be designed to comply with WTO rules (Horn and Sapir, 2019; Droege and Fischer, 2020).

A pragmatic approach would be to restrict the CBA to the sectors with the greatest leakage risk. In a pilot phase it could start, for instance, with only steel, chemicals and cement. Taking into account carbon prices and the carbon content of production in origin countries would be appropriate, given the objective of preventing leakage, but raises technical difficulties, unless these countries themselves rely on an ETS or an explicit carbon tax.

It would also be necessary to avoid conflicts with WTO principles. There are many ways to achieve this, which differ in terms of their administrative complexity and the incentives they create for foreign producers and governments to reduce CO₂ emissions⁹. At a more general level, WTO compatibility requires that a CBA does not discriminate against foreign producers relative to domestic producers. This suggests that free emissions allowances for domestic companies in sectors with a high risk of carbon leakage would have to be phased out if a CBA is introduced.

Some commentators hope that a CBA would raise significant revenue, and that taxes would be paid by foreign producers rather than European consumers. This is in part an illusion. Revenues will depend on a number of factors (the coverage of the CBA, the extent to which carbon pricing in the origin countries is taken into account, the way in which the carbon content of products is calculated, how carbon intensity of foreign production develops over time and of course how the EU carbon price develops). The range of possible outcomes in terms of revenue is broad. Krenek *et al* (2019), who used a simulation model and considered CBA

scenarios with broad coverage, found that, for 2023, revenue raised could be between €36 billion and €83 billion¹⁰. These are very large numbers. For instance, in 2018, customs duties on all products imported to the EU amounted to €25 billion. Whether the trading partners would accept new import duties of this magnitude is questionable. A realistic CBA system would probably collect significantly less revenue¹¹.

Finally, the fact that revenues from a CBA would be paid by importers does not mean that the burden of taxation would fall on foreign producers exclusively. Domestic consumers would face higher prices on imported final goods and, indirectly, on domestic final goods with a high content of carbon-rich imports. These higher prices would be the channel through which information on the carbon content of imported goods would reach the European consumer, and because of which consumers would tilt their consumption baskets in favour of less carbon-intensive domestic goods.

Overall, we do not primarily regard a carbon border adjustment mechanism as a direct source of revenue, but rather as a device intended to limit competitive distortions in a world in which countries do not move at the same speed towards decarbonisation. The primary objective in fighting global emissions is that the largest possible number of countries should strive to decarbonise their economies, in which case the CBA would raise no revenue whatsoever.

A CBA would however have major indirect revenue effects, through its impact on the ETS. From 2013 to 2020, only 46 percent of ETS allowances were sold or auctioned; the rest were allocated for free¹². For 2021 to 2030, the goal is to increase the share of auctioned allowances to 57 percent, still far from complete coverage.

Free allocations are essentially destined for carbon-intensive sectors facing international competition. In the presence of a CBA, they could be further reduced or possibly even abolished. As a result more revenue would be raised from the ETS.

There is also growing evidence suggesting that existing international tax rules allow multinational companies to avoid taxes (Beer *et al*, 2020; Tørsløv *et al*, 2020; Fuest *et al*, 2020). This gives them a competitive advantage over national firms and brings into question the fairness of the overall tax system.

This applies in particular to corporate income taxation. Companies pay corporate income tax in the countries where they are legally resident or have a physical presence. Digital business models allow firms to operate in foreign countries without a physical presence and without legal residence.

Current rules about the international distribution of taxing rights do not foresee that firms pay corporate income taxes in countries where they sell their products. Income taxes are paid primarily in the countries in which corporations reside and where they develop and produce their products and services.

According to these rules, it is appropriate that United States digital companies that develop and produce their services in the US do not pay corporate income taxes in Europe. In the same way, European automotive companies that export cars to the US should pay corporate income taxes primarily in Europe, not in the US.

The matter is being discussed at global and EU levels. The tax challenges of the digital economy are being addressed within the framework of the Organisation for Economic Co-operation and Development's base erosion and profit shifting (BEPS) action programme.

The aim is to agree on new principles for the allocation of taxing rights: a country in which digital companies operate without significant physical presence (a market jurisdiction) would be granted taxing rights on the basis of a formula determining that a share of the profits of multinational firms are to be taxed in the market countries where the company sells its products.

Digital companies would not be subject to specific taxation, but the new international architecture would be designed in such a way that part of the corresponding tax base would be reallocated to the jurisdictions where users of digital services are located (OECD Pillar I proposal).

At EU level, the matter is being addressed within the framework of long-standing discussions on the Common Consolidated Corporate Tax Base (CCCTB). The European Commission tabled in 2011, and relaunched in 2016, a proposal for a Common Consolidated Corporate Tax Base that would redefine the tax base for multinational companies operating in the EU.

In 2018, the Commission proposed a reform of international corporate tax rules, which would introduce the concept of 'digital presence', so that companies with digital business models would be liable to corporate income taxation even in countries where they operate without a physical presence.

But since such a reform requires international coordination and would only be feasible in the medium term, the European Commission also proposed as an interim solution the introduction of a tax on the revenue from the provision of certain digital services (European Commission, 2018b).

This digital services tax would define a set of services provided through the internet and would require companies above a certain size to pay a 3 percent tax on revenues from delivering these services.

In the Commission proposal there would be no deductibility of costs, so that this is a tax on turnover, not on corporate income. A possible alternative also considered would be a tax on net income (after deducting a series of costs incurred in the market jurisdiction). Some EU countries have already introduced, or have announced that they intend to introduce, digital services taxes.

Given the complexity of the issue and remaining differences of views, discussions at OECD level will certainly require additional time before an agreement can be reached. In the meantime, the EU could still move ahead with its digital services tax.

To provide a significant and lasting contribution to EU own resources, such a tax would however have to overcome a number of challenges:

- The aim of discussions held at the OECD is to reach agreement on a structural response that would redefine the allocation of taxing rights to national jurisdictions.

Many EU member states are adamant that a structural solution of this sort should be put in place and the EU itself has been consistently supportive. But such a solution would allocate revenues to individual member states and deprive the EU of a new own resource;

- The Commission proposal for a Common Consolidated Corporate Tax Base that would redefine the tax base for multinational companies operating in the EU does not envision allocating taxing rights to the EU, but rather to redefine them for member states;
- For these reasons, a digital services tax could only serve as a temporary fix for an interim period. Moreover, its unilateral introduction would be contentious, especially with the US, as it would be seen (and actually is seen) as targeting US digital giants. The US government has already announced that it would respond with tariffs on EU exports to the US;

- Finally, revenues would be limited. The Commission estimated in 2018 that a 3 percent tax on the gross turnover of companies with total revenues above €750 million and EU revenues above €50 million would yield €5 billion annually¹³.

The actual resource flow could be significantly lower, if the tax is levied on net turnover or if other amendments are introduced to accommodate US concerns. In its factsheet of May 2020, the Commission actually lowered its estimate to €1.3 billion annually¹⁴.

Given this, while we see the potential role of the digital services tax initiative in the context of the complex international discussions on a new allocation of taxing rights, and while in view of the single market, we certainly regard a European digital services tax as preferable to a collection of national digital services taxes, we doubt it could provide a structural response to the tax optimisation problem. We think that for the reform of the EU own resources system, the focus should be on other instruments.

Other resources

Several other revenue sources have been mentioned as potential candidates for new own resources. In addition to the ETS, a carbon border adjustment mechanism and a digital levy, the July European Council conclusions mentioned the possibility of a financial transactions tax and confirmed a charge on non-recycled plastic¹⁵.

Irrespective of the ongoing discussion on the potential merits and drawbacks of a financial transactions tax from the point of views of efficiency and fairness, the following should be borne in mind when assessing the suitability of the FTT as an EU own resources:

- The European Council explicitly mentions the FTT as a potential resource not for the next MFF but for the subsequent one;
- Proposals for an FTT are supported only by a minority of member states, at least at this stage. An enhanced cooperation procedure was initiated in 2013 by 11 member states. The latest proposal, on the initiative of Germany, is supported by 10 member states in total.

A variable-geometry approach would not be suitable for financing the EU budget, unless countries that do not introduce the FTT make other contributions to the EU budget as compensation. In addition to being complex, this solution would require the negotiation of an ad-hoc agreement;

- According to the Scientific Council of the German Ministry of Finance, expected revenue would be around €3.5 billion annually (Wissenschaftlicher Beirat beim BMF, 2020). This would be a comparatively small contribution to the financing of the recovery plan.

Estimates of the revenue from an FTT are furthermore highly uncertain, since market structure and the volume of transactions can evolve significantly in response to taxation;

- One could argue that the FTT would be particularly suited as a basis for own resources because financial transactions related to activities in the EU as a whole are concentrated in leading financial hubs including Luxembourg, Paris and Frankfurt. However, one should bear in mind in this context that regional specialization is a general feature of the European internal market. This fact alone is not sufficient as an argument that revenues should not be ascribed to the country where they are collected.

However, if EU member states were to introduce an FTT at European level for use as an EU own resource, it would certainly be preferable to a multitude of national and uncoordinated FTTs, primarily because national FTTs may distort financial transactions within the EU.

The tax on non-recycled plastic, meanwhile, will be payable as of the start of 2021. In the light of the criteria discussed earlier, this tax is not particularly suitable as an own resource. To start with, the revenue can easily be (and actually is) ascribed to the member state where it is collected. Moreover, the main purpose of the tax is to reduce plastic litter, which is primarily a local environmental issue.

The European Commission fact sheet of May also mentions a levy *“on operations of companies that draw huge benefits from the EU single market”* and mentions revenue of €10 billion annually. Although this would be significant, we regard this levy as a rather uncertain temporary substitute for the common consolidated taxation of corporate profits, and doubt it could be a stable resource for the EU finances.

Finally, the introduction of a Common Consolidated Corporate Tax Base is primarily a project to reduce compliance costs for businesses operating across borders. Currently they have to deal with 27 different national tax systems, which is a burden in particular for small and medium-sized firms.

In principle these benefits are independent of the use of this tax as a base for an own resource. In some ways, ascribing the revenue to the member states would be easier under a CCCTB than it is now, because the CCCTB would use formula apportionment rather than separate accounting, which is arguably more vulnerable to tax planning.

In any case, using corporate taxes as a basis for own resources would require agreement on a common tax base. Past attempts to achieve this have not been successful; progress will take time.

Moreover, in the area of corporate taxation, an additional and more fundamental consideration is that the flexibility to react to current developments, such as changes in international tax competition or economic crises and booms, is important. The question is whether this flexibility is compatible with the principle of unanimity in EU-level decision-making in taxation.

Given this, corporate taxes could be a future candidate for own resources, but only after reforming the institutional framework and creating more room for decision-making by majority.

An ETS-based own resource: implementation issues

The conclusion from the previous analysis is that revenue from the ETS is not the only, but by far the most promising candidate for new EU own resource and for financing the recovery plan. The potential introduction of an ETS-based own resource however raises two related issues:

- How the potential revenue stream would compare to the debt repayment stream resulting from the legacy of the Next Generation EU recovery plan;
- How the transition from a member-state resource to an EU own resource should be managed.

On the basis of the July 2020 European Council conclusions, the EU is expected to borrow up to €390 billion (in 2018 prices) from 2021 to 2026 and to pay down the corresponding debt by 2058 at the latest.

Given that, at the time of writing, the euro yield curve for AAA-rated bond is entirely in negative territory, interest costs can be ignored in a first approximation at least.

The simulation presented earlier indicates that expected revenues from ETS auctions from 2021 to 2050 period would represent an amount commensurate, and possibly in significant excess of the future debt repayments. In particular, the criteria for introducing new resources, which we regard as realistic, would lead to a cumulated €789 billion revenue stream over the next 30 years.

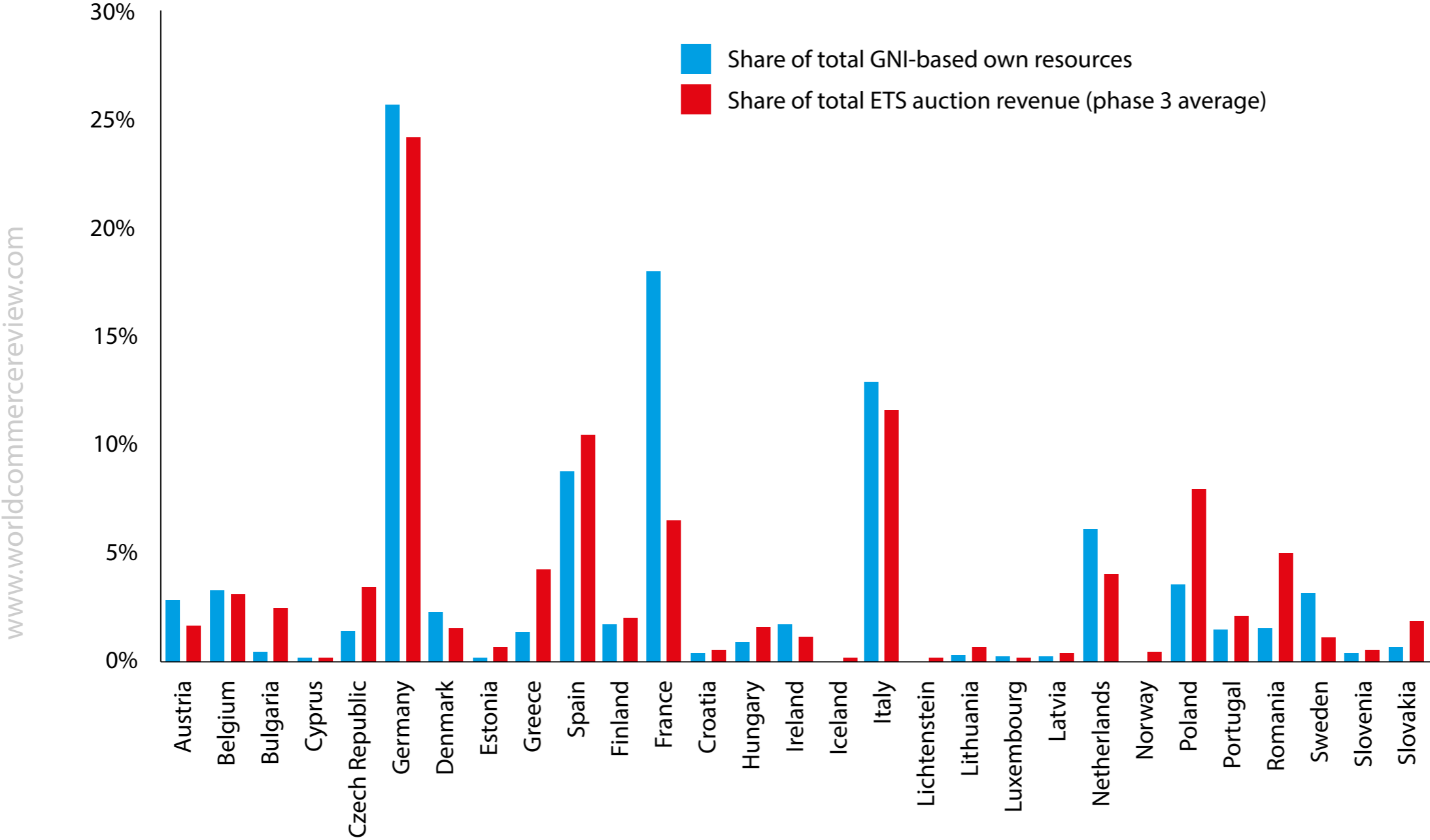
In 2018 the European Commission proposed to use 20 percent of current ETS revenues as an EU own resource. Under the current practice of allocating more than 40 percent of the ETS allowances for free, the revenue raised would be small – the European Commission (2018a) estimated that between €1.2 billion and €3 billion annually would be raised for the EU budget, which is very little.

Even if the share of free allocations was reduced significantly, the effect on the overall composition of own resources would be small. But these are conservative estimates.

Moreover, as we have explained, there are no convincing reasons why ETS allowance ownership and, as a consequence, auction revenues should be allocated to member states as they currently are. This suggests that the greatest part of the revenues could be used to fund the EU budget.

Transforming auction revenues into an EU resource and reducing GNI contributions accordingly would however entail significant reallocation from carbon-intensive to less carbon-intensive member states (Figure 2).

Figure 2. Comparative distribution of GNI contributions and ETS revenues



Source: Bruegel, based on European Commission.

There are sound justifications for such a reallocation: if the distribution of emission allowances across member states is kept constant, the rise in the ETS carbon price would result in major gains for some member states: for example, under the realistic scenario, ETS auction revenues for 2030 would amount to 0.51 percent of GNI for Bulgaria and 0.35 percent in Slovakia.

Anyhow, redistributing existing rights would be opposed by some member states, so at minimum, a transition period would be necessary. Offsetting excessive short-term redistributive effects could furthermore require side payments, possibly through rebates or other compensation measures. But we see no reason why the EU should depart from the principle that revenue from ETS auctions has the character of a genuine own resource.

A way to avoid an abrupt shift in revenue from member states to the EU would be to transfer to the EU the whole proceeds from the auctioning of emission allowances, and to redirect annually to member states notional auctioned emissions revenues, computed as their share of 2019 auctioned emissions multiplied by the annual EU linear reduction factor and corrected for the impact of the MSR.

These notional auctions would be valued at a price capped at the level of the 2019 ETS carbon price. This would preserve countries' initial revenues while making room for a gradual increase in the revenue accruing to the EU.

Such a formula would amount to a recognition that countries are entitled to a grandfathering right and should not be deprived of it. In addition, side payments from and to member states could be introduced to correct for any undesirable distributional effects from the swapping of the GNI-based resource for ETS revenue.

In practical terms therefore, proceeds from ETS auctions would become a new EU resource. Compensatory mechanisms would be introduced to ensure a gradual transition and address distributional concerns.

As EU budget expenditures would remain unchanged while GNI contributions would be swapped for ETS revenues, our proposal would be budgetarily neutral. Currently, member states must devote at least 50 percent of ETS revenues to energy and climate-related objectives¹⁶.

This commitment could easily be translated into pluriannual targets for specific climate-related spending, which would be financed by member states out of the diminution of the GNI contributions.

Simulations suggest that in a realistic scenario, ETS revenues could be sufficient to repay the Next Generation EU debt, finance the gradual phasing-out of national ETS auction revenues, and contribute to the financing of the EU budgetary expenditures, or to the financing of offsetting transfers to certain member states (Box 3 and Figure 3).

In a scenario in which 80 percent of allowances would be auctioned off and half of the transport and agriculture sectors would be covered by the ETS, the net revenue to the EU would be more significant and would, at least temporarily, result in a change in the structure of the financing of the EU budget (Figure 4).

We do not consider a case in which the EU would miss its decarbonisation objectives and would continue auctioning off allowances beyond 2050, but in this case, obviously, corresponding resources would have a more lasting character.

Conclusions

At its July 2020 meeting, the European Council took the unprecedented decision to launch a new and ambitious recovery programme. This decision, taken in response to what the heads of state and government rightly regarded as a major threat to the future of the EU, has the character of a game-changer.

Box 3. A proposal for phasing out national ETS revenues

Over the next decades and especially with the prospect of rapidly increasing prices, the ETS has the potential to generate large revenues. The reallocation of these revenues from member states to the EU's own resources would have to take place progressively. We argue that this 'phasing-out' could be engineered simply by capping the amount that member states receive for each auctioned allowance at the current carbon price of €25. All additional revenue, resulting from increases in the number of auctioned allowances compared to 2018, or from the increase of prices above €25, would constitute an EU own resource.

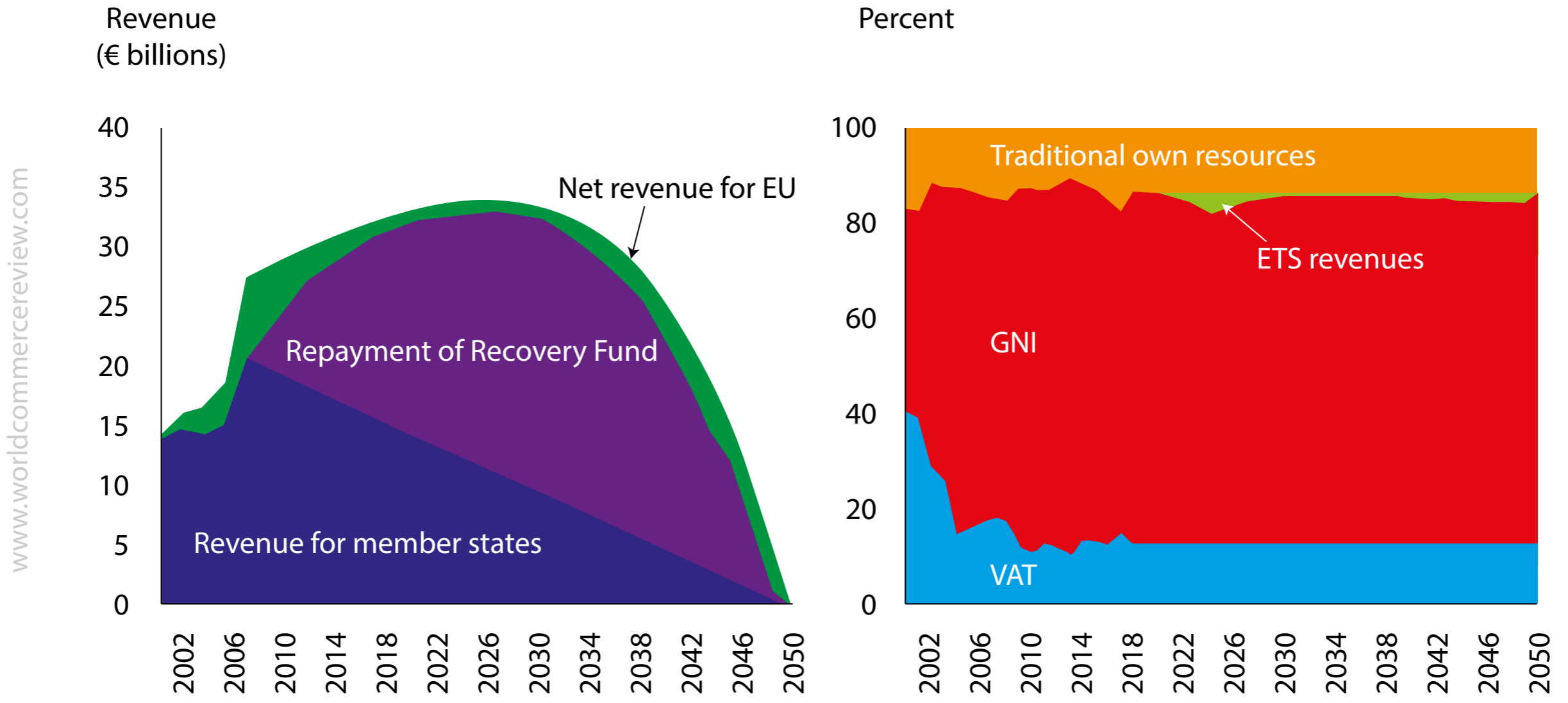
Given the overall trend of decreasing allowances (in order to achieve the 2050 carbon neutrality objectives), this would amount to a reduction in the revenues received by member states from the ETS. The reduction in national revenues would be compensated for by cutting the amount of GNI-based own contributions to the EU budget. Possibly, direct offsetting transfers would be added to limit the distributional effects arising from the member states' unequal revenues from ETS auctions.

Note that the initial increase in revenues for member states results from the expected intervention of the MSR in order to reduce the amount of allowances in circulation. As a result, the number of auctioned allowances will likely increase in the next few years, despite a tightening of the overall cap.

In addition, the excess revenue would enable the complete repayment of the €390 billion that the EU is expected to borrow between 2021 and 2026. The total €789 billion generated by the ETS under scenario 3 could be used as follows:

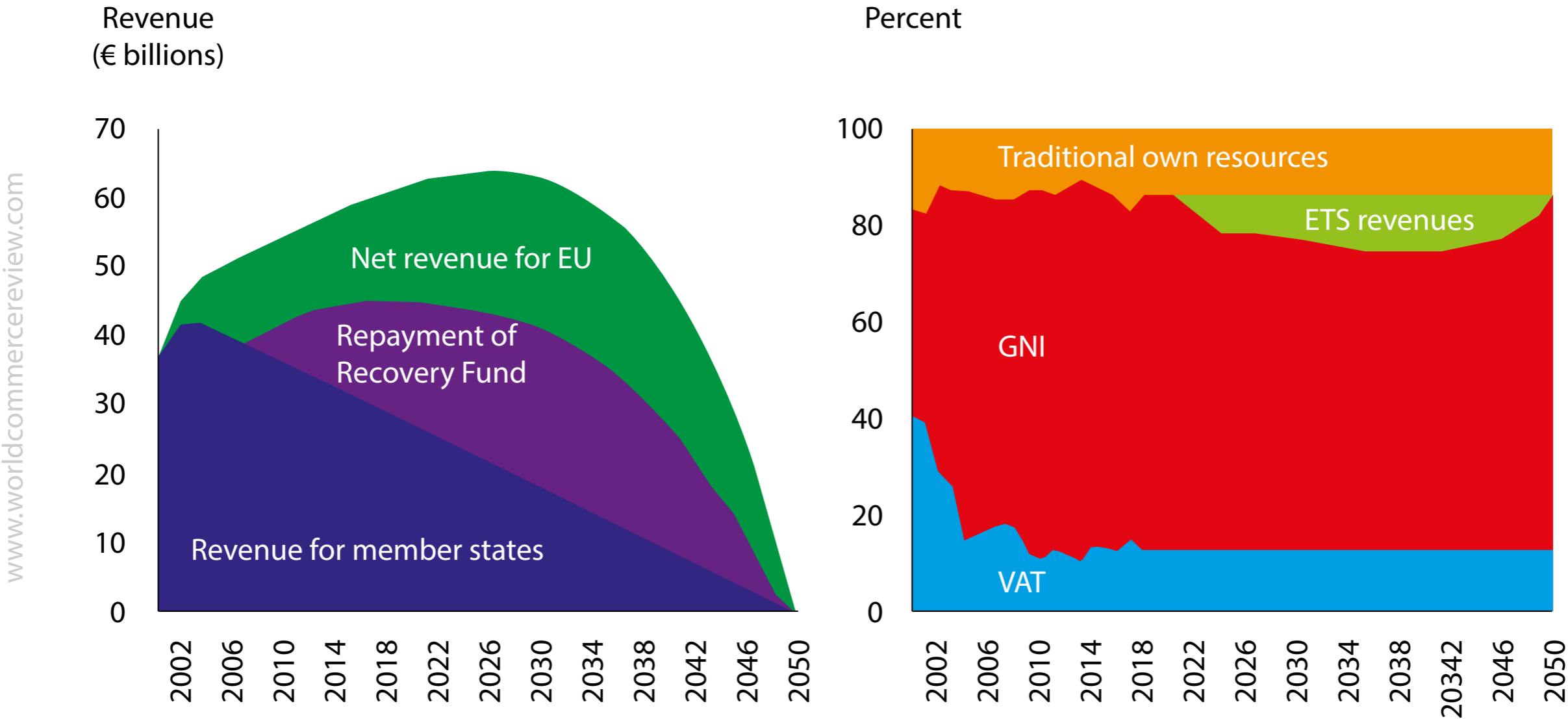
- €329 billion would accrue to member states as grandfather rights;
- €390 billion would be allocated to the repayment of the Next Generation EU debt;
- A remaining €70 billion would finance EU budgetary expenditures, enabling a corresponding reduction in member states' GNI-based contributions, or could be used to offset transfers to certain member states.

Figure 3. Possible allocation of ETS revenues and structure of EU resources (net of debt repayment) under scenario 3



Source: Bruegel.

Figure 4. Possible allocation of ETS revenues and structure of EU resources (net of debt repayment) under scenario 5



Source: Bruegel.

Pre-existing discussions about the financing of the EU budget must be reassessed in the light of this bold move. This applies in particular to the old discussion on EU own resources.

Our conclusion, after having examined the potential candidates for new EU own resources, is that only a swapping of GNI contributions for ETS revenues would match the spirit and magnitude of the decision taken in July.

Other options may have merits and can be considered, but only the revenue from the ETS has both the economic characteristics of a genuine EU own resource and the potential to deliver quantitatively meaningful sums. Allocating it to the financing of the budget would be a strong signal of the EU commitment to climate neutrality.

Moreover, maintaining the status quo while accelerating the pace of decarbonisation would give rise to unjustifiable rents. The time to decide is now.

The distributional issues raised by our solution are significant, but solvable. We have offered one solution, but other options are possible. Under realistic assumptions, ETS revenues in the EU are set to increase significantly before they ultimately decline and dwindle.

The corresponding revenue stream will most likely be sufficient to pay back the Next Generation EU debt, finance grandfather rights, and leave sufficient amounts for offsetting transfers to member states unfavourably affected by the swap. The EU has solved harder problems. It can tackle this one. ■

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Endnotes

1. See the [Council decision of 21 April 1970](#) on the replacement of financial contributions from member states by the Communities' own resources.
2. HLGOR (2016), p.23. A different view is taken, for instance, by the German Advisory Board to the Federal Ministry of Finance (2016). This report emphasises the advantages of GNI contributions in terms of transparency and subsidiarity and argues that a significant part of current EU spending is indeed redistributive without creating much added value, so that net balances do have a certain relevance.
3. See our report to ministers Le Maire and Scholz on EU public goods (Fuest and Pisani-Ferry, 2019).
4. "The Union will over the coming years work towards reforming the own resources system and introduce new own resources. As a first step, a new own resource based on non-recycled plastic waste will be introduced and apply as of 1 January 2021. As a basis for additional own resources, the Commission will put forward in the first semester of 2021 proposals on a carbon border adjustment mechanism and on a digital levy, with a view to their introduction at the latest by 1 January 2023. In the same spirit, the Commission will put forward a proposal on a revised ETS scheme, possibly extending it to aviation and maritime. Finally, the Union will, in the course of the next MFF, work towards the introduction of other own resources, which may include a Financial Transaction Tax. The proceeds of the new own resources introduced after 2021 will be used for early repayment of NGEU borrowing." [Conclusions of the Special meeting of the European Council](#) (17, 18, 19, 20 and 21 July 2020).
5. [European Council Conclusions](#), December 2019.
6. Since 2013 the cap on emissions has been set at EU level rather than at the level of each member state.
7. See, for instance, Krenek et al (2019), p. 10.
8. There is an impact of CBA on ETS revenues that needs to be taken into account.
9. For a detailed discussion see Droege and Fischer (2020), p. 32-33.
10. See Krenek et al (2019), p. 19. These numbers refer to a scenario group which plausibly assumes that carbon intensity continues to decline over time.

11. The numbers in Krenek et al (2019) are based on the assumption of broad coverage and a carbon price of €69. It is more likely that, at least in the short to medium term, coverage will be more limited, and the EU carbon price may take more time before it reaches €69.

12. Source: European Environmental Agency, <https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1>

13. See https://ec.europa.eu/commission/presscorner/detail/en/MEMO_18_2141

14. See https://ec.europa.eu/info/sites/info/files/factsheet_3_en.pdf

15. Strictly speaking it is a charge member states would pay from their national budgets.

16. See EU Directive 2003/87/EC.

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The challenge of climate finance

Alexander Lehman and Mark Plant discuss low-carbon transition challenges and consider the EU agenda for coordinating with emerging markets

Addressing the challenge of financing the low-carbon transition will require substantial investment in the European Union and in emerging and developing economies.

Sustainable finance frameworks have proliferated in advanced and emerging markets but fragmentation of financial flows due to different classification systems and standards for green financial instruments is a real risk. Ensuring consistency should be a core agenda for the new International Platform on Sustainable Finance (IPSF).

Estimates suggest that about 70% of the infrastructure investment needed for the low-carbon transition will have to be deployed in the emerging markets and developing economies (EMDEs). Countries' updated nationally determined commitments, which are due ahead of the COP-26 UN climate summit in 2021, will underline the scale of this challenge.

They are bound to highlight considerable financing shortfalls as resources from national budgets and development funds will be scarce in the aftermath of the current recession.

The substantial investment needs compare with as yet scarce flows of private climate finance. Such flows are at present dominated by development institutions, and by private funds blended with such concessional financing, though the target of an annual \$100 billion transfer from the advanced to the developing countries for green investment is not yet met.

A new [paper](#) finds that private sources account for just over half of total climate finance mobilized globally, as national development banks and multilateral development banks dominate this area.

Of the total climate finance for projects in non-OECD countries only between one fifth and one third was derived from cross-border flows, and only 15% of the total global volume of climate finance flowed from OECD to non-OECD countries.

The implementation of the EU's 2018 sustainable finance agenda laid the basis for the financial sector to fund a greater share of the low-carbon transition and to reflect climate risks in prudential regulation. EU rule-making has already produced a number of results: a taxonomy of economic activities aligned with climate policy which will be in effect from 2021; a proposal for a green bond standard; and a regulation on investment funds that can be labelled as supporting the low-carbon transition.

If the new IPSF is to become a real forum for common rule-making, the EU will need to contend with concerns in other jurisdictions that the EU framework has reinforced the fragmentation of global climate finance

The revision of the non-financial reporting directive, which would align the EU with the recommendations of the G20 Task Force on Climate Related Disclosures (TCFD), remains under discussion.

What has perhaps been overlooked is that EU regulation will have profound implications for international flows of climate finance, on which developing countries in particular will depend to finance their investments in climate mitigation and adaptation.

EU investors could be an important source of private climate finance, as they already account for over 40% of the total portfolio debt outstanding in emerging and developing economies. But regulation now needs to be reviewed to facilitate cross-border flows of climate finance.

A potential forum for coordination

The new International Platform on Sustainable Finance, launched by the EU in 2019, could be one venue for coordination of climate finance regulation. In this forum, the EU partners with thirteen other economies, including key emerging markets such as China, India and Indonesia.

Potentially, and given that key jurisdictions are already represented, this group could play a central role in converging on common standards, for instance on disclosure or on the green labels used for financial instruments.

To date, the agenda for this group remains somewhat vague and has been limited to sharing and comparing national initiatives. Members of the group are likely to voice strong and disparate national interests, which will have to be reconciled:

- Among the five non-EU high-income countries in the group there will be interest in developing a local green

financial market place (eg. Singapore) and green banking standards (Switzerland); or in adopting strong environmental, social and governance (ESG) standards by portfolio investors (as promoted by Norway's large sovereign wealth fund).

- Two emerging markets participating in the Platform, China and Indonesia, are **assessed** as already having mature sustainable finance frameworks, including sustainability reporting requirements, green loan definitions, and a local green bond framework, similar to the provisions adopted in the EU.
- Several participants have developed independent green bond standards. China, based on its own taxonomy, accounts for more than two thirds of the green bonds issued by emerging markets in recent years. Indonesia and Chile have issued substantial amounts of sovereign green bonds in international markets in recent years.
- The group also includes smaller lower middle-income countries, including Kenya, Morocco and Senegal, where issuance of green financial products is developing within very limited local capital markets.

Despite its size — this group accounts for roughly half of global greenhouse gas emissions and about 45% of global GDP – the EU platform could become more representative. In early 2020, 25 countries were working on sustainable finance roadmaps, which may produce similar classification systems and standards for green capital market products.

These countries include key emerging markets such as Brazil, Nigeria, Mexico or Vietnam, who should be encouraged to join the EU platform. Crucially, the United Kingdom will now diverge from the EU in a separate regulatory regime, and should also be brought into the Platform.

The EU's role

From the EU's perspective, an overriding ambition within the IPSF should be that a high standard for sustainable finance is protected internationally. This should address the risk that 'greenwashing' by individual issuers, fund managers or jurisdictions – the misleading disclosure to prospective investors or conduct by the borrower that deviates from initial commitments – could undermine the entire sustainable finance asset class.

Asset managers, in both retail and professional markets, should be offered transparent green finance products of a consistent high standard. This could replicate the success of other EU capital market standards, such as for retail investment funds.

At the same time, the EU should ensure that financial products that fund EMDE projects based on local taxonomies remain eligible for green funds structured by EU asset managers or for loan refinancing, making it consistent with open international markets for climate finance.

For instance, an EU registered fund marketed as low-carbon or 'Paris-aligned' under the new EU benchmark regulation should be able to include green bonds from a wide range of developing country issuers.

This should require that such issuers comply with EU standards for borrower disclosure and verification by accredited firms of the non-financial aspects in bond documentation, such as the use of proceeds.

Principles for coordinating cross-border flows

Coordination between central banks on supervision and stress testing are well under way within the Network for Greening the Financial System.

In the EMDEs, and in particular in lower middle-income countries, national banking systems will remain the dominant source of climate finance, as the rapid expansion of capital markets or attracting international investors focused on ESG criteria are not realistic.

Agreement on green banking principles, which remain much more diffuse than in the capital markets space, are therefore essential. The IPSF could spearhead this initiative, thereby addressing the current lack of international coordination.

The IPSF could focus on three areas in particular:

- EU investors and cross-border banks will be bound by taxonomies that define green activities eligible for designated green financial instruments, and possibly for incentives.

A [comparison](#) of such classification systems shows that the EU system is by far the most complex, setting metrics and thresholds for 70 climate mitigation activities and 68 adaptation activities. The Chinese system, by contrast, is much more general and does not include specific screening criteria.

Developing countries will include local investment priorities (especially in climate adaptation) and local environmental issues, such as pollution abatement. There should be common design principles for taxonomies, though which activities benefit from incentives may well differ across jurisdictions.

- Disclosure by financial firms and their large corporate clients is a foundation for offering financial instruments with added green qualities.

Implementation of the recommendations of the G20 Task Force on Climate Related Disclosure (TCFD) is weak among mid-sized companies and in emerging markets, as requirements for the measurement of environmental impact are rare in the real sector.

The EU directive on non-financial reporting, which is currently under revision, should define practical environmental reporting templates. The EU could support capacity building in large emerging markets implementing similar standards, and open the proposed EU repository for ESG data to private sector issuers of green bonds.

- Standards for the origination and labelling of green financial products. Given this greater transparency, green financial products can emerge that are readily recognised by investors.

The future green bond standard, and the now adopted low-carbon benchmarks for investment funds are the key necessary pieces of EU legislation. Even though the market for green bonds and ESG funds has grown rapidly on the basis of private sector standards, regulation will need to address incentives for 'greenwashing' by debt issuers and investment firms.

Emerging market issuers and fund managers should have the option of meeting the future EU green bond standard, including by working with locally accredited verifying agents, which are recognised by the EU as subject to equivalent supervision.

If the new IPSF is to become a real forum for common rule-making, the EU will need to contend with concerns in other jurisdictions that the EU framework has reinforced the fragmentation of global climate finance.

Many of the partner countries represented in the platform and other key emerging markets now have credible sustainable finance frameworks of their own.

As the climate challenge is global, realigning financial flows also requires a coordinated response. The new EU forum should be as inclusive as possible. ■

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New economic challenges and the Fed's Monetary Policy Review

The understanding of the economy has evolved in ways that are central to monetary policy. Jerome Powell says it is time for pro-growth policies, and softens the Fed's approach to inflation

For the past year and a half, my colleagues and I on the Federal Open Market Committee (FOMC) have been conducting the first-ever public review of our monetary policy framework¹. We have released a revised *Statement on Longer-Run Goals and Monetary Policy Strategy*, a document that lays out our goals, articulates our framework for monetary policy, and serves as the foundation for our policy actions². I will discuss our review, the changes in the economy that motivated us to undertake it, and our revised statement, which encapsulates the main conclusions of the review.

Evolution of the Fed's monetary policy framework

We began this public review in early 2019 to assess the monetary policy strategy, tools, and communications that would best foster achievement of our congressionally assigned goals of maximum employment and price stability over the years ahead in service to the American people.

Because the economy is always evolving, the FOMC's strategy for achieving its goals—our policy framework—must adapt to meet the new challenges that arise. Forty years ago, the biggest problem our economy faced was high and rising inflation³.

The Great Inflation demanded a clear focus on restoring the credibility of the FOMC's commitment to price stability. Chair Paul Volcker brought that focus to bear, and the *Volcker disinflation*, with the continuing stewardship of Alan Greenspan, led to the stabilization of inflation and inflation expectations in the 1990s at around 2 percent.

The monetary policies of the Volcker era laid the foundation for the long period of economic stability known as the Great Moderation. This new era brought new challenges to the conduct of monetary policy. Before the Great Moderation, expansions typically ended in overheating and rising inflation.

Since then, prior to the current pandemic-induced downturn, a series of historically long expansions had been more likely to end with episodes of financial instability, prompting essential efforts to substantially increase the strength and resilience of the financial system⁴.

By the early 2000s, many central banks around the world had adopted a monetary policy framework known as inflation targeting⁵. Although the precise features of inflation targeting differed from country to country, the core framework always articulated an inflation goal as a primary objective of monetary policy. Inflation targeting was

In conducting monetary policy, we will remain highly focused on fostering as strong a labour market as possible for the benefit of all Americans. And we will steadfastly seek to achieve a 2 percent inflation rate over time

also associated with increased communication and transparency designed to clarify the central bank's policy intentions.

This emphasis on transparency reflected what was then a new appreciation that policy is most effective when it is clearly understood by the public. Inflation-targeting central banks generally do not focus solely on inflation: those with 'flexible' inflation targets take into account economic stabilization in addition to their inflation objective.

Under Ben Bernanke's leadership, the Federal Reserve adopted many of the features associated with flexible inflation targeting⁶. We made great advances in transparency and communications, with the initiation of quarterly press conferences and the Summary of Economic Projections (SEP), which comprises the individual economic forecasts of FOMC participants.

During that time, then-Board Vice Chair Janet Yellen led an effort on behalf of the FOMC to codify the Committee's approach to monetary policy. In January 2012, the Committee issued its first *Statement on Longer-Run Goals and Monetary Policy Strategy*, which we often refer to as the consensus statement.

A central part of this statement was the articulation of a longer-run inflation goal of 2 percent⁷. Because the structure of the labour market is strongly influenced by non-monetary factors that can change over time, the Committee did not set a numerical objective for maximum employment.

However, the statement affirmed the Committee's commitment to fulfilling both of its congressionally mandated goals. The 2012 statement was a significant milestone, reflecting lessons learned from fighting high inflation as well as from experience around the world with flexible inflation targeting. The statement largely articulated the policy framework the Committee had been following for some time⁸.

Motivation for the review

The completion of the original consensus statement in January 2012 occurred early on in the recovery from the Global Financial Crisis, when notions of what the 'new normal' might bring were quite uncertain. Since then, our understanding of the economy has evolved in ways that are central to monetary policy.

Of course, the conduct of monetary policy has also evolved. A key purpose of our review has been to take stock of the lessons learned over this period and identify any further changes in our monetary policy framework that could enhance our ability to achieve our maximum-employment and price-stability objectives in the years ahead⁹.

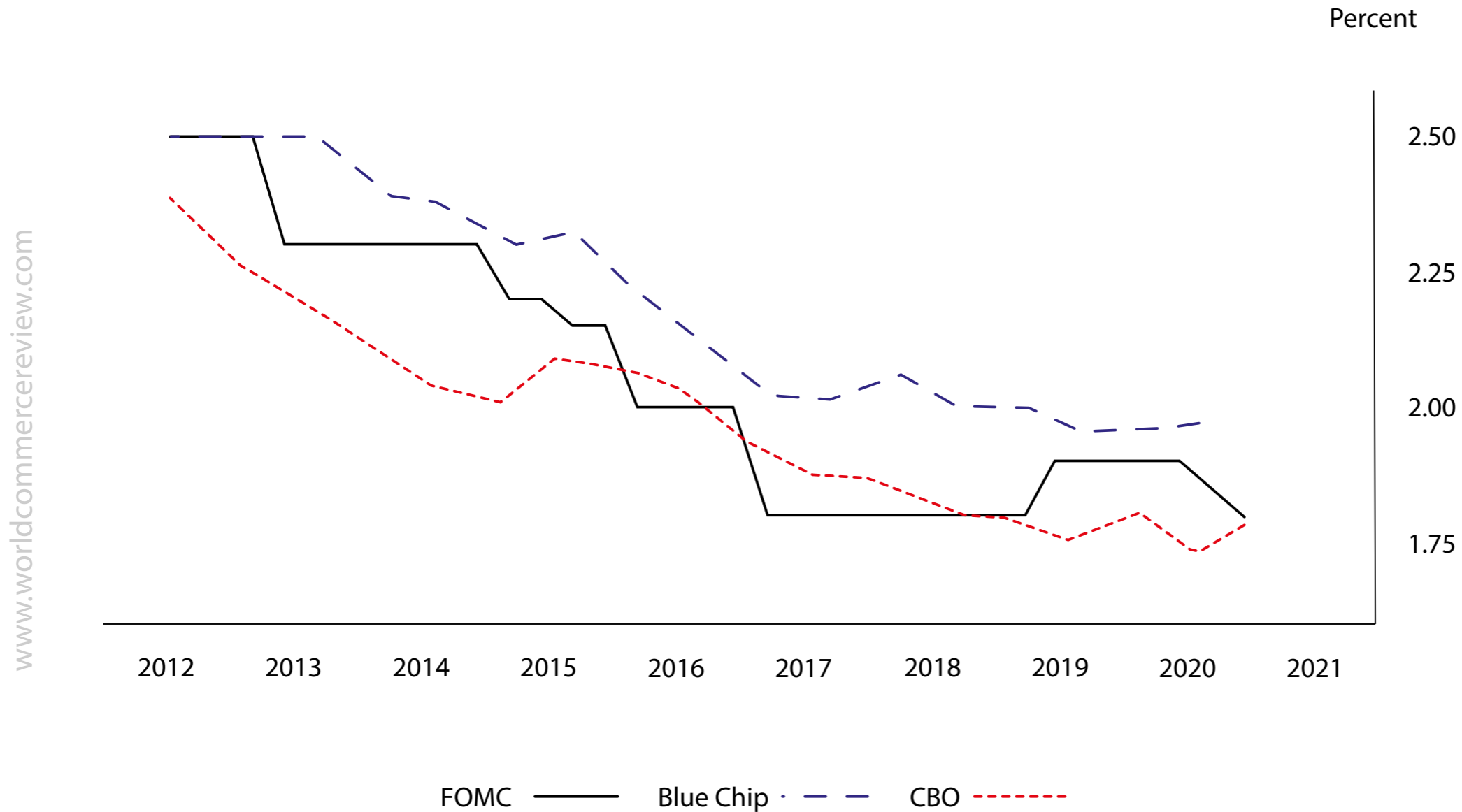
Our evolving understanding of four key economic developments motivated our review. First, assessments of the potential, or longer-run, growth rate of the economy have declined. For example, since January 2012, the median estimate of potential growth from FOMC participants has fallen from 2.5 percent to 1.8 percent (see Figure 1).

Some slowing in growth relative to earlier decades was to be expected, reflecting slowing population growth and the aging of the population. More troubling has been the decline in productivity growth, which is the primary driver of improving living standards over time¹⁰.

Second, the general level of interest rates has fallen both here in the United States and around the world. Estimates of the neutral federal funds rate, which is the rate consistent with the economy operating at full strength and with stable inflation, have fallen substantially, in large part reflecting a fall in the equilibrium real interest rate, or 'r-star'.

This rate is not affected by monetary policy but instead is riven by fundamental factors in the economy, including demographics and productivity growth—the same factors that drive potential economic growth¹¹. The median

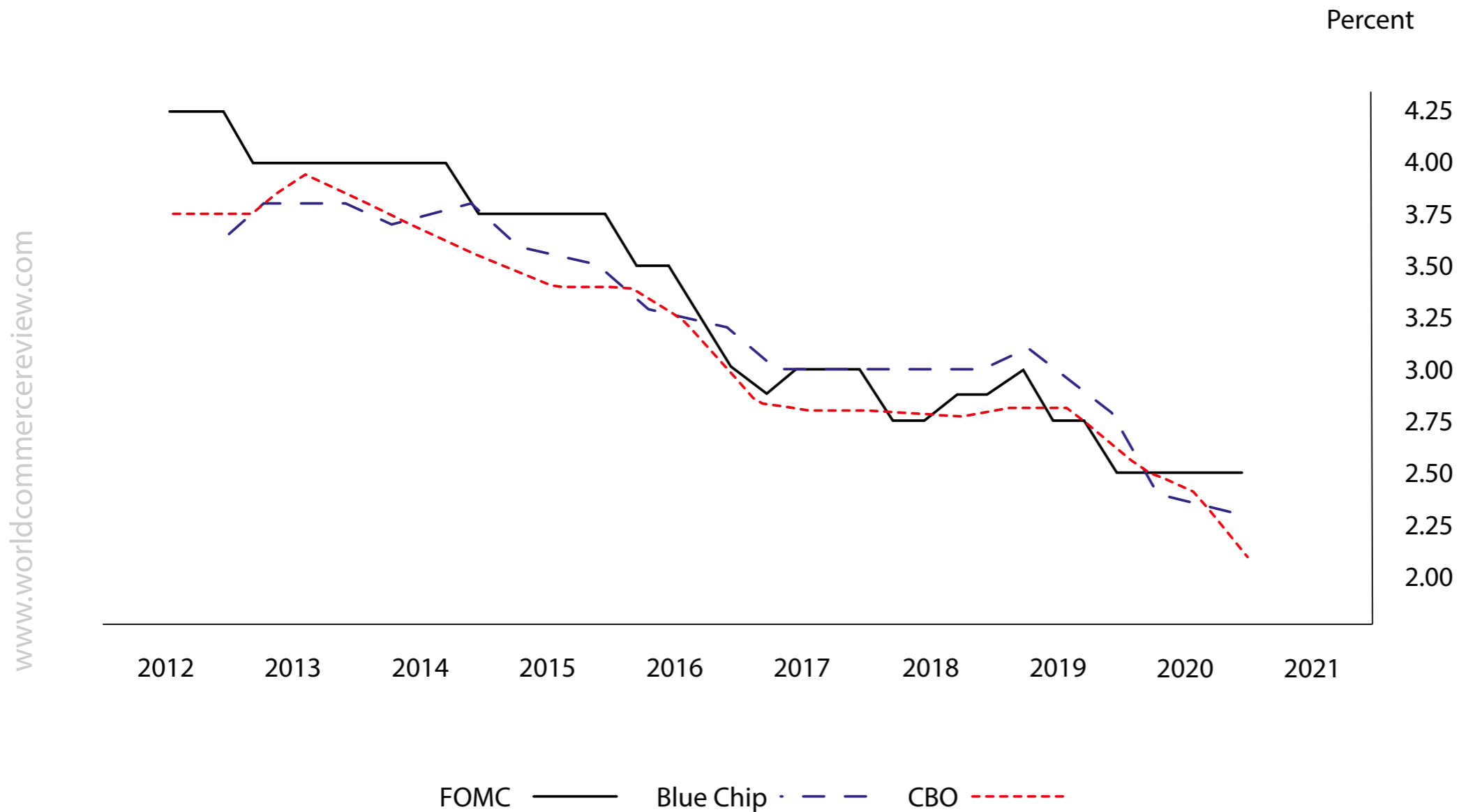
Figure 1. Real-time projections of longer-run real gross domestic product growth



Note: The Federal Open Market Committee (FOMC) data are quarterly, extend through June 2020, and are median projections of longer-term normal; for 2015:Q1 and 205:Q2, the data are central tendency midpoints. The blue chip data are biannual, extend through March 2020, and are consensus projections for 6 to 10 years in the future. The Congressional Budget Office (CBO) data are biannual, extend through July 2020, and are baseline projections for the calendar year 10 years ahead.

Source: For FOMC, Summary of Economic Projections, available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>; for blue chip, Wolters Kluwer, Blue Chip Economic Indicators; for CBO, Congressional Budget Office (The Budget and Economic Outlook, 10-Year Economic Projections).

Figure 2. Real-time projections of longer-run federal funds rate



Note: The Federal Open Market Committee (FOMC) data are quarterly, extend through June 2020, and are median projections of longer-term normal (rounded to the nearest 1/8 percentage point). The blue chip data are biannual, extend through March 2020, and are consensus estimates for 6 to 10 years in the future. The Congressional Budget Office (CBO) data are biannual, extend through July 2020, and are baseline projections for the calendar year 10 years ahead.

Source: For FOMC, Summary of Economic Projections, available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>; for blue chip, Wolters Kluwer, Blue Chip Economic Indicators; for CBO, Congressional Budget Office (The Budget and Economic Outlook, 10-Year Economic Projections).

estimate from FOMC participants of the neutral federal funds rate has fallen by nearly half since early 2012, from 4.25 percent to 2.5 percent (see Figure 2).

This decline in assessments of the neutral federal funds rate has profound implications for monetary policy. With interest rates generally running closer to their effective lower bound even in good times, the Fed has less scope to support the economy during an economic downturn by simply cutting the federal funds rate¹². The result can be worse economic outcomes in terms of both employment and price stability, with the costs of such outcomes likely falling hardest on those least able to bear them.

Third, and on a happier note, the record-long expansion that ended earlier this year led to the best labour market we had seen in some time. The unemployment rate hovered near 50-year lows for roughly 2 years, well below most estimates of its sustainable level. And the unemployment rate captures only part of the story.

Having declined significantly in the five years following the crisis, the labour force participation rate flattened out and began rising even though the aging of the population suggested that it should keep falling¹³. For individuals in their prime working years, the participation rate fully retraced its post-crisis decline, defying earlier assessments that the Global Financial Crisis might cause permanent structural damage to the labour market.

Moreover, as the long expansion continued, the gains began to be shared more widely across society. The Black and Hispanic unemployment rates reached record lows, and the differentials between these rates and the white unemployment rate narrowed to their lowest levels on record¹⁴.

As we heard repeatedly in our Fed Listens events, the robust job market was delivering life-changing gains for many individuals, families, and communities, particularly at the lower end of the income spectrum¹⁵. In addition, many

who had been left behind for too long were finding jobs, benefiting their families and communities, and increasing the productive capacity of our economy.

Before the pandemic, there was every reason to expect that these gains would continue. It is hard to overstate the benefits of sustaining a strong labour market, a key national goal that will require a range of policies in addition to supportive monetary policy.

Fourth, the historically strong labour market did not trigger a significant rise in inflation. Over the years, forecasts from FOMC participants and private-sector analysts routinely showed a return to 2 percent inflation, but these forecasts were never realized on a sustained basis (see Figure 3).

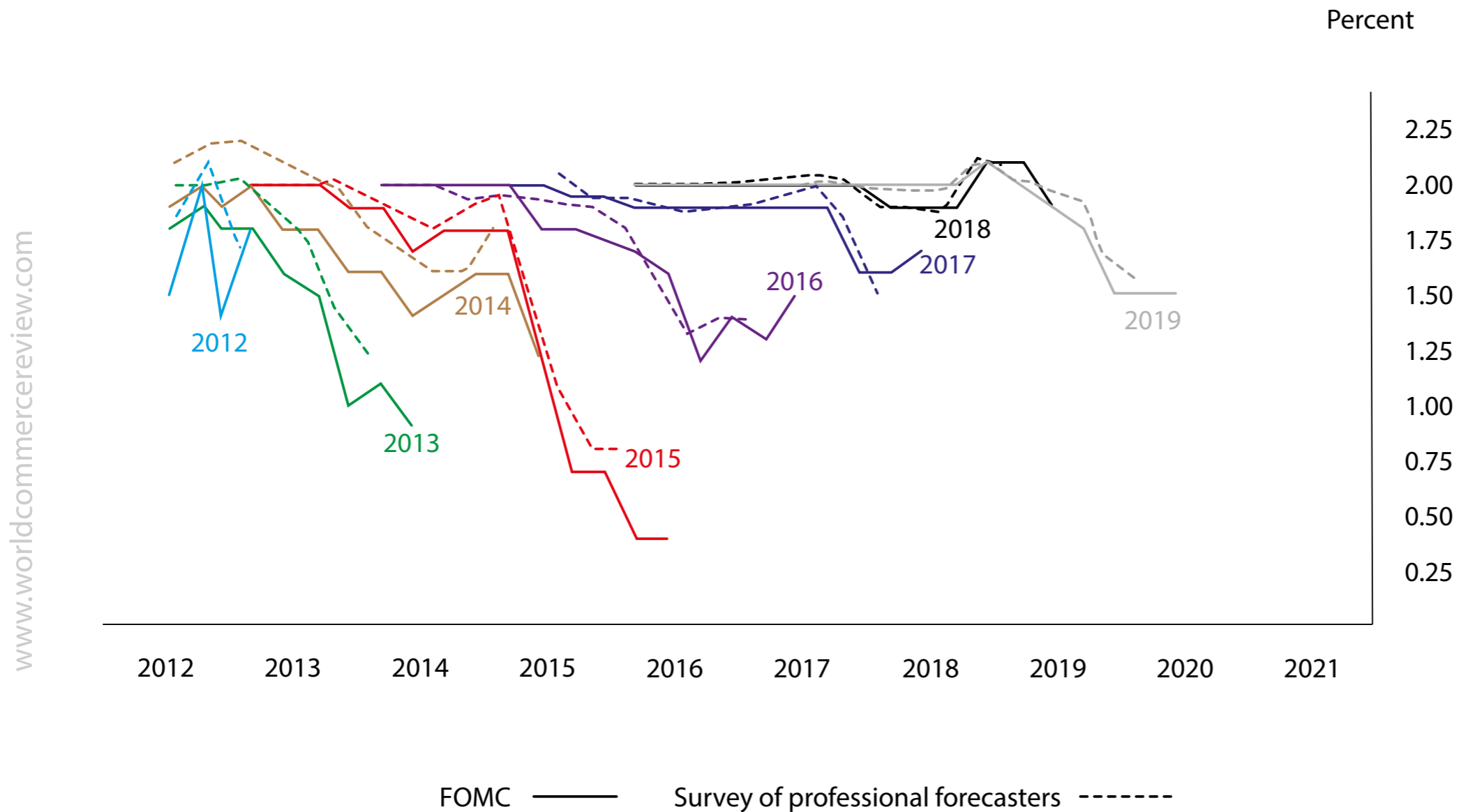
Inflation forecasts are typically predicated on estimates of the natural rate of unemployment, or 'u-star', and of how much upward pressure on inflation arises when the unemployment rate falls relative to u-star¹⁶.

As the unemployment rate moved lower and inflation remained muted, estimates of u-star were revised down. For example, the median estimate from FOMC participants declined from 5.5 percent in 2012 to 4.1 percent at present (see Figure 4).

The muted responsiveness of inflation to labour market tightness, which we refer to as the flattening of the Phillips curve, also contributed to low inflation outcomes¹⁷.

In addition, longer-term inflation expectations, which we have long seen as an important driver of actual inflation, and global disinflationary pressures may have been holding down inflation more than was generally anticipated. Other advanced economies have also struggled to achieve their inflation goals in recent decades.

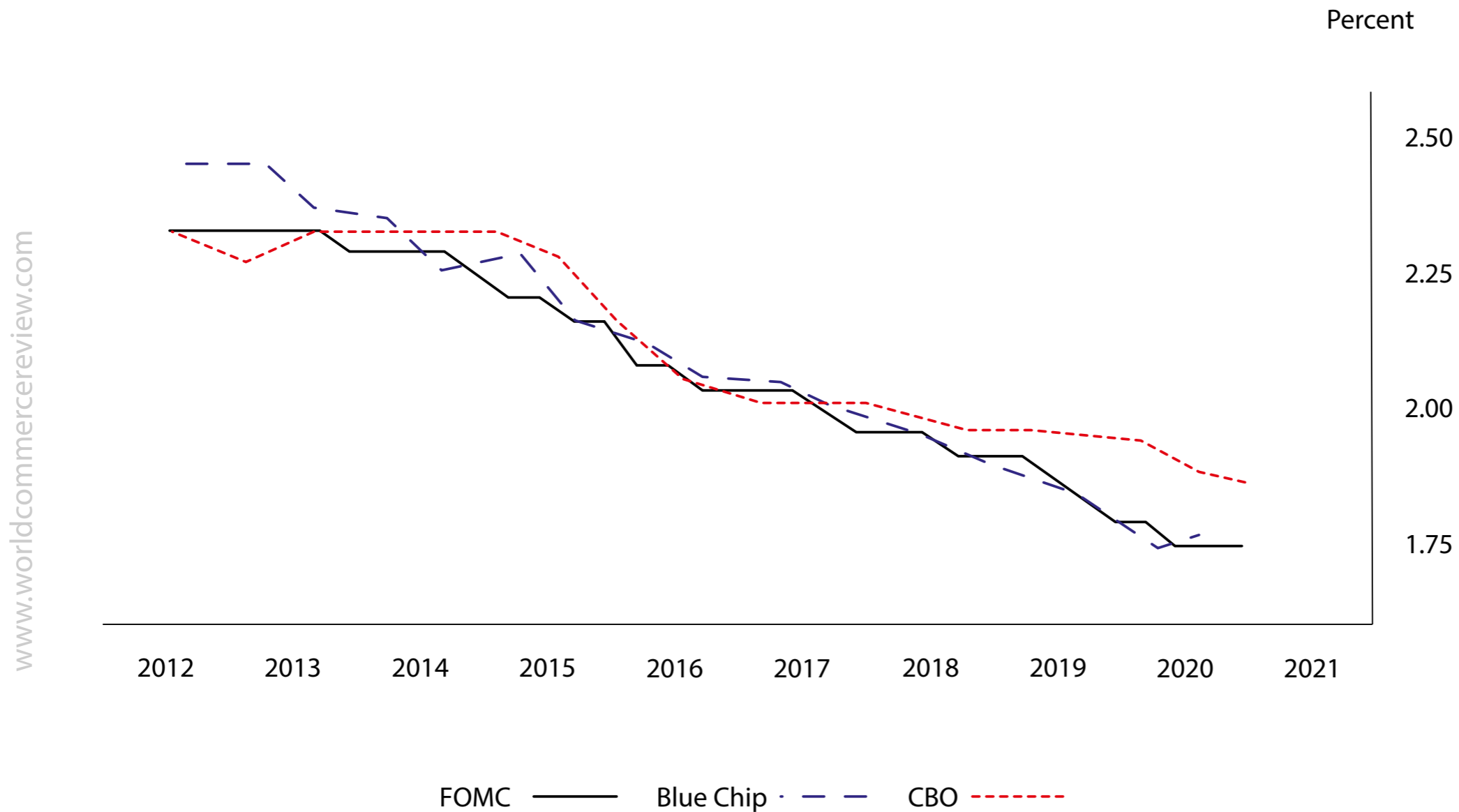
Figure 3. Evolution of real-time projections for personal consumption expenditures inflation



Note: The Federal Open Market Committee (FOMC) data, represented by the solid lines, are median projections published quarterly; the latest data vintage is June 2020. For 2015:Q1 and 2015:Q2, the data are central tendency midpoints. The Survey of Professional Forecasters (SPF) data, represented by the dashed lines, are median projections published quarterly; the latest data vintage corresponds to 2020:Q3.

Source: For FOMC, Summary of Economic Projections, available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>; for SPF, Federal Bank of Philadelphia.

Figure 4. Real-time projections of longer-run unemployment rate



Note: The Federal Open Market Committee (FOMC) data are quarterly, extend through June 2020, and are median projections of longer-term normal; for 2015:Q1 and 205:Q2, the data are central tendency midpoints. The blue chip data are biannual, extend through March 2020, and are consensus projections for 6 to 10 years in the future. The Congressional Budget Office (CBO) data are biannual, extend through July 2020, and correspond to the baseline estimate of the underlying long-term rate of unemployment for the current quarter at the time of the projection.

Source: For FOMC, Summary of Economic Projections, available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>; for blue chip, Wolters Kluwer, Blue Chip Economic Indicators; for CBO, Congressional Budget Office (The Budget and Economic Outlook, 10-Year Economic Projections).

The persistent undershoot of inflation from our 2 percent longer-run objective is a cause for concern. Many find it counter-intuitive that the Fed would want to push up inflation. After all, low and stable inflation is essential for a well-functioning economy. And we are certainly mindful that higher prices for essential items, such as food, gasoline, and shelter, add to the burdens faced by many families, especially those struggling with lost jobs and incomes.

However, inflation that is persistently too low can pose serious risks to the economy. Inflation that runs below its desired level can lead to an unwelcome fall in longer-term inflation expectations, which, in turn, can pull actual inflation even lower, resulting in an adverse cycle of ever-lower inflation and inflation expectations.

This dynamic is a problem because expected inflation feeds directly into the general level of interest rates. Well-anchored inflation expectations are critical for giving the Fed the latitude to support employment when necessary without destabilizing inflation¹⁸.

But if inflation expectations fall below our 2 percent objective, interest rates would decline in tandem. In turn, we would have less scope to cut interest rates to boost employment during an economic downturn, further diminishing our capacity to stabilize the economy through cutting interest rates.

We have seen this adverse dynamic play out in other major economies around the world and have learned that once it sets in, it can be very difficult to overcome. We want to do what we can to prevent such a dynamic from happening here.

Elements of the review

We began our review with these changes in the economy in mind. The review had three pillars: a series of Fed

Listens events held around the country, a flagship research conference, and a series of Committee discussions supported by rigorous staff analysis. As is appropriate in our democratic society, we have sought extensive engagement with the public throughout the review.

The Fed Listens events built on a long-standing practice around the Federal Reserve System of engaging with community groups. The 15 events involved a wide range of participants—workforce development groups, union members, small business owners, residents of low- and moderate-income communities, retirees, and others—to hear about how our policies affect peoples’ daily lives and livelihoods¹⁹.

The stories we heard at Fed Listens events became a potent vehicle for us to connect with the people and communities that our policies are intended to benefit. One of the clear messages we heard was that the strong labour market that prevailed before the pandemic was generating employment opportunities for many Americans who in the past had not found jobs readily available.

A clear takeaway from these events was the importance of achieving and sustaining a strong job market, particularly for people from low- and moderate-income communities.

The research conference brought together some of the world’s leading academic experts to address topics central to our review, and the presentations and robust discussion we engaged in were an important input to our review process²⁰.

Finally, the Committee explored the range of issues that were brought to light during the course of the review in five consecutive meetings beginning in July 2019. Analytical staff work put together by teams across the Federal Reserve System provided essential background for each of the Committee’s discussions²¹.

Our plans to conclude the review earlier this year were, like so many things, delayed by the arrival of the pandemic. When we resumed our discussions last month, we turned our attention to distilling the most important lessons of the review in a revised *Statement on Longer-Run Goals and Monetary Policy Strategy*.

New Statement on Longer-Run Goals and Monetary Policy Strategy

The federated structure of the Federal Reserve, reflected in the FOMC, ensures that we always have a diverse range of perspectives on monetary policy, and that is certainly the case today. Nonetheless, I am pleased to say that the revised consensus statement was adopted with the unanimous support of Committee participants.

Our new consensus statement, like its predecessor, explains how we interpret the mandate Congress has given us and describes the broad framework that we believe will best promote our maximum-employment and price-stability goals. Before addressing the key changes in our statement, let me highlight some areas of continuity.

We continue to believe that specifying a numerical goal for employment is unwise, because the maximum level of employment is not directly measurable and changes over time for reasons unrelated to monetary policy. The significant shifts in estimates of the natural rate of unemployment over the past decade reinforce this point.

In addition, we have not changed our view that a longer-run inflation rate of 2 percent is most consistent with our mandate to promote both maximum employment and price stability.

Finally, we continue to believe that monetary policy must be forward looking, taking into account the expectations of households and businesses and the lags in monetary policy's effect on the economy. Thus, our policy actions continue to depend on the economic outlook as well as the risks to the outlook, including potential risks to the financial system that could impede the attainment of our goals.

The key innovations in our new consensus statement reflect the changes in the economy I described. Our new statement explicitly acknowledges the challenges posed by the proximity of interest rates to the effective lower bound.

By reducing our scope to support the economy by cutting interest rates, the lower bound increases downward risks to employment and inflation²². To counter these risks, we are prepared to use our full range of tools to support the economy.

With regard to the employment side of our mandate, our revised statement emphasizes that maximum employment is a broad-based and inclusive goal. This change reflects our appreciation for the benefits of a strong labour market, particularly for many in low- and moderate-income communities²³.

In addition, our revised statement says that our policy decision will be informed by our *“assessments of the shortfalls of employment from its maximum level”* rather than by *“deviations from its maximum level”* as in our previous statement²⁴. This change may appear subtle, but it reflects our view that a robust job market can be sustained without causing an outbreak of inflation.

In earlier decades when the Phillips curve was steeper, inflation tended to rise noticeably in response to a strengthening labour market. It was sometimes appropriate for the Fed to tighten monetary policy as employment rose toward its estimated maximum level in order to stave off an unwelcome rise in inflation.

The change to ‘shortfalls’ clarifies that, going forward, employment can run at or above real-time estimates of its maximum level without causing concern, unless accompanied by signs of unwanted increases in inflation or the emergence of other risks that could impede the attainment of our goals²⁵.

Of course, when employment is below its maximum level, as is clearly the case now, we will actively seek to minimize that shortfall by using our tools to support economic growth and job creation.

We have also made important changes with regard to the price-stability side of our mandate. Our longer-run goal continues to be an inflation rate of 2 percent. Our statement emphasizes that our actions to achieve both sides of our dual mandate will be most effective if longer-term inflation expectations remain well anchored at 2 percent.

However, if inflation runs below 2 percent following economic downturns but never moves above 2 percent even when the economy is strong, then, over time, inflation will average less than 2 percent. Households and businesses will come to expect this result, meaning that inflation expectations would tend to move below our inflation goal and pull realized inflation down.

To prevent this outcome and the adverse dynamics that could ensue, our new statement indicates that we will seek to achieve inflation that averages 2 percent over time. Therefore, following periods when inflation has been running below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time.

In seeking to achieve inflation that averages 2 percent over time, we are not tying ourselves to a particular mathematical formula that defines the average. Thus, our approach could be viewed as a flexible form of average inflation targeting²⁶.

Our decisions about appropriate monetary policy will continue to reflect a broad array of considerations and will not be dictated by any formula. Of course, if excessive inflationary pressures were to build or inflation expectations were to ratchet above levels consistent with our goal, we would not hesitate to act.

The revisions to our statement add up to a robust updating of our monetary policy framework. To an extent, these revisions reflect the way we have been conducting policy in recent years. At the same time, however, there are some important new features.

Overall, our new *Statement on Longer-Run Goals and Monetary Policy Strategy* conveys our continued strong commitment to achieving our goals, given the difficult challenges presented by the proximity of interest rates to the effective lower bound. In conducting monetary policy, we will remain highly focused on fostering as strong a labour market as possible for the benefit of all Americans. And we will steadfastly seek to achieve a 2 percent inflation rate over time.

Looking ahead

Our review has provided a platform for productive discussion and engagement with the public we serve. The Fed Listens events helped us connect with our core constituency, the American people, and hear directly how their everyday lives are affected by our policies.

We believe that conducting a review at regular intervals is a good institutional practice, providing valuable feedback and enhancing transparency and accountability. And with the ever-changing economy, future reviews will allow us to take a step back, reflect on what we have learned, and adapt our practices as we strive to achieve our dual-mandate goals.

As our statement indicates, we plan to undertake a thorough public review of our monetary policy strategy, tools, and communication practices roughly every five years. ■

Jerome H Powell is the Chair of the Board of Governors of the Federal Reserve System

Endnotes

1. See Board of Governors (2018) and Clarida (2019).
2. The revised Statement on Longer-Run Goals and Monetary Policy Strategy is available on the Board's website at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200827a.htm>
3. Consumer price inflation, which was running below 2 percent in the early 1960s, had risen into the double digits by the late 1970s and was slightly above 12 percent when the Committee gathered for an unscheduled meeting in the Eccles Building in Washington, D.C., on a Saturday in October 1979—before the days when transparency was the hallmark of institutional accountability—and decided to change the conduct of monetary policy. See Volcker and Gyohten (1992); also see Volcker (2008), pp. 73–74.
4. See Powell (2019).
5. For a readable explanation of inflation targeting, see Bernanke and Mishkin (1997); also see Bernanke and others (1999).
6. For the formalization and development of the concept of flexible inflation targeting, see Svensson (1999) and, more recently, Svensson (2020).
7. As measured by the annual change in the price index for personal consumption expenditures.
8. See Board of Governors (2012), p. 43.
9. On the benefits of holding a review, see Fuhrer and others (2018).
10. Between 1995 and 2003, business-sector output per hour increased at an annual rate of 3.4 percent, and it has risen only 1.4 percent since then. Fernald (2015) suggests 2003 as a break point for the beginning of the productivity slowdown. See also Fernald (2018), Gordon (2017), and Powell (2018).
11. Estimates of r -star have fallen between 2 and 3 percentage points over the past two decades. For evidence on the secular decline in interest rates in the United States and abroad see, for instance, Holston, Laubach, and Williams (2017) and Lunsford and West (2019). See also the recent evidence in Lopez-Salido and others (2020).
12. Both the experience following the Global Financial Crisis and the current situation drive this point home. After the

Global Financial Crisis, the Fed held the federal funds rate at the lower bound for seven years. Thereafter, as the economy strengthened, the federal funds rate reached a peak just above 2 percent. By comparison, the federal funds rate averaged a little more than 5 percent in the 1990s. And, at the onset of the COVID pandemic, we quickly cut rates to the effective lower bound. But since the federal funds rate was only about 1-1/2 percent before the pandemic—because that is what the economy required at that time—our scope to reduce the federal funds rate was far less than in earlier recessions.

13. *The labour force participation rate for prime-age individuals (those between 25 and 54 years old), which is much less sensitive to the effects of population aging, has been rising over the past few years and continued to increase in 2019. For a longer-run perspective, see the analysis presented in Aaronson and others (2014).*

14. *The decline in the unemployment rate for African Americans has been particularly sizable, and its average rate in the second half of October 2019 was the lowest recorded since the data began to be reported in 1972; see Board of Governors (2020a). See also Daly (2020) and Aaronson and others (2019).*

15. *Information on the Fed Listens events is available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-fed-listens-events.htm>*

16. *A discussion of various concepts of unemployment rate benchmarks that are frequently used by policymakers for assessing the current state of the economy is presented in Crump and others (2020).*

17. *See, for instance, Blanchard, Cerutti, and Summers (2015).*

18. *The success of monetary policy in taming high and variable inflation in the 1980s and 1990s was instrumental in anchoring inflation expectations at low levels. See, for instance, Goodfriend (2007).*

19. *See the report *Fed Listens: Perspectives from the Public* (Board of Governors, 2020b), which summarizes the 14 Fed Listens events hosted by the Board and the Federal Reserve Banks during 2019, as well as an additional event in May 2020 to follow up with participants about the effects of the COVID-19 pandemic on their communities. Information on the individual Fed Listens events is available on the Board's website at <https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-fed-listens-events.htm>*

20. *The Federal Reserve System's "Conference on Monetary Policy Strategy, Tools, and Communication Practices (A Fed*

Listens Event)“ was hosted by the Federal Reserve Bank of Chicago in June 2019. See <https://www.federalreserve.gov/conferences/conference-monetary-policy-strategy-tools-communications-20190605.htm> for the conference program, links to the conference papers and presentations, and links to session videos. A special issue of the International Journal of Central Banking (February 2020) included five of the seven papers presented at the conference (see <https://www.ijcb.org/journal/ijcb2002.htm>).

21. See the overview presented in Altig and others (2020).

22. See Caldara and others (2020).

23. The analysis of how alternative strategies that succeed in reducing the frequency and/or severity of ELB recessions can induce longer run beneficial effects on economic inequality is presented in Feiveson and others (2020).

24. *Italics added for emphasis.* The 2012 statement noted that the Committee would mitigate ‘deviations’ of employment from the Committee’s assessments of its maximum level, suggesting that the Committee would actively seek to lower employment if it assessed that employment was above the Committee’s estimate of its maximum level. In practice, the Committee has not conducted policy in this way, but rather has supported continued gains in the labour market.

25. In addition, because real-time estimates are highly uncertain, we no longer refer to estimates of the natural rate of unemployment from the SEP in our consensus statement. Another reason for dropping this reference is that the unemployment rate does not adequately capture the full range of experience in the labour market. The SEP will continue to report FOMC participants’ estimates of the longer-run level of the unemployment rate, as such information remains a useful, albeit highly incomplete, input into our policy deliberations.

26. This strategy embodies some key lessons from the general class of makeup strategies that have been analyzed extensively in the economics literature. The literature has emphasized that the proximity of interest rates to the effective lower bound poses an asymmetric challenge for monetary policy, increasing the likelihood that inflation and employment will tend to be too low. An extensive discussion about how these issues affect the design of monetary policy, as well as the relevant related literature, can be found in Duarte and others (2020), Arias and others (2020), and Hebden and others (2020).

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This article is based on a [speech](#) delivered at "Navigating the Decade Ahead: Implications for Monetary Policy," an economic policy symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming (via webcast), August 27, 2020



The global and Asian economic outlook

Tao Zhang considers the economic consequences of the COVID-19 pandemic, and says we need to work together to ensure a green and sustainable future

We are now halfway through 2020. In the first half of the year, the COVID-19 pandemic has been at the forefront of global discussion. Indeed, for many of us, 2020 is unquestionably a year like no other we have seen in our lifetime. On the one hand, the pandemic has affected the entire world. On the other hand, we also see that countries are working hard on the health front to contain the spread of the virus and to save lives. At the same time, on the economic front, countries are also using policy measures to stabilize their economies and safeguard people's livelihoods.

I would like to talk about three things. First, the global and Asian economic outlook and financial developments. Since the beginning of the year, and especially over the past 5 months, the COVID-19 pandemic coupled with governments' necessary responses to save lives, including isolation, social distancing and home quarantine, have triggered the worst downturn since the Great Depression in the 1930s.

Though still affected by the pandemic, several countries have started to reopen their economies and are making efforts to resume work and production. However, in the absence of a medical solution (for example, the development, production, and use of effective medicines and vaccines), the strength of the recovery remains highly uncertain.

Since the outbreak of the COVID-19 pandemic, the IMF has issued its *World Economic Outlook* (WEO) and its *Global Financial Stability Report* (GFSR) twice, in April and again in June. In the April WEO report, our projection of global output in 2020 was brought down substantially to -3.0 percent from 3.3 percent. In our June report, the projection was further revised downward by 1.9 percent to -4.9 percent. In other words, we believe the impact of the pandemic on world output is much bigger than we thought two or three months ago.

Almost all our member countries are seeing their growth forecasts this year revised downward, and most into negative territory. A synchronized deep downturn in 2020 is taking place, in both advanced economies (-8 percent) and emerging market and developing economies (-3 percent; -5 percent if we exclude China). Over 95 percent of countries are projected to have negative per capita income growth in 2020, with export-dependent economies particularly affected.

Given that the pandemic is still developing across the globe and many countries have yet to bring it under control, there remains tremendous uncertainty surrounding our 2020 annual growth forecast. On the upside, better understanding of the virus and more progress on vaccines and effective medicines could substantially bolster

... we are facing a complex situation, with major tasks and serious challenges ahead. Only by working together can we ensure that the global economy continues to move toward a greener, smarter, and fairer path of recovery

confidence that we will overcome the pandemic sooner. Larger, more forceful economic and financial policy support could also lead to faster and more complete recovery.

On the downside, further waves of infections, a rapid tightening of financial conditions, declining trade, and rising geopolitical tensions, among other factors, could further erode confidence with respect to consumption and investment, leading to deeper downturns or slower growth. Global trade is projected to collapse by nearly 12 percent in 2020.

Next, what can we say about the economic and financial outlook in Asia? With the exception of China, most Asian economies have had to ramp up their containment measures since the release of our April WEO report. The current picture of virus cases differs across the region. Some countries are experiencing rapidly rising cases each week.

Others are trying to flatten their curves. And yet others have been relatively successful in getting the virus under control. The main impact of lockdowns on the real economy is in the second quarter of 2020 for most Asian economies excluding China.

About our GDP forecast, for the first time in recent memory, Asia's output is expected to contract by 1.6 percent—a further downgrade from our April projection of zero growth. Asia's economic growth in the first quarter of 2020 was, in fact, better than projected in April—partly owing to early stabilization of the virus in some countries.

But, according to our June report, projections for 2020 have been revised downward for most of the countries in the region on account of weaker global conditions and more protracted containment measures in several emerging economies.

We are projecting that only a very small number of economies in Asia and the Pacific will actually grow this year, including China by 1.0 percent. Most economies in the region are expected to contract in 2020, and some quite sharply—Korea by around 2 percent, India by 4.5 percent, Japan by 5.8 percent, and some other economies by even more, given their dependence on remittances, tourism, and/or commodities.

It is also important to note that across Asia, on the demand side the only spending that is growing in 2020 is government consumption and investment, in emerging as well as advanced economies. In other words, economies are relying heavily on government stimulus.

Second, it will take longer for the global and Asian economies to recover. We believe that the recovery will start in 2021, and our projection of global output in 2021 is 5.4 percent. This may sound good, but it is 0.4 percent lower than our April forecast of 5.8 percent, and combined with the sharp contraction in 2020, it implies a cumulative loss to the global economy over two years (2020–21) of over USD 12 trillion from this crisis. Hotels, tourism, the travel industry, among others, will be particularly impacted.

As for Asia, in 2021 we project a pick-up of 6.6 percent, with China growing at 8.2 percent. This too has been revised downward from our April forecast (by 1 percent), leaving the level of Asia's real GDP 5 percent lower in 2021 compared to pre-crisis projections.

In other words, we expect output losses in Asia from the pandemic to be persistent. And, unfortunately, some of this will be permanent. We are assuming a recovery of the private sector in 2021, but the pace is slower than previously expected. Moreover, the assumptions regarding this private-sector-led recovery may turn out to be somewhat too optimistic.

Why are we expecting this kind of slow and partial recovery? Here I wish to emphasize the following reasons.

First, the scope and duration of lockdown have been more substantial than expected, and we are already seeing some permanent negative effects, despite policy stimulus. A recent study, which was conducted by IMF staff and covers 57 economies, shows that lockdowns have led to a contraction in industrial production of about 12 percent a month.

Even when lockdown measures are fully relaxed, economic activity is not likely to return to full capacity, on account of social distancing and other containment measures. There may be a negative impact on productivity, as surviving businesses enhance workplace safety and hygiene standards. Also, many Asian economies depend on tourism, remittances, and in-person contact services, which will take a lot longer to recover.

Second, trade growth has slowed down. Global trade contracted by 3.5 percent in the first quarter relative to the same period last year. For Asian economies, the overall picture that they heavily depend on global supply chains has not changed, so that they cannot grow by themselves while the whole world is suffering.

Fundamentally reorienting the growth model towards domestic demand and away from heavy reliance on exports is a process that has already started, but it is clear that the region still depends on demand from other parts of the world. Given the sharp recession in advanced economies outside Asia, it is expected that the overall exports of Asia will contract quite significantly in 2020.

Third, domestic inequality was already rising fast in Asia and our recent research shows that past pandemics added to this inequality, especially hurting the employment prospects of those with limited education. Not only is inequality widening, but the adverse impacts of the COVID-19 shock are made even worse in Asia, which has a high

proportion of informal workers. This can leave deeper economic scars, make the recovery more protracted, and pose greater challenges to social protection and health care systems.

Fourth, high debt levels will be a common problem in the global economy and Asia. Weakened household and corporate balance sheets in many Asian countries can weigh on investor sentiment and affect the pace of the recovery, amplifying the scarring effects.

And finally, should the private-sector-led recovery not occur as we are currently forecasting, policymakers in Asia will not have the space to provide much economic and financial policy support as they have been able to do in 2020 so far.

Third, how to support the recovery with effective and strong policy measures? For policymakers across the globe, the severe downturn and slow recovery mean that we are not out of the woods yet. There is a need for careful attention and great prudence as policymakers prepare their policy response.

Let's first look at short-term policies for the pandemic and the recovery from it. On the positive side, the recovery is benefitting from tremendous policy support—particularly in advanced economies—and to a lesser extent in emerging market and developing economies.

Global fiscal support now stands at over \$10 trillion. In addition, major central banks have provided substantial additional stimulus via interest rate cuts, liquidity injections, and asset purchases, which has eased financial conditions. In many countries, these measures have succeeded in supporting people and preventing large-scale bankruptcies, thus helping to reduce lasting scars and aiding the recovery.

Although the real economic outlook is still not positive in many countries, the exceptional policy support, particularly by major central banks, has driven a strong recovery in financial conditions. Equity prices have rebounded and credit spreads have narrowed. Portfolio flows to emerging market and developing economies have stabilized. And currencies that sharply depreciated have strengthened.

By preventing a financial crisis, policy support has helped us avoid even worse outcomes. Yet at the same time, the disconnect between real and financial markets raises concerns of excessive risk taking and is a significant vulnerability.

Currently, some countries have begun to reopen their economy and resume work and production. The focus of their policy support will need to move toward encouraging people to return to work, as well as to helping reallocate workers to sectors with growing demand and away from shrinking sectors.

Support for a recovery should also include actions to repair balance sheets and address debt overhangs. This will require strong insolvency frameworks and mechanisms for restructuring and disposing of distressed debt.

As for Asia, fiscal and monetary policy support has been substantial—on an unprecedented level—and especially so in Japan, Australia, Singapore, and New Zealand. Support in Asian emerging markets has been mainly in the form of guarantees, loans, and quasifiscal activities, on account of a lack of fiscal space in government budgets. These helped to provide support to firms facing liquidity constraints.

Do we see the need for more support in Asian countries in the future? It depends on whether there are second waves of infection. In some cases, where government support is temporary, the authorities will need to look at

whether they renew or revise measures to avoid creating serious fiscal pressures. Some low-income developing countries and small island states will need to actively seek additional budget support from development partners.

There are some specific challenges facing Asian countries. Let me discuss two of these. The first challenge, as mentioned before, is the worsening inequality and high levels of informality, which make it difficult to implement policy support, and which may exacerbate the scarring left by the crisis. The second challenge is capital flow volatility. If financial-market jitters return, then we may see the use of capital flow measures.

The international community has a responsibility to ensure that developing economies can finance critical spending by providing concessional financing, debt relief, and grants. At the same time, emerging market and developing economies must also have access to international liquidity.

As there are a large number of emerging economies in Asia, ensuring financial market stability, making available central bank swap lines, and deployment of a global financial safety net, will all be imperative.

As for the medium and longer term, besides fighting the pandemic and promoting recovery, policymakers in Asia will also have to focus on the structural challenges in the region. In fact, these challenges have already been in existence before COVID-19, and the pandemic has highlighted the importance of addressing them.

The first such challenge is population aging, which we at the IMF have written a great deal about. One important finding is that demographic trends could subtract $\frac{1}{2}$ to 1 percentage point from annual GDP growth over the next three decades in countries like Japan where the aging problem is quite severe. Therefore, policies should incentivise greater labour-force participation by women and others to offset the impact of population aging.

Slowing productivity growth is a second major challenge. Policies should foster greater corporate dynamism by promoting the healthy entry and exit of firms, helping firms to address their debt overhang, and encouraging business innovation, so as to promote productivity growth.

In some Asian countries for example, 5-10 percent of the total corporate capital stock is tied up in so-called 'zombie' firms. If this problem can be solved, resources can be redirected to more competitive, innovative, and productive uses.

The third challenge is to promote trade openness. For decades, Asian economies used to benefit from rapid trade growth. But in recent years, they have also felt the impact from slowing trade on their economy. We notice that countries are making strong efforts to resolve trade and technology disputes, and that they are still promoting regional integration and improving the multilateral rules-based trading system.

Our modeling suggests that further trade liberalization and regional integration could, over time, lead to a new equilibrium in which Asia's GDP would be higher by more than 10 percent.

The fourth challenge relates to new technologies. Digitalization and automation offer huge opportunities to Asia and to the world. Two-thirds of the world's industrial robots are used in the region, and the share of retail sales taking place online is 1½ times larger in Asia than in Western Europe or the United States.

In the current COVID-19 crisis, the digital economy has played a key role, in terms of enabling working from home, improving business flexibility, and enhancing the efficiency of resource allocation. But these new technologies also bring challenges, such as the need to combat growing inequality (including the digital divide) and to support those displaced by new technologies.

Finally, policies should promote both mitigation and adaptation to climate change, and this will require global cooperation. Where conditions permit, countries should undertake green public investment to accelerate the recovery and support longer-term climate goals.

We will need to work together and make concerted efforts to develop mechanisms for carbon pricing and to promote investment in resilient infrastructure.

Conclusion

Global cooperation is vital to deal with both this truly global crisis and the more structural challenges that will remain with us in the medium to long term. The crisis has emphatically illustrated how necessary and beneficial our global linkages are. The virus knows no borders, and the only way to conquer it is to work together.

For Asia, which is highly integrated in the global value chain, external demand is especially important. The strength of its recovery will likely depend on the openness and innovation capability of Asia and other parts of the world, as well as on forging stronger links within the region and enhancing regional/sub-regional cooperation and integration.

The IMF will continue to do all it can to ensure adequate international liquidity, provide emergency financing, support the G20 Debt Service Suspension Initiative, and furnish advice and support to countries during this unprecedented crisis.

Globally, we have provided substantial lending support to our member countries. In the Asia-Pacific region, we are constantly engaging with our members. In terms of lending, so far for the Asia Pacific region we have agreed on four emergency funding programs and one IMF debt-relief arrangement. In terms of capacity development, despite

connectivity challenges, our work has continued virtually on topics like cash management, supervisory responses to the crisis, and actions to safeguard tax compliance after the crisis.

In short, we are facing a complex situation, with major tasks and serious challenges ahead. Only by working together can we ensure that the global economy continues to move toward a greener, smarter, and fairer path of recovery. The IMF stands ready to provide all possible assistance to its membership. ■

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This article is based on a [speech](#) delivered at the Greater Bay Area Chief Economist Forum, July 10, 2020



Deeper recession, wider divergences

Maarten Verwey and Björn Döhring consider the Commission's Summer 2020 interim forecast, and argue that a rapid response at the EU level is needed to minimise hysteresis

Forecasters agree that the economic fallout from COVID-19 has caused the sharpest drop in economic activity in Europe and globally since WWII. Just how deep the drop of activity was in the second quarter, which sectors were most strongly affected by containment measures, and how swift the rebound will be as they are gradually lifted is still very uncertain.

This column describes how the European Commission's Summer 2020 interim European Economic Forecast now estimates a deeper drop of output in the second quarter of the current year than was anticipated earlier. The recovery is also now expected to be less swift than was projected in Spring, with differences across member states set to be more pronounced.

Minimising hysteresis and avoiding persistent economic divergences within the EU and euro area requires the rapid agreement and deployment of common support measures at the EU level. The risk otherwise is of significant distortions to the internal market and of even deeper divergences between countries that could ultimately threaten the smooth functioning of the monetary union.

The economic impact of the COVID-19 pandemic spread around the globe extremely swiftly. In 2007-2008, it took more than a year from the appearance of cracks in the US subprime mortgage market to the collapse of Lehman Brothers in September 2008, and the trough of the ensuing recession was reached in both the US and the euro area in the second quarter of 2009 ([NBER](#), [CEPR](#)).

In 2019-2020, it took 3½ months from the first reports on a novel virus in Wuhan to the imposition of lockdowns around the world in late March, and the trough of output in Europe is likely to have been reached in the course of the second quarter.

The recovery will be more drawn out than anticipated

In an environment that is so fast-moving, standard monthly or quarterly macroeconomic indicators are of limited use. Moreover, they are often released with substantial lags – for example, the preliminary flash estimates for second-quarter GDP will become available at the end of July.

Faced with the fast pace of events as well as vast uncertainty about the dynamics of the pandemic and the economic impact of containment measures, forecasters have turned to alternative data to gauge developments in quasi-real time¹.

Avoiding persistent drags from a debt overhang and unemployment hysteresis and minimising the still very large downside risks will require continued policy support

- *Medical indicators* depict a peak of new COVID-19 infections in the EU in the first half of April and a stabilisation at low levels since the second half of May. At the same time, the global number of new infections continues to be on the rise, with no clear indication of an inflection point (Figure 1a).
- *Indicators related to containment measures* illustrate the swift imposition of severe restrictions and their gradual lifting as well as the behavioural responses to the pandemic and related containment measures, for example in mobility patterns (Figure 1b).
- *Economic activity indicators* provide an early estimate of the depth of the economic fallout, for example measures of energy use (Figure 1c) and pollution as well as financial and survey data.

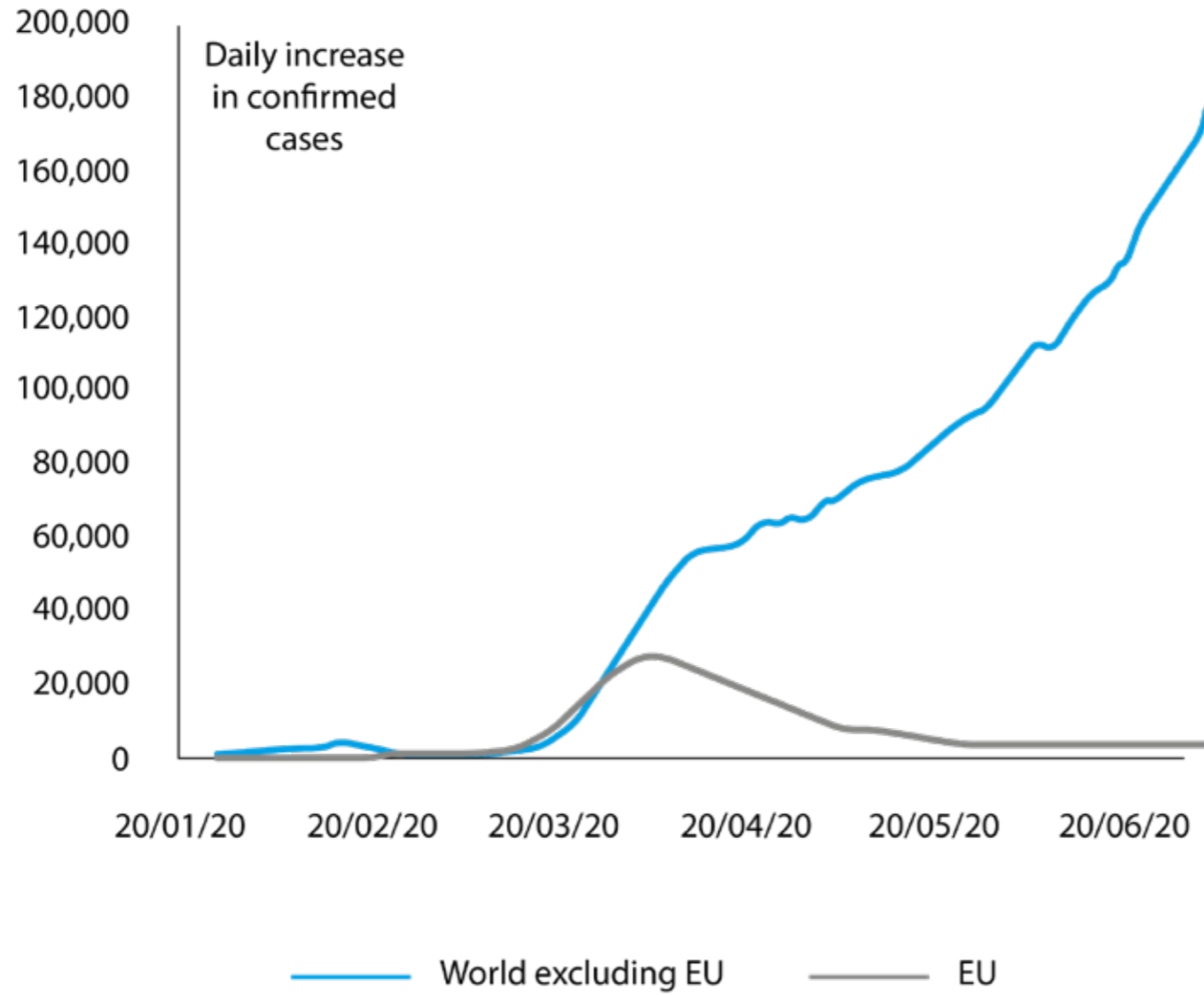
Taken together, these data suggest that economic activity in the euro area was hit harder in the second quarter than initially expected. Consequently, the Commission's [summer interim forecast](#) has revised GDP lower for this year, mostly on account of a later and more gradual lifting of containment measures than anticipated earlier. Other international institutions and private-sector forecasters have also revised their projections for 2020 lower in their latest forecasts (Figure 2).

High-frequency data now also point to a rebound of activity in the past few weeks. The Commission's business surveys for June not only confirm an increase of output expectations but also a bottoming-out of actual activity. The assessment of recent production improved strongly in industry in June and robustly in the retail sector, but only just points to a turnaround in services.

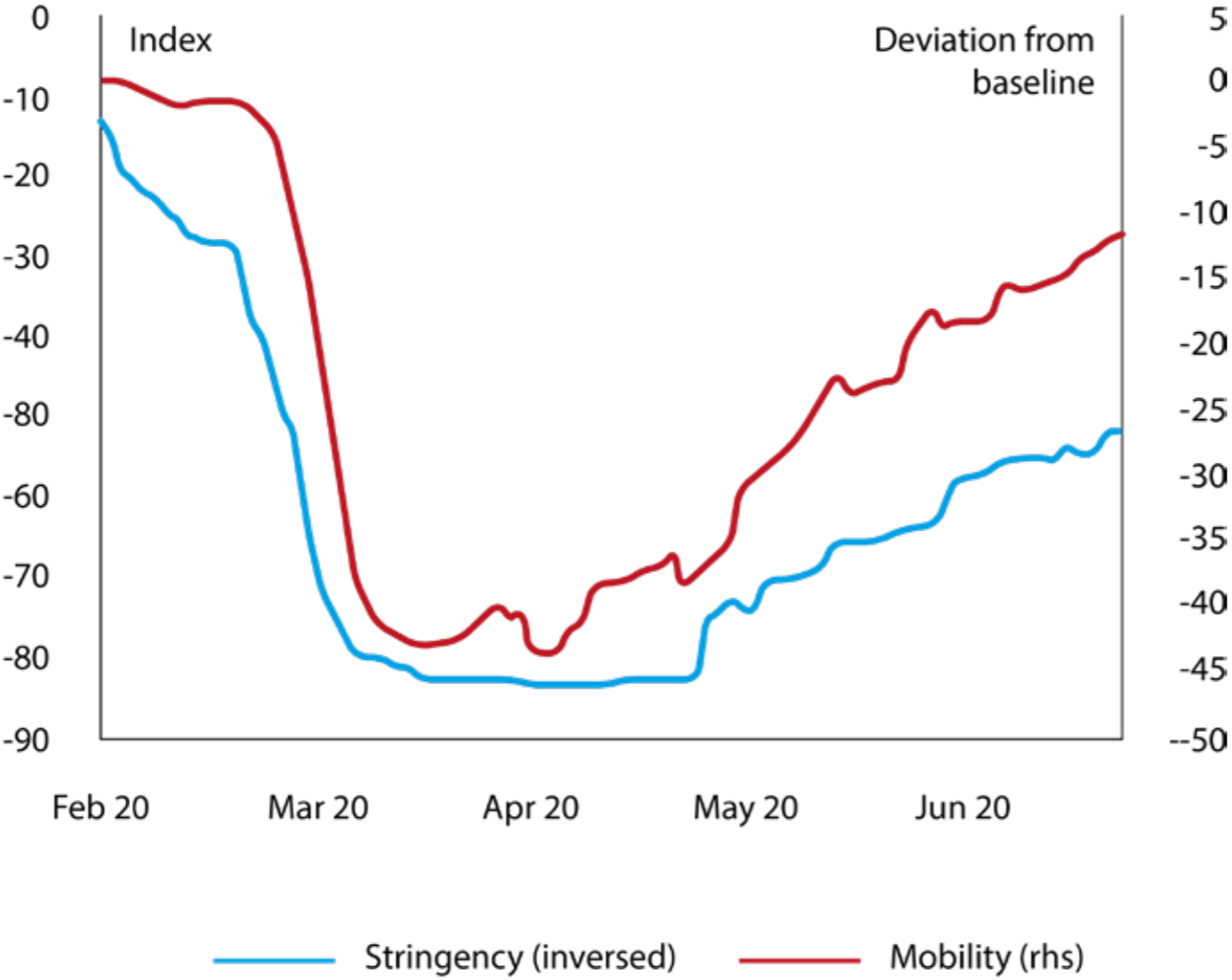
Despite some differences in the quantification of the negative impact this year and the subsequent rebound, there is broad agreement about the general outlook, and in particular that the recovery will remain incomplete by 2021.

Figure 1. Pandemic and containment measures, real-time data

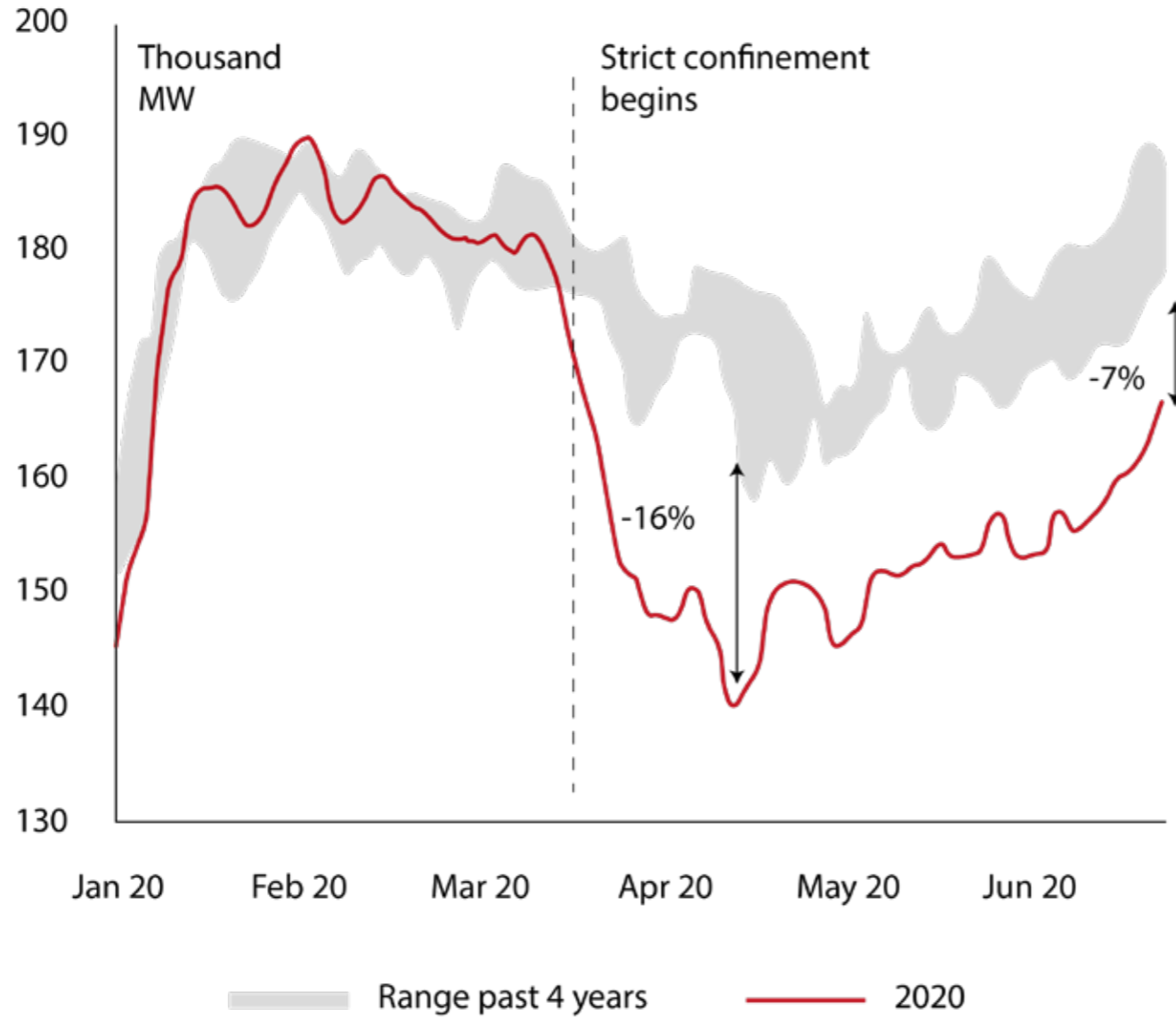
a) Daily new infections



b) Stringency of containment, mobility, euro area



c) Electricity use



Note: Temperature adjusted 7-day rolling average.

Sources: 1a) ECDC; 1b) Oxford University, Google; 1c) ENTSO-E, NOAA

The Commission's Summer interim forecast is based on a number of assumptions regarding the pandemic and the lasting effects of the recession. In particular, the forecast baseline assumes no major second wave of infections.

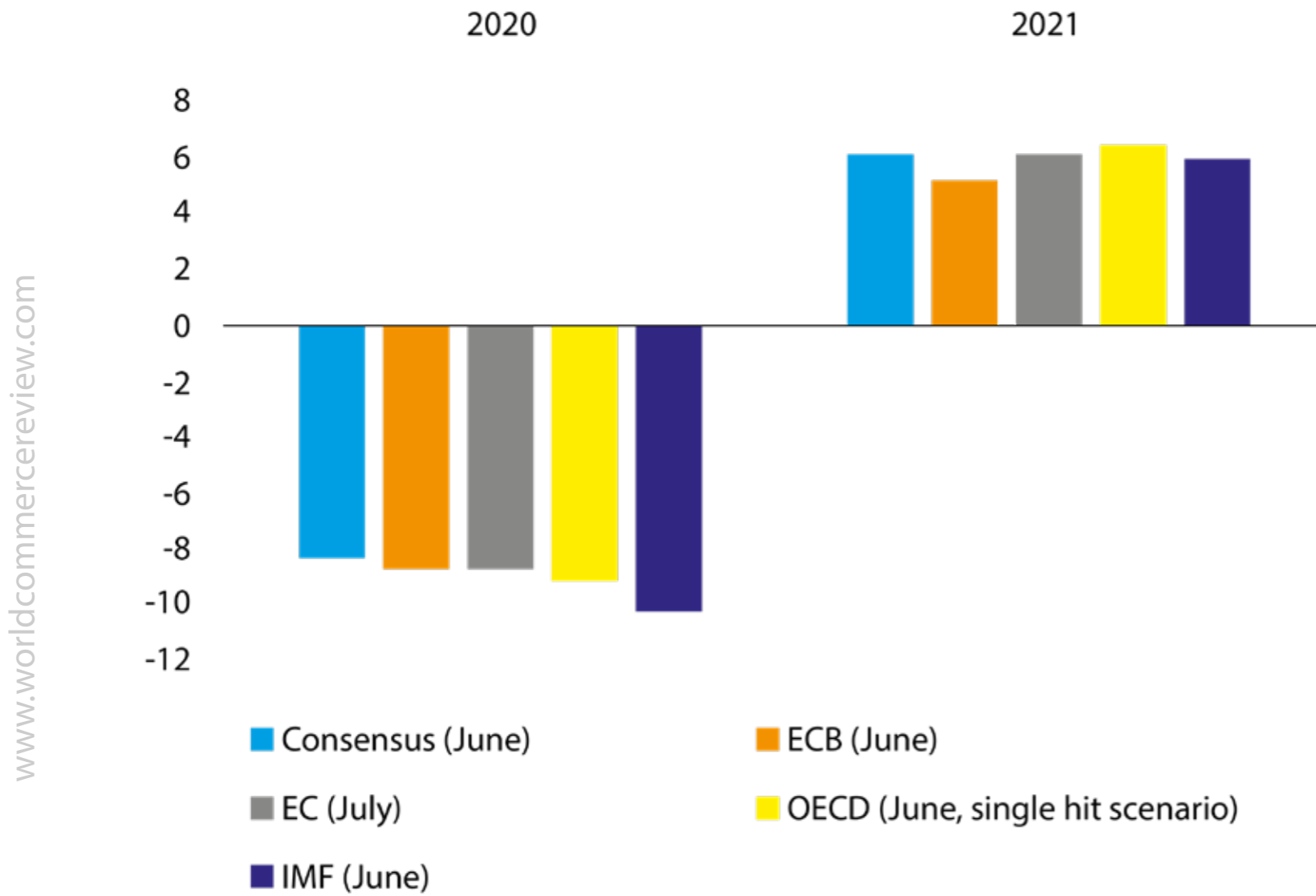
By contrast, the ongoing global spread of the virus, in particular in the US and in a number of emerging market economies, is expected to dampen the rebound of global activity and world trade. It is further assumed that containment measures in Europe will continue to be gradually eased, but that social distancing and consumers' prudence will continue to hold back the recovery in activities that involve personal contact, such as tourism and recreational activities.

The measures that have been put in place to protect jobs and shield firms from bankruptcy are assumed to be effective, without however being able to avoid unemployment increases and insolvencies altogether.

On this basis, euro area (EU) GDP is now projected to drop by 8¾% (8¼%) this year and to increase by 6% (5¾%) in 2021. The quarterly profile implies that output in the fourth quarter of 2021 will still be 2% below the level in the fourth quarter of 2019 in the euro area, and 1¾% in the EU. In the Spring forecast (European Commission 2020a), this gap was projected at ½% for both areas.

Remaining restrictions and voluntary social distancing are likely to affect sectors to which personal interaction is central more permanently than others. Estimations carried out by DG ECFIN's geographical desks confirm that the sectors hit the most in the second quarter are tourism and recreational services, and to a lesser extent manufacturing, construction and wholesale and retail trade. Accommodation and food services, as well as recreational services, are the sectors in which activity is expected to remain the most subdued also in the second half of this year.

Figure 2. Recent GDP growth forecasts for the euro area



Sources: DG ECFIN, ECB, IMF, OECD, Consensus

The increase of the unemployment rate, to 6.7% in May, has so far been remarkably mild in the EU as a whole, on the back of strong policy support for keeping workers in employment relationships during the episode of output losses.

However, some laid-off workers have not been able to actively look for jobs during the lockdowns or withdrew from the labour market to care for relatives and were therefore not counted as unemployed. The drop of hours worked by 2.6% already in the first quarter points to significantly larger shifts in the underutilisation of labour in recent months than unemployment data suggest.

Looking ahead, bankruptcies are likely to rise in the most persistently affected sectors, and some further rise of unemployment will be hard to avoid. This combination will lead to some lasting crisis impact (hysteresis), even in the relatively mild forecast baseline.

Cross-country differences will be large

The negative impact of the crisis is set to differ widely across EU member states. The pandemic has hit countries simultaneously and the nature of the shock appears to have been very similar.

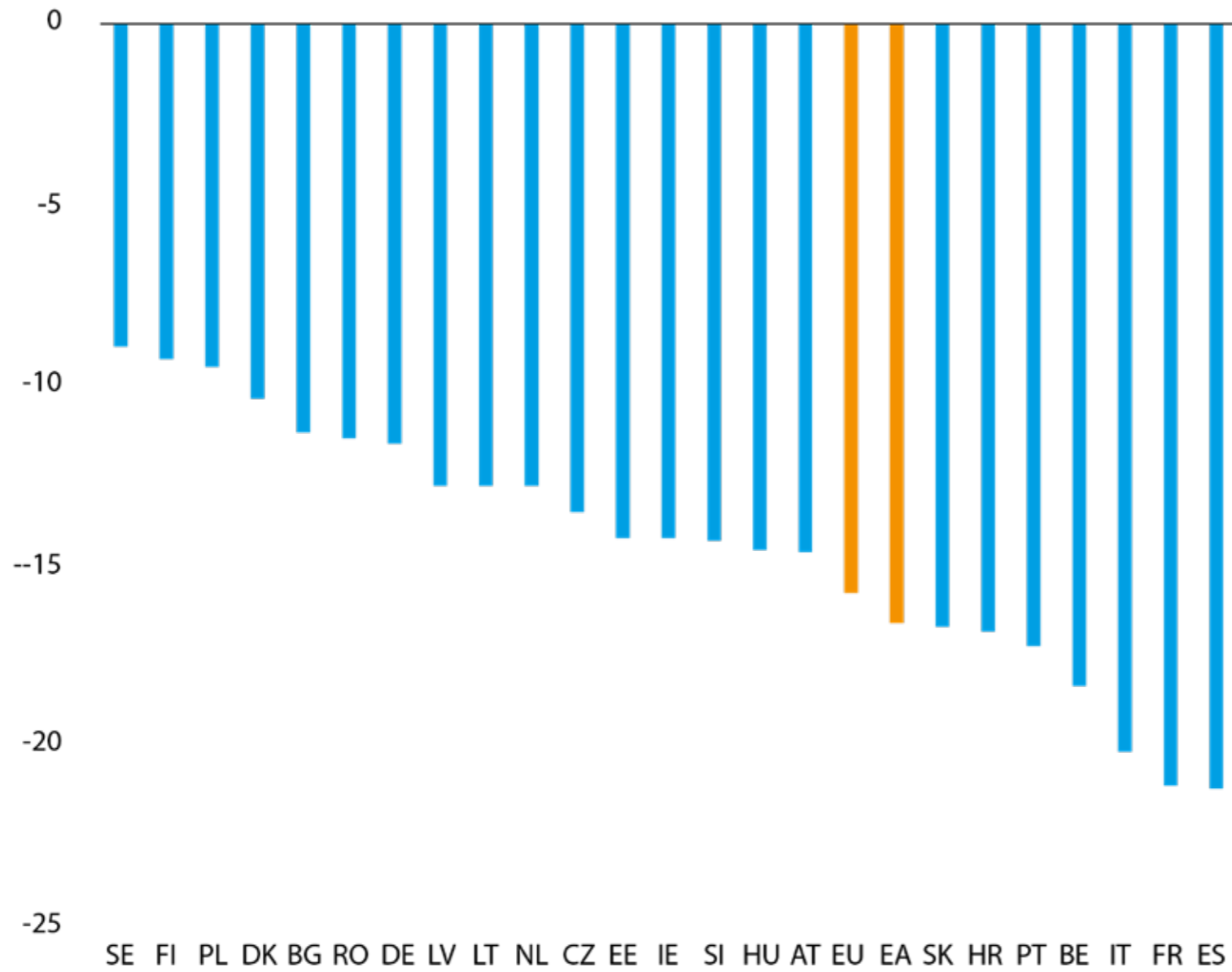
Nonetheless, the projected loss of output over the first two quarters of 2020 compared to the last quarter of 2019 ranges from less than 10% in Finland, Sweden and Poland to more than 20% in Italy, France and Spain (Figure 3a). These differences in the initial impact reflect the severity of the COVID-19 outbreak, the stringency of containment measures as well as different economic structures.

In particular, an important share of personal services such as accommodation and food services and a large dependence on tourism increased the negative impact on member states (Figures 3b and 3c)².

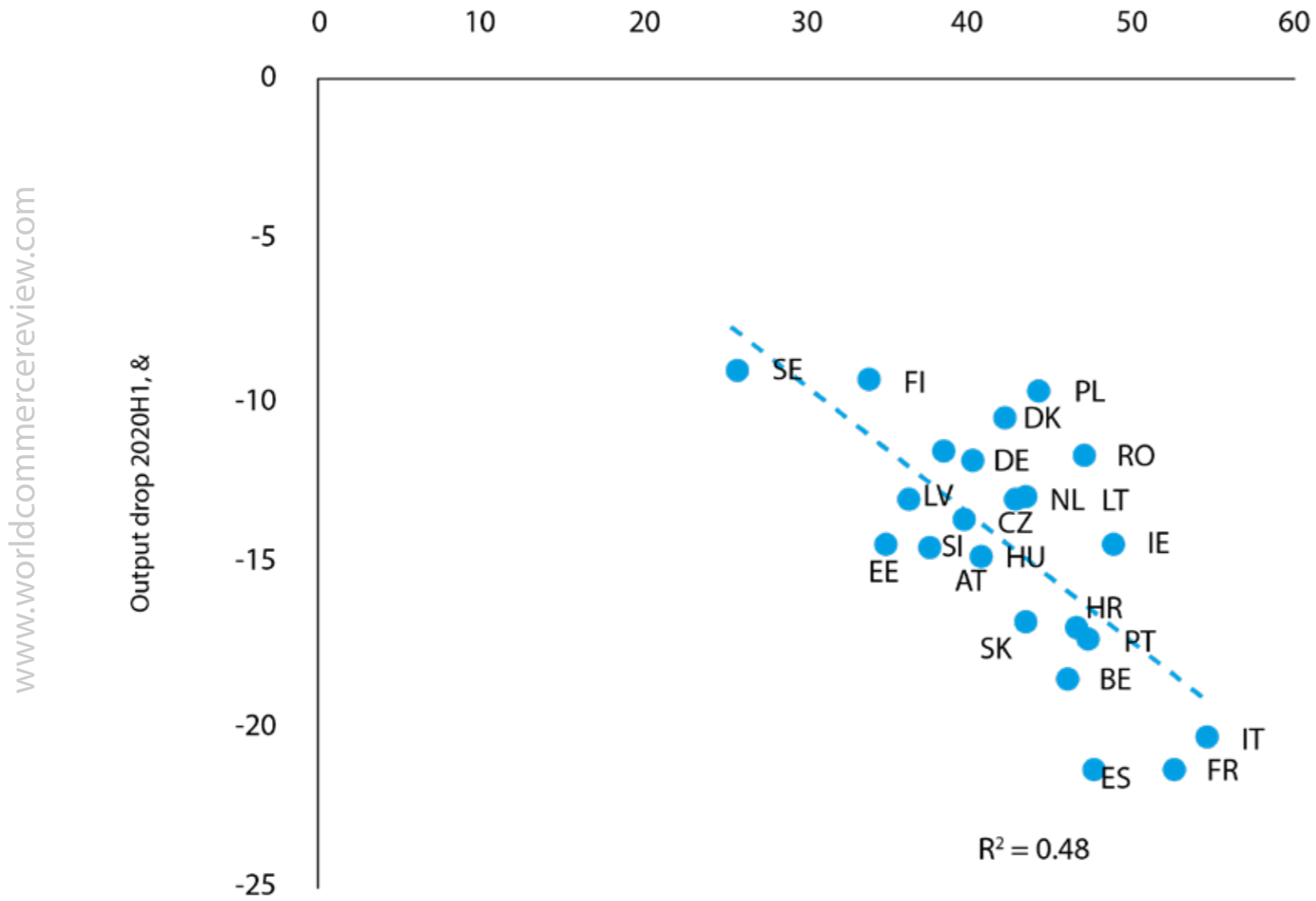
Figure 3. Cumulated loss of output by 2020Q2, drivers

a) Cumulated GDP loss

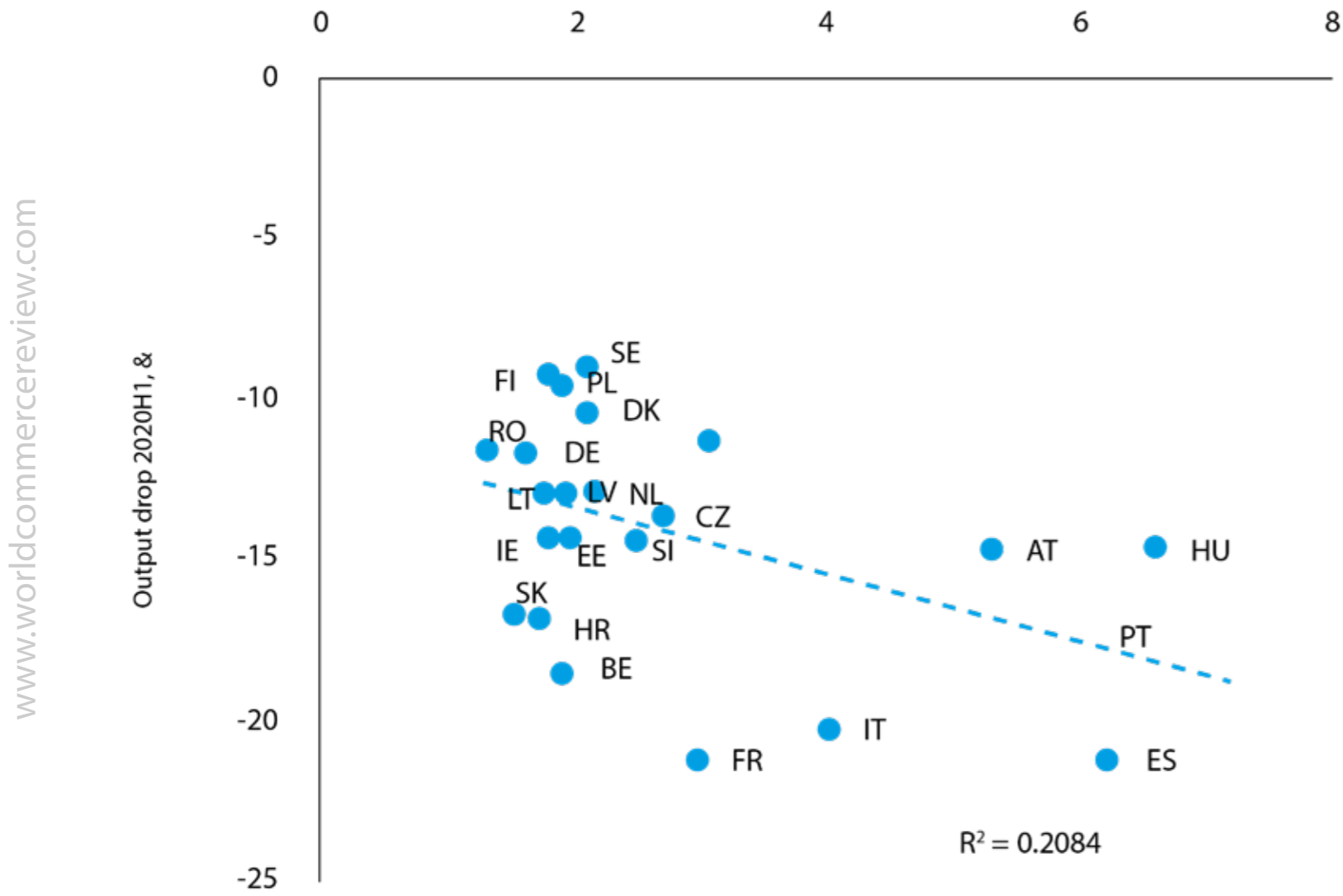
www.worldcommercereview.com



b) GVA share of accommodation and food services

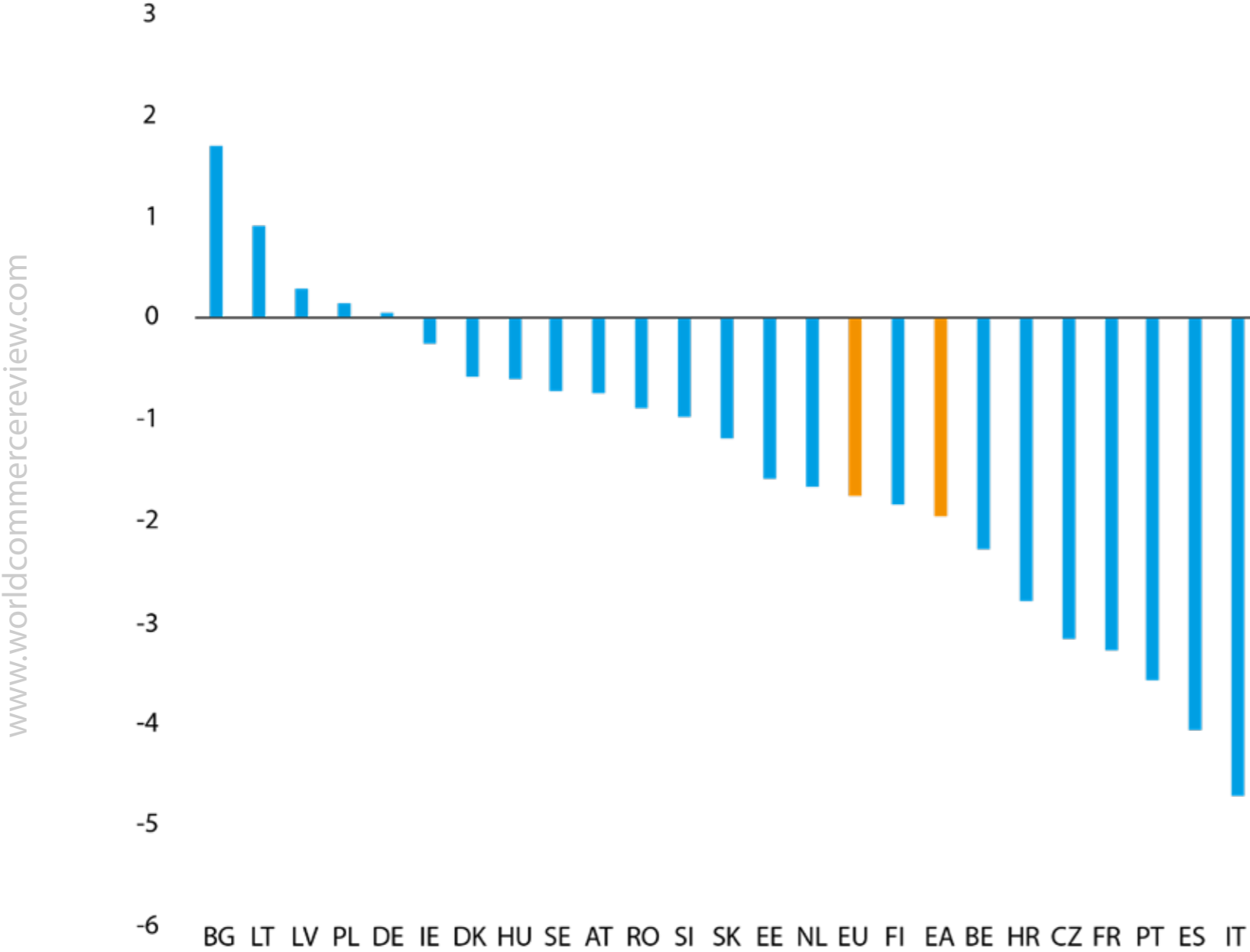


c) Stringency of containment (index average 32020H1)



Sources: 3a) DG ECFIN; 3b) DG ECFIN, Oxford University; 3c) DG ECFIN, Eurostat.

Figure 4. Cumulated change of GDP, 2019Q4 to 2021Q4



Source: DG ECFIN

These divergences are likely to persist also in the recovery. The countries hardest hit so far are expected to continue lagging behind at the end of the forecast horizon (Figure 4).

Labour market developments could amplify the divergence even further. Here, differences across member states are also pronounced, reflecting not only output losses related to the severity of the pandemic and sectoral exposure to COVID, but also institutional features such as the share of short-term contracts and the design and strength of policy responses such as partial unemployment schemes.

Differences in average firm size between member states may also play a role, with small firms being financially more constrained than larger firms. Doerr and Gambacorta (2020) construct a regional employment risk index on the basis of firm size and sectoral specialisation that shows particularly high values for Greece, Spain, Italy, Cyprus, Portugal, Slovenia and parts of France. This puts an emphasis on the need for targeted measures that reflect the geographical differences in Europe's economic fabric.

Need for a large recovery package responsive to sectoral and geographical differences

The Summer interim forecast underscores the need to accompany the recovery with a major fiscal support as outlined in the Commission's 'Next Generation EU' proposal (European Commission 2020b). The downward revisions to the outlook for GDP point to a larger investment gap, indebtedness and financing needs of the public and private sectors than estimated in May, highlighting the urgency even more.

During the past decade, external demand made a major contribution to the recovery from the Great Recession that started in 2009 and the recovery from the sovereign debt crisis since 2013. By contrast, exports are unlikely to come to the rescue this time around, as the COVID-19 pandemic is not only a truly global crisis, but it also continues to affect many of the EU's largest trading partners particularly heavily.

This is confirmed by the continued fast spread of the pandemic outside Europe's borders and ensuing downward revisions to the global growth outlook. More onus is therefore on endogenous domestic demand as a key driver of the recovery.

Large funds have been made available by member states and the EU to protect workers' incomes and prevent bankruptcies during the crisis, but this alone will not be enough to ensure a swift and complete recovery (Revoltella *et al.* 2020).

Avoiding persistent drags from a debt overhang and unemployment hysteresis and minimising the still very large downside risks will require continued policy support.

Careful targeting of this support is essential. In line with the downward revisions to GDP, the shortfall of investment in the EU in 2020 and 2021 compared to the path expected last autumn is even larger than estimated in the spring forecast (European Commission 2020a).

The outlook for economic activity in the countries and sectors most affected by the crisis has been revised down further. Often faced with limited fiscal space, they are also projected to recover more slowly than others. Left unaddressed, these divergences between member states could become persistent and lead to fragmentation within the Single Market and the monetary union.

Moreover, the recovery offers the opportunity to boost investment with an orientation towards the green and digital transitions.

With the recovery plan 'Next Generation EU', the Commission proposes to act on these differentiated financing needs through a combination of several instruments amounting in total to €750 billion over four years (European Commission 2020b, Verwey *et al.* 2020).

Political agreement on this package is needed in the coming weeks in order to implement this fiscal stimulus in a timely manner. ■

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Endnotes

1. Haldane (2020) and references therein; several recent VOX columns including: Leiva-León *et al* (2020); Chen *et al* (2020); and Deb *et al* (2020).
2. In a simple regression, the average stringency of containment measures in the first half of 2020 and the gross-value-added share of accommodation and food services explain more than half of the cross-country variation of output in the first half of 2020.

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The background features a dark blue gradient with several white and light blue icons: a shopping cart, a credit card, a smartphone, and a hand holding a smartphone. The text is overlaid on this background.

The future of retail payments in the US

Lael Brainard remains optimistic about the power of technology and innovation to deliver payments safely, immediately, and efficiently when the appropriate safeguards are in place

It is a pleasure to talk about the future of America's retail payment system. Recognizing that the retail payment infrastructure touches every American, a year ago, the Federal Reserve committed to build its first major new payment system in four decades. At that time, no one anticipated the challenges our nation would soon face. The COVID-19 pandemic has heightened the urgency and importance of delivering a resilient instant payment system that is accessible to all Americans¹.

The COVID-19 pandemic is taking a tremendous toll on communities across America, especially households and small businesses with the least liquid resources to weather the storm². Emergency relief payments authorized in the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, provided a vital lifeline for many households³.

The rapid expenditure of the COVID emergency relief payments highlights the critical urgency of immediate access to funds for the many households and businesses managing cash-flow constraints. After sharply reducing their spending early in the COVID crisis, many households increased their spending starting on the day they received the emergency relief payments and continued for the following 10 days⁴.

The rapid increase in spending was greatest for households with lower incomes, greater income declines, and lower liquid savings⁵. The urgency with which the emergency payments were spent underscores the importance of rapid access to funds for many households and businesses that face cash flow constraints.

The Federal Reserve, acting as Fiscal Agent for the US Department of the Treasury, processed most of the CARES Act payments to households using direct deposit, prepaid debit cards, and checks, which can take several days between the time the funds are sent and the time recipients get access to their funds.

By contrast, the ability to disburse funds via instant payments could have helped reduce the strain for those who needed the funds quickly in order to meet financial obligations. The same is true for other payments intended to provide immediate assistance, for example, in the wake of natural disasters.

In good times as well as bad, instant payments will enable millions of American households and small businesses to get instant access to funds, rather than waiting days for checks to clear. An instant payment infrastructure ensures the funds are available immediately, which could be especially important for households on fixed incomes or living paycheck to paycheck, when waiting days for the funds to be available to pay a bill can mean overdraft fees or late fees that can compound, or reliance on costly sources of credit.

The promise of the FedNow Service is that it will provide a modern payment infrastructure for the future, bringing the benefits of instant payments to communities across America

For small businesses, the ability to receive customer payments instantly could help them manage cash flows when working capital is tied up in materials or inventory. And for the 1 in 10 Americans who regularly work in the gig economy, getting immediate access to the payments for their work could help address cash-flow constraints when money is tight⁶.

FedNowSM service

Consumers and businesses across the country want and expect instant payments, and the banks they trust should be able to provide this service securely. One year ago, the Federal Reserve announced we would build the FedNow Service to enable banks of every size and in every community in America to provide safe and efficient instant payment services around the clock, every day of the year⁷.

The FedNow Service will facilitate end-to-end instant payment services for consumers and businesses, increase competition, and ensure equitable access to banks of all sizes nationwide.

The Federal Reserve is uniquely positioned to build an instant payment infrastructure, given our long history of operating payment systems to promote a safe, efficient, and broadly accessible payment infrastructure. The decision to build an instant payment infrastructure reflected support from a broad set of stakeholders, including the vast majority of over 400 commenters that responded to the Board's 2018 notice, as well as the US Treasury⁸.

Our public mission in providing payment services is built on the proposition that all banks and the communities they serve, no matter their size or geographic location, should have equitable access to the US payment system. Through the direct connections that we have with more than 10,000 banks, the FedNow Service will be broadly accessible to banks and the communities they serve across the country.

The FedNow Service will not only expand but also strengthen the US payment infrastructure by operating alongside the private-sector instant payment service, the Clearing House's RTP network. As they do for other payment services, many banks may choose to maintain access to more than one instant payment service to attain resiliency through redundancy.

Moreover, the Federal Reserve has always had a vital role in the payment system by providing liquidity and operational continuity in times of stress, and the FedNow Service will extend this role directly into the instant payment market.

Together, the FedNow and RTP services should significantly increase the speed and efficiency of the US payment system. The presence of more than one service provider also brings the efficiency benefits associated with competition and benefits consumers, according to analysis from the US Government Accountability Office⁹.

The first year of progress

Since last August, the Federal Reserve has made substantial strides in developing the FedNow Service, including on the evaluation of prototypes of the core clearing and settlement functionality. Across the Federal Reserve System, work has continued apace, commensurate with the high priority of the initiative, even as we have mobilized an unprecedented response to the COVID-19 shock. We have a team of over 100 people working on the program, including experts drawn from across the Federal Reserve System and key external hires.

Since we initiated the FedNow Service one year ago, we have been meeting our project milestones, and I am pleased to announce the Federal Reserve Board has approved the core features and functionality based on extensive input from stakeholders.

The FedNow Service design we are announcing today benefited tremendously from industry feedback, including almost 200 comment letters responding to our notice regarding desired features and functionality. In addition to the core interbank clearing and settlement functionality that will enable consumers and businesses to send and receive instant payments through participating banks, the FedNow Service will include features that enhance the usability of the service.

We heard loud and clear from stakeholders the primary importance of getting this service to the market as quickly as possible. To meet this goal, we are announcing a phased approach that will enable the FedNow Service to get to market expeditiously with a core set of features and to expand available features over time in response to changes in technology and market needs.

Let me highlight several key features of the initial service offering. First, we heard strong support for fraud tools within the FedNow Service to support banks' efforts to mitigate the risk of fraud with instant payments.

Accordingly, upon implementation, banks will be able proactively to set parameters that limit transaction activity in the FedNow Service based on banks' knowledge of their own customers. As we gain insights from banks' experience with the initial set of fraud tools, we will explore other tools that may be valuable, including centralized monitoring by the FedNow Service.

Second, banks told us they want to be able to ensure they have adequate funds in their Federal Reserve accounts on a 24x7x365 basis to cover outflows related to instant payments, especially during hours when existing payment services are not open and funds cannot be transferred into Federal Reserve accounts to cover intraday overdrafts.

Accordingly, we will develop a liquidity management tool that allows a participant with excess funds in its Federal Reserve account to transfer funds to another participant who needs the funds on weekends, holidays, and after hours.

Moreover, we will make the liquidity management tool available for instant payments broadly, including to banks that choose not to participate in the FedNow Service. Participants in a private-sector instant payments service will be able to use the tool to transfer funds from their Federal Reserve accounts to the joint account at a Reserve Bank that backs settlement in that service.

Third, it will be important for the FedNow Service to be interoperable with the private-sector instant payment service to accomplish the goal of nationwide reach for instant payments. As we have learned from experience with our other payment services, the form and timeline for achieving interoperability will depend on the level of commitment and engagement from stakeholders across the industry, including the operators of other instant payment settlement services, both present and future.

In part to facilitate interoperability, the FedNow Service design will use the widely accepted ISO 20022 message standard and other industry best practices¹⁰. To the extent other instant payment services fully adopt the same publicly available, widely accepted standards, this approach would enable a form of interoperability where banks can route payments through either the FedNow Service or other instant payment services based on the available path to the receiver.

This is similar to the prevailing approach in payment card transactions, for instance. We are also open to collaborating on a form of interoperability where messages can be exchanged between the FedNow Service and

private-sector instant payment service operators, similar to the approach used in automated clearinghouse (ACH) systems.

Implementing this approach would significantly increase the required level of commitment and active engagement of the private-sector instant payment service operator from the outset.

In order to minimize time to market, additional features of the FedNow Service would be introduced in phases after launch. It will be important for the FedNow Service to support alias-based payments, whereby a payment can be sent to a recipient using an alias, such as an email address or phone number, rather than requiring an account number.

But providing this feature securely requires addressing legal, operational, and security challenges that would increase the time to market for the core service. Balancing these considerations, we will explore the best ways to add a directory service or other approach to alias-based payments with the goal of providing this feature as a high priority following the initial launch.

The road ahead

As we proceed with the development of the FedNow Service, we will continue our engagement with a broad set of stakeholders to gain input on desired features and to work with banks and their service providers on preparations to adopt the service.

In May, the Federal Reserve Banks announced the formation of the FedNow Community for stakeholders who would like to help inform the development of the FedNow Service¹¹. The Community currently has over 500

members from all segments of the payment ecosystem. We are working with service providers, recognizing their importance in providing essential payment processing services for thousands of banks in this country.

We are also engaging directly with the fintech and software companies who provide customer-facing services that will help banks build innovative instant payment products to serve their communities. The readiness of these stakeholders to support banks' participation in the FedNow Service and expand potential uses through value-added services is key to widespread adoption of instant payments.

We look forward to our continued partnership with banks and other stakeholders in this transformative initiative to deliver a safe and efficient instant payment system with national reach.

It has been an eventful year for retail payments with technology players introducing new business models and accelerating the pace of digitalization. As the central bank, our focus on the safety and integrity of the payment system means we need to ensure that payment innovations do not come at the cost of security, reliability, or consumer protections.

Some newer payment services, while providing what has the look and feel of an instant payment experience for consumers, in fact rely on legacy infrastructure that actually settles transactions on a deferred basis, creating risk for consumers, banks, and the payment system overall.

In contrast, the FedNow Service will offer real-time gross settlement of transactions, an approach that involves each transaction being processed individually and immediately, which avoids interbank credit risk.

Efforts by global stablecoin networks such as Facebook's Libra project to drive the next stage of payment innovation have raised other fundamental questions about legal and regulatory safeguards, financial stability, and the appropriate role of private money¹².

The Federal Reserve remains optimistic about the power of technology and innovation to deliver payments safely, immediately, and efficiently when the appropriate safeguards are in place¹³. We are committed to building an instant payment system that delivers the payment speed that users want without bypassing the legal and regulatory protections they have come to expect from banking relationships.

Ultimately, the FedNow Service can be a catalyst for innovation in the market by providing a neutral platform on which the private sector can build to offer safe, efficient instant payment services to users across the country.

The promise of the FedNow Service is that it will provide a modern payment infrastructure for the future, bringing the benefits of instant payments to communities across America and improving the way households, businesses, and government agencies make payments for many years to come. ■

Lael Brainard is a member of the Board of Governors of the Federal Reserve System

Endnotes

1. I am grateful to Kirstin Wells of the Federal Reserve Board for her assistance in preparing this text. These remarks represent my own views, which do not necessarily represent those of the Federal Reserve Board or the Federal Open Market Committee.

2. For information on the impact of COVID-19 on communities around the country, see Federal Reserve System, [FedListens, Perspectives from the Public \(PDF\)](#) (Federal Reserve System, June 2020); and Claire Kramer Mills and Jessica Battisto, ["Double Jeopardy: COVID-19's Concentrated Health and Wealth Effects in Black Communities, Federal Reserve Bank of New York"](#) (PDF), Brief (Federal Reserve Bank of New York, August 2020).
3. [Bhutta, Blair, Dettling, and Moore \(2020\)](#) show that in the absence of the CARES Act, only half of families suffering job loss would have been able to finance spending for six months using only liquid savings and standard unemployment benefits, while 94 percent of families would be able to maintain spending for six months with additional benefits from the CARES Act.
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This article is based on a [speech](#) delivered at the FedNow Service Webinar, Washington, DC (via webcast)

The microeconomics of cryptocurrencies



Hanna Halaburda, Guillaume Haeringer, Neil Gandal
and Joshua Gans summarise the main research findings
to establish a base for future research

Since its launch in 2009, there has been increasing interest in Bitcoin and other cryptocurrencies. Initially mostly discussed in popular media, more recently a growing body of academic research has emerged on the topic, spanning many fields such as macroeconomics, law and economics, and computer science.

This column focuses on the microeconomics of cryptocurrencies, specifically on their supply, demand, trading price, and the competition amongst different cryptocurrencies. It summarises the main findings in this literature over the past decade and establishes a base for future research.

The proposal for the digital currency Bitcoin was released in 2008 (Nakamoto 2008). Since then, its viability has been continuously questioned, with many predicting its demise. So far, such predictions are moot. At its peak in the end of 2017, one bitcoin was worth just below \$20,000, then it dropped to \$3,400 a year later, and bounced back to \$9,000 in spring 2020.

This is despite the fact that Bitcoin is not backed by any real asset nor any governmental claims (such as the ability to use it to settle tax debts). As a consequence, Bitcoin's resilience has increasingly become a topic of interest among economists.

While macroeconomists look to it as a potential study of monetary theory, microeconomists have been interested in Bitcoin due to the seemingly robust nature of an otherwise highly decentralized network without any clear owner.

Bitcoin was initially proposed in a white paper by Nakamoto (2008) and came into existence on 3 January 2009. Nakamoto's contribution was providing the answer to a long-standing question in the cryptography community (and to a lesser extent among libertarians) which is the question of whether it is possible to design a fully decentralized digital currency.

Having a decentralized cash system means that individuals may engage in 'monetary transactions' without involving any third party (like cash, which can be given by a buyer directly to a seller) and without any authority that would, for instance, conduct monetary policy. In the technological jargon, transactions in such a system are called peer-to-peer.

Until the advent of Bitcoin, the problem did not have any obvious solution. By being electronic, the 'coins' can, in principle, easily be copied and thus used several times. That is, one faces the risk of double-spending. The double-spending problem can theoretically be avoided if, at any time, there is a consensus among all participants about which coin was spent, and by whom.

... it is also clear that the cryptocurrency ecosystem continues to evolve, [but] its precise place within the broader economy has yet to be established

However, such real-time consensus in peer-to-peer systems is known to be impossible, according to Fischer *et al's* (1985) 'FLP theorem', one of the most important theorems in computer science. In a practical sense, this means that one needs what is called a 'Byzantine fault tolerant system', ie. a system that allows for temporary disagreements as well as a protocol to handle such disagreements.

The challenge is that Byzantine fault tolerant systems are vulnerable to the possibility of double-spending attacks, for it is not possible to distinguish genuine Byzantine faults from double-spending. By understanding the role of incentives, Nakamoto found a way to drastically increase the cost of attempting to double spend. Thus, for many, Nakamoto's contribution was a breakthrough, explaining why it was met with vast enthusiasm and spurred further development.

Over the past five to ten years, the literature on the blockchain and cryptocurrencies has branched out in many directions, including initial coin offerings, smart contracts, governance, macroeconomic impacts, stable coins substitution, central bank digital currencies and, of course, an entire branch of computer science.

In Halaburda *et al.* (2020), we offer a survey that focuses on the developing microeconomics literature through the lenses of the standard division of economics: supply and demand (of Bitcoin), price, and competition.

The supply side of the market essentially depends on miners (the agents who validate and record transactions) and their incentives. Here we discuss the literature that formally examines issues related to equilibrium when miners are strategic. Recognizing that miners are driven by economic incentives sheds a different light on the prescriptions of software protocols.

For example, the economic literature quickly established that Nakamoto's 'longest chain rule' - a protocol to restore consensus among miners in case of disagreement - is incentive compatible in equilibrium. However, the literature also found other equilibria, which do not offer the same level of robustness of the system.

Moreover, the economic lens allows us to recognize proof-of-work mining, the mechanism used by Bitcoin to minimize potential disagreements, as a well-analysed type of contest (Tullock contest). Using the properties of Tullock's contests allows us to derive limits to the decentralization of mining under proof-of-work protocols. Finally, we discuss the literature which shows that achieving consensus is an equilibrium.

As the most crucial issue regarding blockchain stability is the double-spending issue, there is a significant literature on whether the Bitcoin system sufficiently thwarts incentives to double-spend.

Here, we employ the formal model developed by Eric Budish (2018), which examines both (i) the mining competition and (ii) incentive compatibility. It also provides the basis for discussing extensions, like proof-of-work versus proof-of-stake, an energy-frugal alternative to proof-of-work¹. We include this aspect as well in the formal analysis.

Turning to the demand side of the market, we examine the reasons why people use - or don't use - Bitcoin. The interactions between supply and demand impact Bitcoin's price, which has also been the subject of multiple studies.

Finally, we study competition between cryptocurrencies, which is an increasingly relevant topic as the market capitalization of all cryptocurrencies grew at a stunning rate in the past few years.

In February 2014, the market capitalization of all cryptocurrencies was approximately \$14 billion. In January 2018, near Bitcoin's peak, the total market capitalization reached \$825 billion. As of July 2020, total market capitalization was approximately \$275 billion, and Bitcoin's price was slightly above \$9,000.

Thus, despite the spectacular decline in Bitcoin's price from its peak (amounting to more than \$19,000), the total market capitalization of all cryptocurrencies is still ten times as large as it was in 2014.

One particular topic of interest in this area is competition in the market of cryptocurrency exchanges. Over time, this market has evolved from essentially a monopoly in 2011 (Mt Gox served more than 80% of the market) to an oligopoly in 2014 (three firms held 84% of the market share), and finally to a much more competitive market (in August 2019, the top three firms held just 13% of the market).

While broad trends and understanding have emerged, it is also clear that the cryptocurrency ecosystem continues to evolve, and its precise place within the broader economy has yet to be established. Hence, more research will be needed. Hopefully, this survey will help establish a base for such future research. ■

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1. Gans and Gandal (2019) examine the double-spending issue in the case of proof-of-stake.

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Time inconsistency in recent monetary policy



The last decade has seen a continued accumulation of debt. Charles Goodhart, Tatjana Schulze and Dimitri Tsomocos argue that the fundamental issue of the effects of 'low for longer' on the resilience of our wider financial structure remain

A decade of near-zero, and even negative, interest rates in advanced economies has both encouraged the continued accumulation of debt and a search for yield in riskier assets, while at the same time eroding bank profitability in the retail business.

This column discusses some of the palliative measures that central banks have taken to offset the erosion of bank profitability, and raises the question of whether, and how, the longer-term implications of the excessive accretion of debt will be handled.

The financial crisis was primarily caused by excessive leverage in the banking sector. Whilst this has been reversed by toughened regulation, the decline in interest rates during and after the financial crisis has encouraged a further accumulation of debt, and a reach for yield, not in banks but in the private and public sectors.

This has made the private sector's financial position less resilient in the face of the COVID-19 pandemic. Further, the measures taken to counter the pandemic have led to an additional surge in debt accumulation with all its accompanying problems.

Over the past decade, there have also been growing concerns about the effects of the low-for-long era on the profitability of banks, especially in the euro area. These concerns have been fuelled by the negative interest rate policy (NIRP) adopted by the ECB on 11 June 2014¹.

While the evidence on the effects of negative deposit rates on bank profitability is mixed, criticism has surged, in particular from banking associations such as the Federal Association of German Banks (2020), regarding the detrimental effects of low interest rates on both savers and banks, and ultimately on the stability of the financial system.

In response, the ECB adopted several measures to mitigate the effects of its NIRP on the net interest margin of banks and their incentive to take risks in asset markets whilst employing forward guidance about the continuation of the NIRP.

It is unclear however if these measures are sufficient and appropriate to address the negative longer run effects of unconventional monetary policy within a new paradigm, in which monetary policy ought to also take financial imbalances and fragility into account.

... how can we square the inconsistent objectives of maintaining interest rates low enough to maintain macroeconomic equilibrium without at the same time encouraging debt accumulation, fragile financial markets and an inefficient allocation of resources?

Short-run effects of cuts in the interest rates

What are the immediate and intended consequences of a cut in the rate at which excess reserve deposits are remunerated, specifically into negative territory? The effects can be broadly summarized into effects on the yield curve and on the composition of banks' balance sheets (Boucinha and Burlon 2020, Bubeck *et al.* 2020).

- Yield curve management (intercept): an interest rate cut affects market participants' expectations about the future path of short-term interest rates and the perceived lower bound, thus lowering the entire yield curve.
- Term premium (slope): lower interest rates put downward pressure on the term premium because investors' appetite for longer-term assets increases.
- Lending activity: low interest rates create an incentive for banks to increase lending in order to minimize the cost of holding excess reserves.
- Net worth: increases in asset valuations combined with an increase in interest rate margins in the retail business are expected to increase banks' net worth, conditional on banks' ability to pass (negative) rates on to customer deposits.

Arguably, these channels are amplified in the case of an unconventional cut below zero compared to a conventional interest rate cut above zero. A particular feature of monetary easing below the zero lower bound is that it does not equally transmit to all short-term interest rates. Banks are frequently unable and even reluctant to pass the negative rate cut on to their deposit customers.

As Heider *et al.* (2019) note, the deposit facility rate cut in 2014 was transmitted into an equivalent cut in market rates on short-term debt into negative territory. Yet, it did not result in equally lower, negative rates on retail deposits. Consequently, banks that are more reliant on deposit-funding are disadvantaged vis-à-vis banks reliant on market-based (wholesale) funding.

Longer-term problems of persistently low rates

Despite the power of monetary easing to provide much-needed liquidity in times of market turmoil and pandemics, keeping interest rates too low for too long breeds longer-term structural problems in virtually all sectors of the economy.

- Debt trap: with financing costs pushed to the lower bound, households and governments accumulated large debt burdens before the COVID-19 crisis, and are continuing to do so currently². Moreover, asset purchases by central banks intended to tame the yield curve fuel wealth inequality as there exists a positive wealth effect towards high-income and older households³.

At a deeper level, the combination of income inequality, indebtedness of the poor, and low nominal and real interest rates puts aggregate demand at risk of becoming 'indebted' (Mian *et al.* 2020)⁴ which in turn gives monetary policy 'limited ammunition' going forward.

- Poor credit allocation: at the corporate level, low and negative interest rates lure banks into lending excessively to risky, ailing firms, keeping them afloat through artificially benign lending terms⁵. The rise in the share of zombie firms following long periods of low interest rates is well documented for the case of

Japan (Caballero *et al.* 2008), Europe (Acharya *et al.* 2019), and across 14 advanced economies (Banerjee and Hofmann 2018). The market distortions resulting from zombie firms may even have contributed to disinflation in the euro area over the past decade (Acharya *et al.* 2020).

- Allocation of resources and productivity: bad credit allocation in turn hampers the market's ability to efficiently channel resources to their most productive uses. Employment, investment, and competition suffer in the long run if inefficient firms are not driven out of the market and creditworthy firms suffer from credit misallocation (Acharya *et al.* 2020, Acharya *et al.* 2019, Banerjee and Hofmann 2018, Caballero *et al.* 2008). This development slows growth prospects and economic recovery.
- Profitability of banks: in the short run banks are able to weather losses in their retail business by temporarily investing in asset classes that offer returns above their net interest rate margin. Yet, the sustained erosion of banks' traditional source of income raises the need to search for yield in the longer run through riskier positions.

Such prolonged incentives create potential imbalances in the financial system and increase systemic risk, as interest rates cut into ever deeper negative territory.

In the remainder, we focus on the latter structural effects of low and negative interest rates.

Mixed evidence on the effects of negative interest rates

With different countries and banks under scrutiny, several studies have found heterogeneous effects of NIRP on banks' (i) funding conditions, (ii) credit supply, and (iii) risk-taking.

The role of banks' differing business models provides a common denominator for most of the studies focusing on the euro area. The effects found differ between banks that are less reliant on deposit funding and banks that are more reliant on deposits (Ampudia and Van den Heuvel 2019, Bubeck *et al.* 2020, Heider *et al.* 2019).

While the latter generally appear to be more adversely affected by NIRP in the euro area, Lopez *et al.* (2020) find that high-deposit banks do not seem to be disproportionately vulnerable to NIRP in a more comprehensive sample of banks in 27 countries.

On the one hand, banks' funding conditions are found to be only slightly adversely affected by negative rates because banks manage to pass them on to (corporate) depositors (Altavilla *et al.* 2019, Bottero *et al.* 2020) or to offset them with non-interest income such as capital gains on securities (Altavilla *et al.* 2018, Lopez *et al.* 2020).

This is in line with the finding that banks increase their share of deposit funding following NIRP (Lopez *et al.* 2020). On the other hand, bank net worth is found to suffer from negative rate cuts in the euro area because they are not passed on to depositors (Heider *et al.* 2019) and they reduce banks' equity values (Ampudia and Van den Heuvel 2019).

One way banks are able to compensate the higher cost of funding is by extending more credit to firms. This intended expansionary effect of NIRP on bank credit supply (Altavilla *et al.* 2019, Bottero *et al.* 2020, Lopez *et al.* 2020) is, however, challenged by evidence that NIRP is less accommodative (Heider *et al.* 2019) and that low interest rates depress long-run credit growth (Balloch and Koby 2019).

There is also compelling evidence of a 'risk-taking' or 'reach-for-yield' channel of NIRP (Bottero *et al.* 2020, Bubeck *et al.* 2020, Heider *et al.* 2019). On average, high-deposit banks are found to invest in riskier securities and rebalance

their loan portfolios towards riskier borrowers. The precise channels through which these effects materialize (portfolio rebalancing channel, retail deposit channel, risk-taking channel, bank lending channel) are further explored by Bittner *et al.* (2020).

ECB policies to support bank profitability

On 30 October 2019, the ECB introduced a two-tier system for reserve remuneration. Its main objective is to enhance the pass-through of the negative deposit facility rate to bank lending rates while alleviating some of the burden that NIRP poses to bank profitability.

Moreover, the two-tier system is intended to keep short-term money market rates closely linked to the deposit facility rate as the new steering wheel of monetary policy. With its inception, the ECB followed the examples of central banks in Switzerland, Denmark, and Japan, the latter of which first introduced a two-tier system in 2015. The two-tier system eases pressure on banks' profit margins by exempting a share of banks' excess reserves held with the Eurosystem from the negative deposit facility rate. Two distinct rates apply to different parts of the excess reserve holdings.

A first tier of reserves is exempt from NIRP and therefore remunerated at the current main-refinancing (MRO) rate of 0%. A second tier of reserves is remunerated at the deposit facility rate, which currently stands at -0.5%. The exemption allowance is calculated on the basis of a multiple of minimum reserve requirements. The multiplier is universal across all credit institutions and currently at six, subject to changes by the Governing Council.

By contrast, minimum reserve requirements are calculated on an individual bank basis and dependent on bank customers' deposits. Thus, the two-tier system targets banks reliant on deposit funding as part of their business model. These banks represent the bulk of lenders to the real economy in the euro area.

Did the new two-tier system live up to its goals? A first verdict shows that banks redistributed their excess liquidity through money markets and other channels upon inception on 30 October 2019. Banks with limited usage of their exemption allowance increased their excess liquidity holdings by borrowing from banks exceeding their exemption allowances.

While this redistribution initially took place mainly via secured money markets, their importance declined thereafter as banks used other means to fill allowances such as asset sales (Baldo *et al.* 2019)⁶.

In this debate, other efforts by the ECB to steer the economy while supporting the health of the banking system should not be left unnoticed. Three additional policy measures complement and reinforce the NIRP. First, asset purchases are intended to alleviate funding pressure on banks and enable them to transfer excess liquidity to their peers through asset trading.

Second, forward guidance is designed to reduce uncertainty about the future path of interest rates, thereby giving banks more leeway in making longer-term adjustments to their business models and funding conditions, though such forecasts and guidance have often proven unreliable in the past.

Finally, and more importantly, targeted longer-term refinancing operations (TLTROs) act as a source of very cheap funding⁷. TLTROs offer loans at very favourable terms conditional on banks lending to households and non-financial firms (excluding mortgage-related loans). The resulting savings in funding costs can in turn be channelled towards new credit to the real economy. The targeted nature of TLTROs makes them very flexible and effective as a non-standard monetary policy tool.

An outlook: the exit from NIRP

Recently, there is a common understanding that beyond the 'reversal interest rate' accommodative monetary policy reverses its effect and becomes contractionary for lending and output (Brunnermeier and Koby 2018, Eggertsson *et al.* 2017). The reversal rate tends to rise gradually, the longer the exceptionally low interest rates remain in place. This has raised the question of whether a departure of the economy from the reversal interest rate has been long overdue.

A recent paper by Schulze and Tsomocos (2020) analyses to what extent concerns for bank profitability could be a justification for the ECB to raise interest rates from the (zero) lower bound, in particular if the ECB ascribed a more proactive role to financial stability objectives in its objective function. The authors simulate the paths of inflation, output, bank profits, and default losses under optimal monetary and regulatory policy when the economy departs from the lower bound. The findings do not support the argument that bank profitability will be restored upon departure from the lower bound.

Instead, they highlight the dragging effect on the price level when higher debt servicing costs increase losses from defaults away from the lower bound. Precisely these losses from loan defaults then offset any gains stemming from the net interest rate margin when the economy lifts off from the lower bound.

Thus, monetary policy operates beyond the channels proposed by Brunnermeier and Koby (2018), highlighting the need to take into account Fisherian debt-deflation forces. The model moreover suggests that there are merits to attributing a serious role to financial stability objectives in central banks' monetary policy.

On the one hand, the longer the exceptionally low rates remain, the worse the outlook for financial stability. But on the other hand, raising rates would also cause problems for banks.

Conclusion: more fundamental issues ahead

With the current pandemic-ridden global economy clinging to the lower bound and central banks such as the Fed playing with the idea of cutting rates into negative territory, the pre-crisis push towards a departure from the lower bound has become deferred indefinitely. Yet, several years down the line, policy makers will again revisit the question of when and how to unwind unconventional monetary policy and revert back to the new 'normal'.

When this occurs, it will be desirable to give banks as much clear guidance as possible in advance about likely prospects. This is advisable even though unforeseen events will often prevent any plan from being carried into practice exactly as predicted.

But even if concerns about bank profitability could be assuaged, the more fundamental issues of the effects of 'low for longer' on the resilience of our wider financial structure remain. Perhaps the deflationary forces that have led to the trend declines in nominal and real interest rates over recent decades may abate and even reverse in the future.

One of us is writing a book on *The Great Demographic Reversal* (Palgrave Macmillan, London, 2020), forthcoming soon, to argue that this will happen. But if not, how can we square the inconsistent objectives of maintaining interest rates low enough to maintain macroeconomic equilibrium without at the same time encouraging debt accumulation, fragile financial markets and an inefficient allocation of resources? This is a question we need a good answer to. ■

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- 1. Other countries that adopted negative interest rate policies include Denmark, Sweden, Switzerland, and Japan.*
- 2. See, for example, the rise in household debt in Sweden following low and negative interest rate policy (Andersson & Jonung, 2020).*
- 3. See Colciago, Samarina, and De Haan (2019) for a survey of the literature on inequality and monetary policy.*
- 4. That is, a drop in spending by poor borrowers cannot be offset by a rise in consumption by rich lenders.*
- 5. For an opposing view, see Bindseil and Schaaf (2020).*
- 6. Despite the achievement of its objective in the short term, the two-tier system has not yet managed to appease the banking industry. In a recent position paper, the Federal Association of German Banks (2020) calls for an adjustment of the two-tier system. It suggests extending the exemption allowance for negative interest rates to a larger fraction of excess reserves in the Eurosystem, calling on the example of Japan where 90% of excess liquidity is exempt from NIRP.*
- 7. As of 12 March 2020, the interest rate on TLTRO III can be as low as 25 basis points below the average deposit facility rate over a one-year ahead period.*

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How to prevent the looming sovereign debt crisis

There is a looming global debt crisis. Joseph Stiglitz and Hamid Rashid propose an IMF-managed multilateral sovereign debt buyback would prevent a debt crisis

From Latin America's lost decade in the 1980s to the more recent Greek crisis, there are plenty of painful reminders of what happens when countries cannot service their debts. This column argues that a global debt crisis today would likely push millions of people into unemployment and fuel instability and violence around the world, and proposes a multilateral sovereign debt buyback facility which could be managed by the IMF.

While the COVID-19 pandemic rages, more than 100 low- and middle-income countries will still have to pay a combined \$130 billion in debt service this year – around half of which is owed to private creditors. With much economic activity suspended and fiscal revenues in free fall, many countries will be forced to default.

Others will cobble together scarce resources to pay creditors, cutting back on much-needed health and social expenditures. Still others will resort to additional borrowing, kicking the proverbial can down the road, seemingly easier now because of the flood of liquidity from central banks around the world. (For a summary of early work focusing on COVID-19 in developing and emerging economies, see Djankov and Panizza 2020).

From Latin America's lost decade in the 1980s to the more recent Greek crisis, there are plenty of painful reminders of what happens when countries cannot service their debts. A global debt crisis today will push millions of people into unemployment and fuel instability and violence around the world. Many will seek jobs abroad, potentially overwhelming border-control and immigration systems in Europe and North America. Another costly migration crisis will divert attention away from the urgent need to address climate change. Such humanitarian emergencies are becoming the new norm.

This nightmare scenario is avoidable if we act now. The origins of today's looming debt crisis are easy to understand. Owing to quantitative easing, the public debt (mostly sovereign bonds) of low- and middle-income countries has more than tripled since the 2008 global financial crisis.

Sovereign bonds are riskier than 'official' debt from multilateral institutions and developed-country aid agencies because creditors can dump them on a whim, triggering a sharp currency depreciation and other far-reaching economic disruptions.

Back in June 2013, we worried that *"shortsighted financial markets, working with shortsighted governments"* were *"laying the groundwork for the world's next debt crisis"* (Stiglitz and Rashid 2013). Now, the day of reckoning has come. This past March, the United Nations called for debt relief for the world's least-developed countries. Several G20 countries and the IMF have suspended debt service for the year and have called upon private creditors to follow suit.

... our concern should not be with the health of capital markets, but with the welfare of people in developing and emerging-market countries

Unsurprisingly, these calls have fallen on deaf ears. The newly formed Africa Private Creditor Working Group, for example, has already rejected the idea of modest but broad-based debt relief for poor countries¹. As a result, much, if not most, of the benefits of debt relief from official creditors will accrue to the private creditors who are unwilling to provide any debt relief.

The upshot is that taxpayers in creditor countries will once again end up bailing out excessive risk taking and imprudent lending by private actors. The only way to avoid this is to have a comprehensive debt standstill that includes private creditors.

But without strong action from the countries in which debt contracts are written, private creditors are unlikely to accept such an arrangement. These governments therefore must invoke the doctrines of necessity and force majeure to enforce comprehensive standstills on debt service.

But standstills will not solve the systemic problem of excessive indebtedness. For that, we urgently need deep debt restructuring. History shows that for many countries, a restructuring that is too little, too late merely sets the stage for another crisis.

And Argentina's long struggle to restructure its debt in the face of recalcitrant, shortsighted, hard-headed, and hard-hearted private creditors has shown that collective-action clauses designed to facilitate restructuring are not as effective as had been hoped.

More often than not, an inadequate restructuring is followed by another restructuring within five years, with enormous suffering on the part of those in the debtor country. Even creditors lose, over the long run.

Fortunately, there is an underused alternative: voluntary sovereign debt buybacks. Debt buybacks are widespread in the corporate world, and have proved effective both in Latin America in the 1990s and, more recently, in the Greek context. And they have the advantage of avoiding the harsh terms that typically come with debt swaps.

A buyback programme's principal objective would be to reduce debt burdens by securing significant discounts (haircuts) on the face value of sovereign bonds, and by minimising exposure to risky private creditors. But a buyback programme could also be designed to advance health and climate goals, by requiring that the beneficiaries spend the money that otherwise would have gone to debt service on creating public goods.

As we explain in new [CEPR Policy Insight](#) (Stiglitz and Rashid 2020), a multilateral buyback facility could be managed by the IMF, which can use already available resources, its New Arrangements to Borrow function, and supplemental funds from a global consortium of countries and multilateral institutions.

Countries that do not need their full allocation of Special Drawing Rights (the IMF's unit of account) could donate or lend them to the new facility. A new issuance of SDRs, for which there is a clear need, could provide still additional resources. To ensure the maximum debt reduction for a given expenditure, the IMF could conduct an auction, announcing that it will buy back only a limited amount of bonds.

In the long term, a predictable, rules-based debt-restructuring mechanism, modelled after the United States' municipal bankruptcy legislation ('Chapter 9'), is needed. That would be in keeping with the recommendations of the post-2008 UN Commission of Experts on Reforms of the International Monetary and Financial System. The usual objection to such proposals is that they would destroy the international capital market. But experience shows otherwise. One can't squeeze water from a stone. There will be restructuring – the only question is whether it will be orderly. Our proposals would aid in achieving this objective, and thus strengthen capital markets.

Ultimately, though, our concern should not be with the health of capital markets, but with the welfare of people in developing and emerging-market countries. There is an urgent need for debt relief now, in the midst of the pandemic. It has to be comprehensive – including private creditors – and more than just a stay of debt. We have the tools to do it. We only need the political will. ■

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Authors' note: the views expressed here are the authors' own and do not reflect the views of the United Nations or its member states.

Endnotes

1. See <https://www.bloomberg.com/news/articles/2020-05-15/private-creditors-form-group-to-negotiate-african-debt-relief>

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Is the market prepared?

The SCA deadline is nearing. Marius Galdikas says the need to adapt will be a watershed moment for businesses

Digital payment providers and vendors in the European Union are facing the fast-approaching deadline to implement Strong Customer Authentication (SCA). The EU legislation was slated to come into force on September 14, 2019. But instead, the new requirements were deemed too complex and pushed back to a rolling deadline. Still, for multiple businesses, the changes will come into force on December 31, 2020, and extend a bit into 2021 for [exceptional circumstances](#). The need to adapt will be a watershed moment for businesses.

What are SCA requirements?

SCA requirements are a part of the EU-wide Payment Service Directive 2 (PSD2), which aim for a unified, smoother euro area payment system. The crux of SCA is the legal requirement and technical application of extra steps in the payment process.

Usually, authentication of this type combines a form of secret knowledge, such as a PIN or password, with a physical object - a chip, card, registered SIM card and phone, or another authentication device. Those requirements must be unrolled to all online transactions and contactless payments made within the EU, and the clock is ticking on rolling out solutions that unite vendors and payment providers in ways both compliant with the law and technically sound.

The changes affect a long list of activities and crucial points for both payment providers and various vendors. Without proper understanding and implementation of the new types of authentication, immediate problems arise. Vendors should act now on SCA, to prevent confusing shoppers, declined payments or abandoned shopping carts. Furthermore, implementing the changes on time will improve the credibility of vendors, as well as the entire payment provider industry.

At the moment, the current behavior of market players suggests that the SCA rules are either confusing, or the business is uncertain about their implications.

However, a wait-and-see stance is not an option, as when the deadline arrives, companies will have no choice but to sort out its compliance to resume business as usual. Although posing certain challenges, the new regulation may, in fact, be key to nurturing further market development - once the initial hurdles are overcome.

Growing market calls to strengthen security measures

The EU has tracked the challenges of the PSP business over the years, suggesting key areas of improvement, especially in combating fraud and scams.

it is crucial for vendors to seek out sound PSP partners that would help ensure their business is equipped with the right technical solutions and capable to accommodate the necessary forms of authentication

For now, a lot of responsibility falls on national legislation, but also on the PSP companies. Detecting fraud is a matter of tracking potentially unauthorised transactions. Scams, on the other hand, are defined as misleading schemes which end up redirecting funds.

The EU has set some [requirements and goals](#) to solve the payment process in a way that prevents unwanted transactions and can keep detailed records to increase the possibility for cross-border consumer protection.

The EU map of e-commerce and payment systems is highly varied, with both leaders and laggards. But this map also has room for growth due to increasing complexities of cross-border transactions. The current common euro area payment system built a network between banks, but the connections between vendors and payment providers are not any less complex, and also face challenges hindering growth.

Notably, Eurostat also [discovered](#) a growing e-commerce connectivity between EU countries. In 2019, 35% of purchases were made across borders and sourced from an EU country. This compares to 29% of the total purchases back in 2014. Until April 2020, most e-commerce covered physical goods and travel, with most vendors using their proprietary apps or other points of sale.

The looming deadline of the SCA challenges both payment processors and vendors that are struggling with the pressure of the COVID-19 pandemic. The new regulations arrive at a time when the online payment business has already worked hard on security and stricter KYC requirements. Now, the challenge is both legal and technical, as it calls to test and apply even more efficient, secure tools for user authentication.

Boom of e-commerce heightens fraud risk

With the growth of e-commerce and cross-border transactions, there has been a noticeable increase in online-

related revenue. But this growth correlates with increased pressure from fraud attempts. As more users moved online for any activities from basic shopping to purchasing content, this extended the trend of busy online trade.

By April 2020, e-commerce had grown globally by **209% year-on-year**. This trend coincided with a 13% increase of online fraud in April, compared to the same time period for 2019.

That said, not all vendors saw only net positives from increased online spending during lockdown. For some vendors, the past few months were a struggle with day-to-day expenses, and some are still seeking to raise revenues.

Thus, the new SCA regulations may come off as a bigger challenge for some businesses due to unfortunate timing. As their transactions will now need to follow a more complex format, some analysts have described the enforcement of SCA as *"kicking retailers while they're down."*

While the EU is aiming to be hospitable to digital modes of payment, its financial rules remain strict to ensure safety and compliance. The current mode of transactions is less secure, differentiated from the usual PIN and chip of bank cards. The SCA aims to change that by bringing businesses to apply a form of multi-factor authentication, thus preventing account theft and unauthorized transactions.

Racing to meet the deadline

Not all businesses and PSPs are on the path to becoming 'SCA-ready' as some are still **battling** pandemic-related strain on their resources, making it difficult to migrate to the new framework.

In addition, a number of businesses, mostly SMBs, are still unaware of the SCA's true impact on their activities.

Although SCA compliance should be at the top of everyone's mind, it was overshadowed by the current global events. However, if market players want to meet the deadline, the new implementation should become a top-list priority for vendors, and they should also start looking for partners already implementing robust forms of verification in accordance with the newly proposed rules.

Also, what should not be overlooked is that SCA encompasses not just 2FA, but much more, including dynamic linking and proper messaging to the customer about operations being authorised.

An everyday challenge to e-commerce vendors will be facilitating a bulk-payment approach, where each payment order has a unique ID and requires distinct PIN codes for verification. However, generating many PINs – and fast – becomes tricky, especially for banks still running on legacy systems, which are not up to speed to SCA requirements.

That said, vendors could fill in the gaps with a reliable PSP, which has already taken care of all the intricacies concerning the new law.

In our case, we became an early adopter of SCA regulations: reacting to the growing transaction volume, we released an [App](#), which covers multi-factor authentication and one-tap approvals for payments. It will also be the basis for numerous innovations we have planned to implement in the near future.

The time to act is now

The EU has been lenient so far, and there is still time for businesses to face the SCA requirements. Even with the challenges ahead, both PSP and retailers can benefit from a clear, unified set of rules.

Estimates place card fraud at €1.3 billion per year. It is unknown how this number will float in the coming months, and with the growth of online payments.

However, if implemented, SCA will prevent more cases of fraud while completing the growing interrelated network of vendors and payment providers within the EU.

At this point, resources and knowledge are already available, along with clear EU guidelines. To meet the nearing deadline, it is crucial for vendors to seek out sound PSP partners that would help ensure their business is equipped with the right technical solutions and capable to accommodate the necessary forms of authentication.

Overall, the SCA implementation will put up more barriers against fraud, raising the importance that PSPs and vendors prioritize the December 2020 deadline. Even though there is a set of challenges to be considered, meeting SCA requirements can be still achieved without affecting the day-to-day business - it all comes down to what steps the company is willing to take next. ■

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