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URI DADUSH AND GUNTRAM WOLFF ASKS WHAT EUROPE CAN EXPECT FROM AMERICAN TRADE POLICY

CHRISTINE LAGARDE CONSIDERS EUROPEAN MONETARY POLICY IN A PANDEMIC

2021 CAN PROVIDE A CLIMATE BREAKTHROUGH, ARGUES SIMONE TAGLIAPIETRA

THE GLOBAL TRADE AND FINANCE PLATFORM

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What should Europe expect?

America's trading partners face the question of what the change in leadership, if it occurs, would bring. Uri Dadush and Guntram Wolff consider American trade policy after the election

The European Union-United States trade and investment relationship remains the world's most intensive even after Brexit. Trade between the US and the EU (minus the United Kingdom) totalled around $1 trillion in 2018, about a third larger than US ties with China. EU27/US bilateral FDI stocks surpassed $4.5 trillion, dwarfing those with China.

Despite the frequently differing positions of EU members on trade policy, the EU-US relationship stood the test of time and continued to deepen. But, over the last four years, President Trump's strictly transactional approach to trade policy, with an obsessive emphasis on reducing bilateral deficits, has amounted essentially to managed trade and is diametrically opposed to the principle of non-discrimination enshrined in multilateral trade disciplines, which Americans and Europeans worked together to establish.

This is not just political opportunism, but reflects the President's deep convictions and those of his advisors. Trump's re-election would almost certainly reinforce the trends he established. Trump's challenger Joe Biden is well ahead in the polls but is not certain to prevail even if Trump's campaign is now hobbled by his COVID-19 infection. All of America's trading partners face the question of what the change in American leadership, if it occurs, would bring.

The history of the Obama-Biden administration, and Biden's long Senate track record of supporting major trade legislation, including NAFTA, the Uruguay Round and Permanent Normal Trade Relations with China, might suggest a return to a more traditional approach in trade policy, but that expectation – if taken literally – is unrealistic.

Trade policy does not exist in a vacuum, and much has changed inside and outside the United States in the last four years. We would point to three major shifts a Biden Presidency would have to confront, and which have important implications for the US relationship with the EU:

- Across the US political spectrum, China is seen as a formidable geopolitical and technological adversary. This is not new, but under Trump, relations with China have deteriorated to a cold-war level.

- The sharp secular rise in income inequality within the United States and the intensification of identity politics, driven by race, religion and socio-economic background, have resulted in unprecedented polarisation of US politics. Trump has added fuel to this previously smouldering fire.

A Joe Biden Administration would have to decide to what extent to unpick the major United States trade policy shifts of the last four years. A quick return to comprehensive trade talks with the European Union is unlikely and the US will remain focused on its rivalry with China. Nevertheless, there would be areas for EU/US cooperation, not least World Trade Organization reform

- The economic devastation caused by COVID-19 which, among other consequences, has made the inequality and racial divisions far worse.

As might be expected, each of these issues figures prominently in Biden's campaign manifesto. From the perspective of the European Union and its trade relationship with the United States, the three shifts mean that a Biden presidency would:

- Prioritise above all else the fixing of domestic problems, rather than trade relations (at least initially), perhaps lasting until the mid-term elections in November 2022. This would echo Obama/Biden's first term, during which dealing with the fall-out from the Great Recession was the top priority.

  Taking a lesson from the 1930s, Obama/Biden resisted a relapse into protectionism, but they also placed new trade deals on the back-burner initially.

- Continue to support 'Buy American' policies (a relatively mild manifestation of protectionism which is widely practiced in various forms worldwide) and be less inclined to negotiate new trade agreements. When negotiating them, a Biden Administration will insist on rigorous safeguards, most importantly on those that 'protect' US workers.

- View trade relations through a prism of geopolitical and technological rivalry with China rather than – as was evident during the Cold War – the security umbrella of the North-Atlantic Alliance, which placed Europe higher on the list of priorities.

Comparing scenarios under a Trump or Biden victory, it is useful to consider the US-EU trade relationship in terms of, first the bilateral relationship; second, the US and EU relationships with China and third, multilateral cooperation – specifically, what to do about the crisis affecting the World Trade Organization.

The bilateral relationship

Under a second Trump term, the present sceptical, even hostile, policy towards the EU is likely to intensify. Though Trump has essentially failed to achieve his stated goals in trade (the trade deficit remains, manufacturing jobs have continued to decline and China's stance on structural reforms has hardly budged), our assumption is that during a second term, free from electoral concerns, he will double down on his approach.

Present areas of trade tension, which include aluminium and steel tariffs, data privacy, digital taxes and the secular dispute over Airbus and Boeing subsidies, could escalate into a full-blown trade war that would include tariffs on European cars and a direct challenge to the Common Agricultural Policy.

There is little doubt that a Biden Presidency would mark a toning down of EU-US tensions and a return to civility. Attitudes across the Atlantic will converge again in important areas such as climate change.

Surprisingly, voters who identify as Democrats are far more likely than Republican voters to support open trade, even though that is not the case in the US Congress. Although Biden appeals to many in the rust belt and has supported steel tariffs in the past, the present tariffs on steel and aluminium, based on Section 232 (national security), are hardly compatible with rebuilding alliances. A way will be found to eliminate them or replace them with other mechanisms. The threat of auto tariffs, which are widely opposed anyway, is certain to fade.

Biden, of Irish ancestry, has said that a trade deal with the UK should be conditional on preserving peace on the island of Ireland in line with the Good Friday Agreement. This is generally seen as requiring a continued open border between Northern Ireland and the Republic of Ireland, in keeping with the UK's withdrawal agreement from the EU.

However, any return to negotiations on a comprehensive deal, such as the Transatlantic Trade and Investment Partnership, is highly unlikely. But, late in the Biden term, and as the healing from the COVID-19 crisis occurs, there will be opportunities for partial single or multiple issue-based deals.

Assuming the differing positions of EU countries can be reconciled, win-win areas could include negotiations on services, medical goods and environmental products. Divisions over digital taxes and data privacy may be narrowed.

Importantly, Biden's deeply held concern about climate change offers an opening for negotiations which include trade, such as coordinating a position on the thorny issue of carbon border adjustments.

However, in those negotiations, the United States is likely to be even more demanding and less flexible than, say, under Obama or George W. Bush on account of the domestic and international changes we have outlined, especially the mounting rivalry with China which will persist as the main point of reference in geopolitics.

China

Both Biden and Trump have seen it as in their electoral interest to stir up the growing China phobia of the US body politic. It is not clear, however, whether that necessarily points to an escalation of the China-US trade war post-

election. Trump often boasts of his success (doubtful in our view) in the Phase 1 trade deal with China, and of his intention to strike a more comprehensive and better Phase 2 deal if re-elected.

His passion for the 'deal of the century', the masterstroke that resolves the toughest problem, may well motivate him to work hard towards putting the relationship with China onto a more productive basis.

However, Trump's next deal with China, if it materialises, is sure to continue his managed trade, America First approach, further undermining the multilateral trading system and creating new concerns about discrimination against European firms.

There is little doubt that, while also being hard on China, Biden will be eager to return to something resembling normal trade relations, albeit in a progressive and negotiated fashion. Voters who identify as Democrats are less likely than Republicans to be hostile to China.

Normalisation would entail eventually removing punitive tariffs on 65% of US imports from China (or close to $400 billion of Chinese goods), in exchange for China doing the same on about 57% of their imports from the US and some acceleration of China's structural reforms.

Biden may well decide that the United States should rejoin the Trans-Pacific Partnership (now the CPTPP, consisting of Japan and ten other Pacific nations). The original intent of the TPP, which was negotiated during the Obama-Biden second term, was to 'contain' China and, while the TPP included some novel features such as disciplines on state-owned enterprises and e-commerce, the agreement actually required little new trade liberalisation in the United States, and was estimated to have no impact on US employment. These factors would make it easier for Biden to rejoin.

Unlike Trump's essentially adversarial approach towards Europe, working together with allies to pressure China on reforms will be central to Biden's Presidency and would represent an opportunity for the EU. On matters relating to human rights abuses and Chinese tech companies building communication networks, most Americans support a tough line, irrespective of whether they are Republicans or Democrats.

The EU's challenge will therefore be to reconcile its fundamental interest in a vibrant trade and investment relationship with both superpowers with American demands motivated by US geopolitical and security concerns. That challenge, complicated by the different stances that EU countries take towards China, will remain no matter who is elected in the US.

The WTO

The crisis in the WTO long precedes Trump and is unlikely to be resolved in the foreseeable future whoever is elected US president. Trump and US Trade Representative Robert Lighthizer have been eager to throw away the WTO rule book (whatever Lighthizer might say to the contrary), attempting to neuter the organisation and its dispute settlement arm.

In a second Trump term, the United States will probably reinforce its challenge to the WTO by demanding unilateral tariff concessions from other members, including the EU. Such a demand is sure to be rejected, paving the political path towards US tariff increases across the board.

Biden, by contrast, is likely to revert to a more traditional negotiating stance, to strengthen the rules-based system and preserve the WTO acquis, and – where possible and without setting high expectations – to make progress on reforming it.

Specifically, under Biden, the US will likely make concrete recommendations to reform the working of the Appellate Body and, in exchange, allow renewal of its judges. The US is also likely to resume a push for plurilateral deals which, if critical mass is achieved, may be extended on a most-favoured nation basis to all WTO members, even those that do not undertake commitments under the deal. Biden's inclination to work within the WTO (a stance that enjoys bipartisan support in the Congress) may enable collaboration with both the EU and China.

In conclusion, under Biden the EU's dilemma in managing its trade relationships with two adversarial geopolitical players will remain. The tendency to decouple from China on technology may persist, at least until major advances in structural reforms in China become evident – which appear unlikely in the foreseeable future.

A Biden presidency would also entail a less adversarial approach towards the EU. However, negotiation space and political attention in the US is unlikely to be available for a move towards a comprehensive trade negotiation such as a revamped TTIP, even if the EU were ready for that (which is doubtful).

As the United States adopts a potentially more cooperative and constructive stance on many of the difficult issues that mar trade relations with Europe, from sanitary standards to subsidies, data privacy, carbon border adjustments and taxes on e-commerce, developing a common EU position will be a top priority.

Failure on the EU's part to rise to that challenge is bound to relegate trade relations with Europe even lower in the Biden Administration's priorities. ■

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Europe should promote a Climate Club

Guntram Wolff argues that now is the time for Europe, the US and possibly China to create a global 'Climate Club' to implement tough climate action

The time has come for Europe, the US and possibly China to create a global 'Climate Club'. Global greenhouse gas emissions have increased by about 2% annually over the last two decades. Since the signing of the Paris agreement, global emissions have continued to grow.

We have learnt that delivering on climate protection is difficult when abatement costs are largely national but the benefits from global climate prevention are global. And indeed, the US under President Trump dropped out of the Paris agreement for exactly that reason. In short, mankind is not making nearly enough progress to exclude a possibly catastrophic climate outcome.

Nobel Prize winner William Nordhaus has argued convincingly that the problem of free riding on climate action cannot be simply overcome by voluntary agreement such as attempted with the Paris accord. Instead, he proposed a simple idea whose time has come: a club to implement tough climate action.

This climate action would be significantly more ambitious than the loose Paris agreement. To achieve the ambition, the club would agree on a high common carbon price for all club members, while penalising countries that do not participate. The penalty on non-participants is necessary to keep the club together.

The European Union has understood the importance of external trade measures for its climate policy. In fact, European Commission president Ursula von der Leyen has repeatedly argued for a carbon border adjustment on carbon intensive imports to prevent production to be shifted abroad. Carbon border adjustment can be implemented in line with WTO rules.

True, Europe does not consider carbon border adjustment to be a penalty. Instead, it is an important part of levelling the playing field and avoiding carbon leakage. The US under Trump, however, would have rejected it as an

undue penalty. President Trump would have had enough leverage outside of WTO rules to make it difficult for the EU to implement its climate ambitions.

With the new US President, there is an opportunity for a different conversation. Beyond increased political support, more than 3,000 US economists have called for a border carbon tax to complement a domestic carbon tax.

Europe should propose to the incoming US president to create a climate club with a common carbon border adjustment. Internally, no border tariffs would be applied since both economies would implement a comparable minimum price on greenhouse gas emissions. This creates an incentive to remain committed to the agreement.

Externally, the two economies would impose the same carbon border adjustment. Such a common external tariff would not only prevent undue carbon leakage. It would also be a strong incentive for other countries to join the club. After all, together, the two economies still make for some 40% of global GDP.

Conditions have never been better to negotiate an effective climate club

This club would likely be a stable club. If the carbon border adjustment is done in compliance with WTO rules, trade retaliation from third countries would not be possible.

Moreover, the transatlantic region is still too important for third countries to be able to credibly oppose such a measure with other threats. Since abatement has become much cheaper with price competitive green technology, a simple carbon border adjustment mechanism may well be enough to keep the club stable.

This idea would put the transatlantic economy at the core of global efforts to reduce greenhouse gas emissions. But both Europe and the US would be well-advised to reach out to Beijing to become a founding member of the climate club.

And indeed, influential advisors to the State Council have already called for a multilateral approach on climate to avoid China to be side-lined.

A club including the three major economies of the world would make it difficult for any country to free ride on climate mitigation. From a US perspective, China joining could even be rewarded by removing the bulk of Trump's tariffs on Chinese imports.

And Europe would find it in its geopolitical interest to avoid a hardening of the US-China stand-off. Conditions have never been better to negotiate an effective climate club. ■

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2021 can be a climate breakthrough

Simone Tagliapietra says the new US administration and the EU have a real opportunity, through a 'global net zero coalition', to remove some of the key bottlenecks in the global path to climate neutrality

After four years of absence and boycott, in 2021 the United States will make a comeback to the global climate action scene. The process is already set in motion. Climate change represents – alongside the pandemic, the economic crisis, and racial injustice – one of the four pillars of the Biden-Harris transition team, which will lay the foundations of the administration.

Once sworn into office, Joe Biden is set to immediately re-enrol the US in the Paris climate agreement and to start promoting his plan for climate change and environmental justice.

The plan, aimed at putting the US on an irreversible path to net zero emissions by 2050 while creating millions of well-paying jobs, includes proposals for 100 percent carbon-free electricity by 2035, $2 trillion in green investment over four years and a pledge to devote 40 percent of these investments to disadvantaged communities.

The degree to which Biden will be able to deliver the plan will significantly depend on runoff elections for Georgia's senate seats on January 5, as they will determine which party has control of the US Senate.

Should Democrats win them, Biden would have a majority in the Senate, increasing his chances of a prompt implementation of his climate plan. Without that majority, he would have to resort to executive actions and the use of federal agencies to push parts of his climate agenda, while negotiating other parts in Congress with Republicans, something President Obama also resorted to during his term of office.

Alongside the implementation of domestic green initiatives, Biden will also have to deal with the international dimension of climate action. This comes at an historical juncture for climate commitment: the European Union, China, Japan and South Korea all recently announced goals for net zero emission by 2050 or shortly afterwards.

The addition of the US would bring this to about two thirds of the global economy, and more than a half of the world's emissions.

A sensible way for Biden to engage with the international dimension of climate action might be to engage with the EU in the establishment of a 'global net zero coalition'.

This 'coalition of the willing' – open to all nations – should aim at overcoming some of the key obstacles the world will face on the road to climate neutrality.

Conditions have never been so favourable for global climate action: Washington and Brussels have the responsibility to lead

In an ideal world, the coalition would focus on the joint development of the green technologies that are required to decarbonise our economies: from renewable energy to green hydrogen, from electric cars to batteries. But this is not realistic, as green technology leadership will likely remain a matter of national sovereignty in the US and in EU countries, without mentioning China.

Realistically a 'global net zero coalition' might be focused on items that, although key to the achievement of climate neutrality by the mid-century, would likely fail to materialise in absence of strong international cooperation.

Two examples are the introduction of carbon border adjustment measures and the development of carbon emission removal technologies.

Economists have long argued that the best policy tool to tackle climate change is to price carbon to encourage emitters to reduce their carbon pollution and turn green.

One of the major political difficulties in doing so relates to the fear that such schemes could dampen economic competitiveness and lead to industries' relocation to countries with weak climate policies. These risks can be tackled with the introduction of carbon border adjustment measures, which represent a tax on imported goods based on their carbon content.

The EU intends to introduce such measures in the context of its Green deal and Biden's climate plan also commits to a similar course of action. The best way to introduce such measures is by following a multilateral approach to prevent protectionist risks and global trade tensions.

The US and the EU might thus jointly develop such measures, so that the initiative is not perceived as unilateral. This could pave the way for a smooth introduction of carbon border adjustment measures and therefore allow the development of much stronger carbon pricing schemes in the two blocks and beyond.

Removing carbon from the atmosphere will be necessary to reach net zero by the middle of the century, and subsequently achieve net negative emissions. This can be done with both nature-based and technology solutions.

Nature-based solutions include afforestation and reforestation. Technology-based solutions include carbon capture and storage and geoengineering solutions like direct air capture. Notwithstanding their key importance for climate action, these solutions currently remain insufficiently developed due to a lack of incentive to individual action.

This makes international cooperation essential in the field. The US and the EU might spark such a new global effort on afforestation and reforestation across the world, as well as on research and innovation in technology-based solutions.

2021 can be a breakthrough year for climate. Global momentum to achieve net zero emissions by middle of the century is building in a way no one could have predicted a year ago. COVID-19 has forced nations to inject billions into their economies, and some of them are committed to build back better, notably investing in the green transition.

In November 2021, the United Nations climate conference in Glasgow will see all countries present their new emissions reduction plans for 2030. On top of raising their individual climate ambitions, the US and the EU have a real opportunity, through a 'global net zero coalition', to remove some of the key bottlenecks in the global path to climate neutrality.

Conditions have never been so favourable for global climate action: Washington and Brussels have the responsibility to lead. ■

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They don’t need to be green

The EU needs a liquid market in bonds to fund the recovery programme. Alexander Lehmann argues green bonds would complicate matters

The plan to fund the European Union's recovery programme via debt issuance has raised hopes that a new type of euro-denominated safe asset could emerge. As a priority, the European Commission needs a strategy to create a liquid and transparent market in EU bonds. For now, funding through EU green bonds would complicate that effort.

To fund its future programmes, SURE (employment support, €100 billion) and Next Generation EU (economic recovery, €750 billion), the European Union will expand considerably its role as an issuer in the sovereign debt markets. Political agreement on these programmes earlier this year has raised hopes that at long last a common euro-denominated safe asset – backed by a joint and several guarantee – will emerge.

The EU itself is as yet a minnow in international debt markets. Only €52 billion is outstanding from 18 issues. All were tied to specific programmes and passed on to member states in back-to-back transactions. EU issuance has so far been dwarfed by national issuers with high (AAA) credit ratings and by issuance by the European Stability Mechanism and European Investment Bank.

The EU needs a more modern debt issuance strategy

In issuing such substantial volumes the EU will need to compete for investors alongside other AAA-rated sovereign and supranational issuers. The vision for the EU should be to adopt the practices that it has itself promoted for national capital markets.

Typically, national governments publish a debt management strategy and state their plans for future bond issuance. In each market a small set of dealers is designated to quote a price for trades at all times, and to act as market makers. This in turn means sovereign financing costs can be kept low, and private debt is priced on the basis of a sovereign benchmark.

The European Commission's September 2020 presentation to investors underlines that the EU is not yet close to adopting such practices. With greater transparency and predictability, EU bond issues could become the foundation for more integrated and liquid internal capital markets, and the euro could ultimately become a more significant reserve currency in the international financial system.

The new EU bonds would boost integration between national financial systems, but also reduce the risk of runs on national bond markets and of the destructive interaction between banking and sovereign balance sheets.

In issuing such substantial volumes of debt, the EU will need to compete for investors alongside other AAA-rated sovereign and supranational issuers

The early appeal of sovereign green bonds

A substantial part of the funding of Next Generation EU will need to be devoted to Europe's Green Deal. To make this commitment more credible, the European Commission has now said that 30% of the funding will be raised through green bonds.

Sovereign green bonds are a very recent innovation in capital markets but have been taken up eagerly by investors, though relative to the overall market this segment remains very small. Green bonds are essentially standard bonds that offer enhanced transparency about the use of proceeds for environmental projects and expenditures.

They are invariably backed by the same balance sheet of the issuer that backs standard bonds and have therefore the same credit risk. Poland and France were the first European governments to issue such bonds in 2016-17, since when seven others have joined (Table 1).

Verification standards, the definition of eligible projects and expenditures, and the governance of fund allocation vary widely between the nine issuers.

The EU as an issuer of green bonds?

EU green bond issuance would tap into the strong demand seen so far. But the amount of EU green bonds that has been announced (€225 billion between 2021 and 2026) would be close to the total global issuance in 2019 of such instruments by the private and public sectors.

Three key issues would need to be resolved for international debt markets to absorb such substantial amounts.

Table 1. European country sovereign green bonds

	Cumulative amount (€)	Number of issue	Max maturity (years)
Poland, 2016	3.7 billion	3	30
France, 2017	27 billion	1	22
Hungary, 2020	1.5 billion	1	15
Ireland, 2018	5 billion	2	12
Netherlands, 2019	11.6 billion	1	20
Belgium, 2018	5.7 billion	1	15
Lithuania, 2018	20 million	1	10
Sweden, 2020	8.3 billion	2	10
Germany, 2020	6 billion	1	10

Source: Bruegel.

- The first question is whether there will be a sufficient supply of projects within member states in line with the announced funding targets, and that fit the new EU taxonomy that defines green activities. EU countries have already funded operational as well as capital expenditures from their green bonds. Investors would be wary of past expenditures being refinanced.

- Secondly, a more complex governance system for funds raised would need to be set up. Green bond investors – who seek strict environmental, social and governance (ESG) standards – will expect transparency on the allocation of proceeds, and ideally on the impact of the funds raised.

  Some member states have addressed this by issuing only to the extent and in line with green projects being generated. On occasion, separate accounts have been set up where funds were parked, though it is of course difficult to ring-fence parts of a national budget.

  In France, an independent green evaluation council monitors the use of funds raised. The EU as the issuer of record in all legal documentation would need to offer similar transparency and scrutiny.

  This may well result in tensions between the Commission and member states over allocations, further undermining the quality of the new assets.

- Finally, the requirements of investors seeking a safe asset in a liquid European bond market will need to be reconciled with the expectations of investors seeking ESG attributes in their assets. Standard and green bonds of the same maturity and backed by the same common guarantee would be offered to the market.

This could undermine liquidity and result in pricing differentials, in particular if different EU green bonds are associated with projects or monitoring practices in individual member states.

Priorities for a credible green bond standard

The new EU Green Bond Standard is now doubly needed, though so far no political agreement has been found for the proposal that was published in 2019. The Commission's updated sustainable finance strategy, which is due before the end of 2020, offers a chance to relaunch this initiative.

As sovereign issuers will play a much more prominent role in the green bonds market, new priorities need to be set. This should be done in a way that enables national green bond frameworks to ultimately converge on a strong common EU standard.

A new class of EU green bonds must be limited to a well-defined set of projects, and it is clear the new bond standard will need to refer to the new EU taxonomy. Alongside climate mitigation and adaptation objectives, which have been clarified, four more objectives, including biodiversity, need to be fleshed out within the taxonomy. Trade-offs between the six areas will need to be resolved.

'Greenwashing' by individual issuers would be a key risk, which could undermine the entire asset class. The technical working group on the green bond standard proposed that verification and reporting should be done only by accredited providers and in a standardised process.

The European Securities and Markets Authority, as the EU supervisor of securities markets, would have a key role in the accreditation process, and such powers require legislation.

As for other assets, EU capital markets can become more vibrant and integrated if there is a uniform quality and transparency in each asset class. The new green bond standard should be defined to ultimately allow a single bond type to emerge, comprising both EU and national instruments. ■

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From the payments revolution to the reinvention of money

The digital transformation is triggering a revolution in the financial sector, which will bring innovation but also risks, says Fabio Panetta. The ECB strategy provides a forceful policy reaction

Retail payments play a fundamental role in our daily lives and for the economy. Last year, adults in the euro area made two payments per day on average[1]. The universe of retail transactions[2] amounted to 213 billion payments – two million every five minutes – with an estimated total value of €164 trillion[3].

As part of its mission to promote the smooth operation of the payment system, the Eurosystem has two main objectives in the area of retail payments. The first is to guarantee that people have access to efficient payment solutions that meet their preferences. The second is to ensure that transactions remain safe, underpinning confidence in our currency and the functioning of our economy.

Technological innovation means that the policy implications of these objectives are changing, and new opportunities and risks are emerging. I will present the Eurosystem's response: a strategy for empowering Europeans with efficient, inclusive and secure payments in the digital age. And I will argue that the impending revolution in payments requires us to stand ready to reinvent sovereign money.

Convenience and safety in the digital age

Payments have evolved substantially over time, but the key determinants of their success have remained fundamentally unchanged. People want payments that offer convenience and safety at a low cost. Convenience requires payments to be easy to use, fast and widely accepted, while safety requires low risk from an economic, financial and societal perspective.

The digital transformation is raising the bar for convenience and safety. With the growth of e-commerce and connected lifestyles, people are increasingly demanding immediacy and seamless integration between payments and digital services. At the same time, they are increasingly concerned about privacy, cybersecurity and reliability.

This wide range of desirable features creates scope for innovative payment solutions. Currently, none of the existing solutions – cash, cards, credit transfers, direct debits and e-money – meet all the required features at once. People are forced to use several instruments at the same time. In-person transactions[4] are mostly conducted with cash and cards[5]. Remote purchases are dominated by cards and e-payments[6]. And bills are generally paid using direct debits and credit transfers[7].

We want to enable people to choose their preferred way of paying without having to compromise on their expectations of fast, secure, inclusive and seamless payments

The coronavirus (COVID-19) shock has accelerated the trend towards digitalisation, leading to a surge in online transactions and contactless payments in shops. This trend is likely to persist once the pandemic is over[8]. So we must ask ourselves whether the available means of payment adequately meet the needs of consumers in the digital age.

Cash offers a secure and inclusive way of making in-person payments, but it is not well suited for payments in a digital context, such as in e-commerce. So it is no surprise that it is being used less[9]. Payment cards, on the other hand, facilitate digital, contactless payments. But they are not accepted everywhere. And the Europe-wide acceptance of cards issued under national card schemes currently relies on agreements with international card schemes. As a result, people mostly use international schemes for cross-border card payments, and the European market for card payments is dominated by non-European schemes.

Generally, Europe is increasingly relying on foreign providers, with a high degree of market concentration in some segments, such as card transactions and online payments[10].

We should not let this reliance turn into dependence. Dependence on foreign providers and excessive market concentration would harm competition, limiting the choice for consumers and exposing them to non-competitive pricing. It could reduce the resilience of the payment system and weaken the ability of European authorities to exercise controls.

We must ensure that the payment market remains open to competition, including from European suppliers and technology.

The influx of technology firms

Fintech companies have sparked the latest wave of innovation, accelerating the evolution of the payment system[11]. Many of them have adopted data-driven business models, where payment services are provided free of charge in exchange for personal data. Numerous banks are expanding their range of digital services by entering into agreements with fintechs; in some cases, integration is achieved when a bank acquires a fintech firm.

The global tech giants – the so-called big techs – are aiming for a revolution in the payments landscape, and represent a threat to traditional intermediation[12]. These firms can use data-driven models on an entirely new scale by leveraging their large customer base, real-time data and control of crucial infrastructures for commerce and economic activity – from online marketplaces to social media and mobile technologies.

They can use these advantages, their financial strength and their global footprint to provide new payment solutions and expand in both domestic and cross-border transactions. This would offer them an even stronger base to further expand the range of their financial activities, including lending, as their superior ability to collect and analyse large volumes of data gives them an information advantage.

If not properly regulated, big techs may pose considerable risks from an economic and social perspective and they may restrict, rather than expand, consumer choice. They can aggravate the risk of personal information being misused for commercial or other purposes, jeopardising privacy and competition. And they can make the European payment market dependent on technologies designed and governed elsewhere, exacerbating its vulnerability to external disruption such as cyberattacks.

The big techs may also contribute to a rapid take-up, both domestically and across borders, of so-called stablecoins[13]. As I have argued previously[14], stablecoins raise concerns with regard to consumer protection and

financial stability. In fact, the issuer of a stablecoin cannot guarantee the certainty of the value of the payment instrument it offers to consumers. Such a guarantee can only be provided by the central bank.

Moreover, unlike bank deposits, stablecoins do not benefit from deposit guarantee schemes, their holders cannot rely on the degree of scrutiny that is now the norm in banking supervision, and the issuers do not have access to central bank standing facilities. As a result, stablecoin users are likely to bear higher credit, market and liquidity risks, and the stablecoins themselves are vulnerable to runs[15], with potentially systemic implications[16].

These risks could be mitigated if the stablecoin issuer were able to invest its reserve assets[17] in the form of risk-free deposits at the central bank, as this would eliminate the investment risks that ultimately fall on the shoulders of stablecoin holders[18].

This would not be acceptable, however, as it would be tantamount to outsourcing the provision of central bank money. It could endanger monetary sovereignty if, as a result, private money – the stablecoin – were to largely displace sovereign money as a means of payment. Money would then be reduced to a 'club good' offered in return for the payment of a fee or membership of a platform[19].

We should safeguard the role of sovereign money, a public good that central banks have been managing for centuries in the public interest and that should be available to all citizens to satisfy their need for safety.

Monetary sovereignty could also be threatened if foreign central bank digital currencies became widely used in the euro area, with implications for international monetary spillovers[20].

These risks are not imminent. We must nonetheless be alert to possible non-linear developments that could endanger financial stability and monetary and economic sovereignty. As we aim to enhance the efficiency of European payments, we therefore need to be prepared to rethink the nature and the role of sovereign money.

The Eurosystem policy response

The Eurosystem is implementing a comprehensive policy to ensure that citizens' payment needs are met, while safeguarding the integrity of the payment system and financial stability. Our policy is based on interconnected elements addressing the entire payment value chain.

First, we have enhanced our retail payments strategy, in order to foster competitive and innovative payments with a strong European presence. We are actively promoting pan-European initiatives that offer secure, cheap and widely accepted payment solutions[21].

We are supporting access to bank accounts by non-bank providers, so that they can expand the range of payment initiation services they offer. The Euro Retail Payments Board, chaired by the ECB, has launched a work stream to facilitate this access. We are working to make the European e-identity and e-signature frameworks better suited for payments and the financial sector more broadly.

Our retail payments strategy also builds on the promotion of instant payments, which make funds immediately available to recipients. We have created a solid basis for instant payments, with commonly agreed rules and powerful infrastructures, including the TARGET Instant Payment Settlement (TIPS) service, operated by the Eurosystem. Thanks to the measures we have taken in recent months, all euro instant payment providers and infrastructures will have access to TIPS by the end of 2021.

Second, we are adapting our regulatory and oversight framework to the fast pace of financial and technological innovation. We have reviewed our Regulation on oversight requirements for systemically important payment systems[22], introducing a more forward-looking approach to identify payment systems that are systemically important. And today we are launching a public consultation on the new regulation, which will then become operational by mid-2021.

We are also completing the public consultation on our new framework for electronic payment instruments, schemes and arrangements, the so-called PISA framework. PISA extends our oversight[23] to digital payment tokens[24], including stablecoins, and to payment arrangements providing functionalities to end users of electronic payment instruments[25]. As a result, technology providers can become subject to oversight.

As part of our comprehensive policy, we are working to safeguard the role of sovereign money in the digital era: we want to be ready to introduce a digital euro, if needed.

A digital euro would combine the efficiency of a digital payment instrument with the safety of central bank money. It would complement cash, not replace it. Together, these two types of money would be available to all, offering greater choice and access to simple, costless ways of paying.

We have started a public consultation to seek feedback from people across Europe and gain a better understanding of their needs. It will be completed in January, and the results will be published once they have been analysed.

A digital euro would need to be carefully designed, in order to enhance privacy in digital payments[26], respect the rules on countering illegal activities and avoid interference with central bank policies, first and foremost monetary policy and financial stability.

In particular, a digital euro should be a means of payment, not a form of investment that competes with other financial instruments. This would require limiting the holdings of individual users[27] and mean that, unlike stablecoin issuers, the issuer of the digital euro – the ECB – would not aim to acquire deposits.

A digital euro would support the modernisation of the financial sector and the broader economy. It would be designed to be interoperable with private payment solutions and would thus represent the 'raw material' that supervised intermediaries could use to offer pan-European, front-end payment solutions.

A digital euro would also generate synergies with other elements of our strategy, facilitating the digitalisation of information exchange in payments through e-invoices, e-receipts, e-identity and e-signature. And in making it easier for intermediaries to provide added value and advanced technological features at lower cost, it would give rise to products that could compete with those of the big techs, thereby benefiting end users.

The ECB and the national central banks have started preliminary experimentation through four work streams. First, we will test the compatibility between a digital euro and existing central bank settlement services (such as TIPS)[28]. Second, we will explore the interconnection between decentralised technologies, such as distributed ledgers, and centralised systems. Third, we will investigate the use of payment-dedicated blockchains with electronic identity. And fourth, we will assess the functionalities of hardware devices that could enable offline transactions, guaranteeing privacy[29].

We will take the necessary time to explore all aspects of different options: whether they are technically feasible, whether they comply with the principles and policy objectives of the Eurosystem, and whether they satisfy the needs of prospective users.

Conclusion

Let me conclude. The digital transformation is triggering a revolution in the financial sector, which will bring innovation but also risks. In particular, big techs and stablecoins could disrupt the European financial system. And while they could offer convenient and efficient payment solutions, they also risk endangering competition, privacy, financial stability and even monetary sovereignty.

Our policies provide a forceful policy reaction to the digital shock. We want to create the conditions for a resilient, innovative, diverse and competitive payments landscape that can better serve the evolving needs of European people and businesses. We are promoting safe, pan-European instant payments.

What is at stake is nothing short of the future of money. As private money goes digital, sovereign money also needs to be reinvented. This requires central bank money to remain available under all circumstances – in the form of cash, of course, but also potentially as a digital euro.

We want to enable people to choose their preferred way of paying without having to compromise on their expectations of fast, secure, inclusive and seamless payments. This is our aim today, and it will remain our aim in the future. ■

Fabio Panetta is a Member of the Executive Board of the European Central Bank

Endnotes

1. The data refer to European citizens aged 18 or over and include point-of-sale, person-to-person and remote

transactions, as well as bill payments. See ECB (2020), Study on the payment attitudes of consumers in the euro area (SPACE), forthcoming.
2. Whether they are made at the physical point of sale or online and whether they are made by private individuals, businesses or the public sector.
3. Source: ECB staff estimates based on payments statistics (ECB Statistical Data Warehouse) and findings from ECB (2020), ibid.
4. Payments at the physical point of sale and person-to-person payments.
5. As of 2019, cash is used by euro area adults for 73% of in-person transactions in terms of volume and 48% in terms of value. Card payments account for most of the remainder: 24% in terms of volume and 41% in terms of value. Source: ECB (2020), op. cit.
6. Examples of e-payment providers include PayPal, Sofort and Afterpay. Card payments account for approximately half of all remote purchases, and e-payments for approximately one-quarter, in terms of both volume and value. Source: ECB (2020), ibid.
7. Direct debits account for 41% of bill payments in terms of volume and 37% in terms of value. Credit transfers account for 20% of bill payments in terms of volume and 29% in terms of value. Source: ECB (2020), ibid.
8. About 41% of respondents to a recent survey say they have reduced their use of cash. The vast majority of them expect to continue to pay less with cash after the pandemic is over. See ECB (2020), "Survey on the impact of the pandemic on cash trends (IMPACT)", in ECB (2020), ibid.
9. In terms of the total volume of in-person transactions by euro area adults, cash declined from 79% in 2016 to 73% in 2019. In terms of the value of in-person transactions, it fell from 54% to 48%. In some countries, the use of cash is decreasing more rapidly.
10. VISA and Mastercard intermediate two-thirds of EU card payments and, along with PayPal, dominate online payments.
11. A recent survey identified over 200 new payment solutions, of which more than one-third were provided by start-

ups. For a detailed analysis of these solutions, see ECB (2019), "Implications of digitalisation in retail payments for the Eurosystem's catalyst role", July.

12. See Panetta, F (2018), "Fintech and banking: today and tomorrow", speech at the Bicentennial Annual Reunion of the Harvard Law School Association of Europe, Rome, 12 May.

13. Stablecoins are digital units of value designed to minimise fluctuations in their price against a reference currency or basket of currencies. To this end, some stablecoin initiatives pledge to hold a reserve of State-issued currencies or other assets against which stablecoin holdings can be redeemed or exchanged. Global stablecoins are initiatives which aim to achieve a global footprint, without necessarily relying on existing payment schemes and clearing and settlement arrangements. See Bullmann, D, Klemm, J and Pinna, A (2019), "In search for stability in crypto-assets: are stablecoins the solution?", Occasional Paper Series, No 230, ECB, August.

14. See Panetta, F (2020), "The two sides of the (stable)coin", speech at Il Salone dei Pagamenti, 4 November.

15. A run could occur whenever users – who bear all the risks – expect a decrease in the redemption price of the stablecoin. A run is possible even when the stablecoin issuer provides a financial guarantee, if such a guarantee loses credibility over time as doubts emerge about the issuer's capacity to absorb potential losses.

16. Moreover, large investments in safe assets by stablecoin issuers could influence the level and volatility of real interest rates, with adverse effects on market functioning and the implementation of monetary policy.

17. Reserve assets are the assets against which the stablecoins are valued and redeemed.

18. In the current situation the viability of such a business model is however challenged by the fact that short term rates are negative.

19. If allowed to invest the reserve assets in the form of risk-free deposits at the central bank, the stablecoin issuer could offer the stablecoin holders a means of payment that would be a close substitute for central bank money. In contrast, the substitutability between central bank money and bank deposits is limited by the fact that, on bank balance sheets, deposits are matched against risky assets (bank loans).

20. Ferrari, MM, Mehl, A and Stracca, L (2020), "Central bank digital currency in an open economy", Working Paper Series,

No 2488, ECB, November.
21. In 2019 the ECB's Governing Council formulated five objectives that any such initiative would need to fulfil: pan-European reach and seamless customer experience; convenience and low cost; safety and security; European brand and governance; and global acceptance.
22. Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014.
23. Up to now, oversight activity has been focused on traditional electronic payment solutions such as payment cards, direct debits, credit transfers and e-money.
24. The European Commission's legislative proposal on crypto-assets (MiCA) is an important step in this regard.
25. These include payment initiation services, payment integrators, wallets storing data and tokenised payment account numbers.
26. The ECB has already started work on privacy-enhancing techniques in cooperation with the Bank of Japan. See ECB and Bank of Japan (2020), "Balancing confidentiality and auditability in a distributed ledger environment", Project Stella, February; and ECB (2019), "Exploring anonymity in central bank digital currencies", In Focus, No 4, December.
27. The limits on individual holdings could be achieved by setting a level of remuneration for the digital euro that would make it unattractive to hold amounts in excess of a given threshold. See Bindseil, U and Panetta, F (2020), "Central bank digital currency remuneration in a world with low or negative nominal interest rates", VoxEU, October. Alternatively, limits on individual holdings could be achieved by imposing direct quantitative constraints.
28. The experimentation will examine the scalability of TIPS (i.e. whether it could handle the accounts of hundreds of millions of citizens).
29. The goal is to explore how the bearer of a digital euro could be provided with a positive user experience.

This article is based on a speech delivered at the Deutsche Bundesbank conference on the 'Future of Payments in Europe', Frankfurt am Main, 27 November 2020

Building financial security

COVID-19 has exacerbated a challenging financial situation. Cosmina Amariei says it is paramount to strengthen the EU policy framework for retail investors

Context

The COVID-19 crisis has only exacerbated what for many individuals across the EU is already a challenging financial situation. Large-scale fiscal and monetary counter-programmes continue to be deployed, but the full extent of the economic fallout has yet to be understood.

For this reason, it is paramount to build financial security and resilience by promoting personal responsibility, and by strengthening the social safety net. Undoubtedly, asset allocation will take on new relevance in the context of the lower-for-longer yield scenario (including negative real interest rates), or during other episodes of financial volatility.

In recent months, beneficiaries of pension funds in several countries were allowed emergency access to parts of their savings, or to have the payment of their contributions deferred. Some member states subsidised employers/employees' contributions or limited the materialisation of investment losses.

The shift from defined benefit to defined contribution schemes is expected to accelerate, which creates uncertainty about income in retirement. This will depend more on market returns and decumulation type (lump sum, annuities, phased-in withdrawals).

Market developments

At first glance, it would appear that capital markets offer multiple options, such as stocks and bonds, investment funds, insurance contracts, pension products, etc. In terms of supply, some national markets are more open than others.

But in practice, retail investors do not always find the way to cost-efficient options with a rewarding risk-return profile. These can be further supported by reducing unwarranted complexity, breaking down barriers between countries, as well as by tackling unhelpful fiscal signalling/biases.

On an aggregate level, participation in capital markets varies substantially across the EU for many reasons, such as net financial wealth, market structure, investor knowledge/preferences, regulatory/supervisory aspects and tax regimes.

... it is paramount to build financial security and resilience by promoting personal responsibility, and by strengthening the social safety net

More generally, savings in bank accounts (Figure 1) are simply denied the wealth-generative effect of long-term investments in equities or alternatives, which could establish stronger links with and contribute to recovery in the real economy. Nevertheless, conservative strategies (fixed-income dominated portfolios) remain adequate for certain categories of investors.

The environment in which individuals make financial decisions is inherently 'noisy', regardless of whether they choose to engage directly or go through financial intermediaries. Ensuring that they are not trapped in the web of products or lose the ability to act in their best interests is crucial.

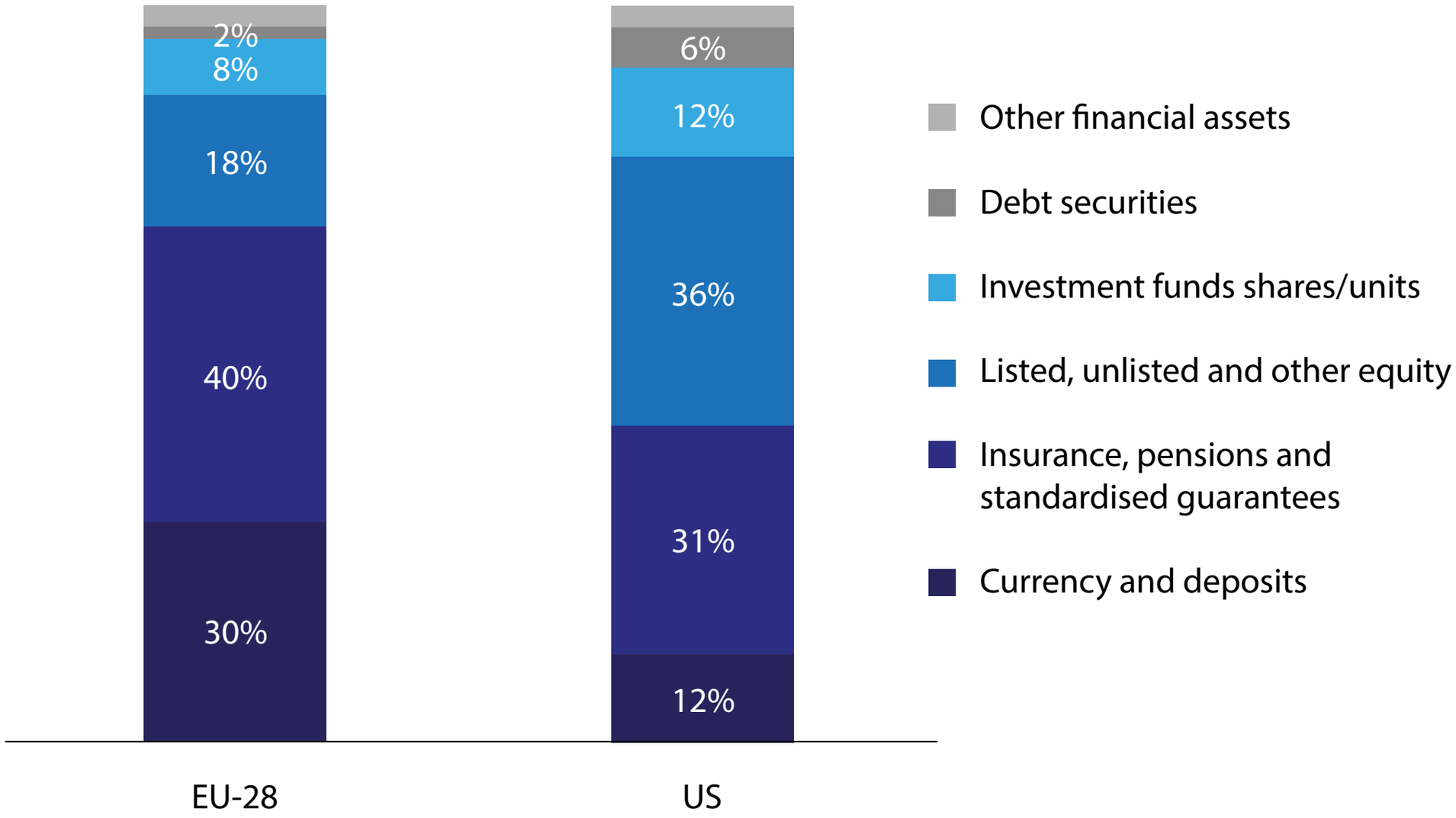
Many relevant criteria for retail investment are hardcoded in legislation[2]. However, the socio-demographic characteristics, available capital, the purpose of the investment, the degree of expected liquidity, the acceptable level of volatility, risk appetite, the search for diversification, all these stand out.

Yet many individuals continue to face obstacles when seeking financial advice or analysing relevant information and comparing various investment options. In this regard, the experience with packaged retail investment and insurance products (PRIIPs) has been far from satisfactory, for consumers or for providers.

The development of an EU-wide database for retail savings/investment products, ideally run by the ESAs (in coordination with NCAs), based on disclosures by regulated entities, would certainly be a significant step forward.

A feasibility study is called for, namely to look into the usability for consumers, relevant search criteria, what products to prioritise, how to ensure consistency across sectors, meaningful data to be populated by providers, and whether to go for a public-private option, etc.

Figure 1. Asset allocation by households (EU-28[1] vs US)



Sources: Eurostat (Q3 2019) and US Fed (Q4 2019).

Retail investors generally also find it difficult to understand the remuneration schemes of financial intermediaries. In most cases, they cannot draw conclusions from the information provided and end up not taking any action based on the disclosed conflict of interest.

Their choice of advisor is more influenced by personal trust and convenience, perceived quality and objectivity and the diversity of products (in-house or third-party). Distribution via banks and insurers is the norm, and is rarely handled directly by asset managers. Generally, fund supermarkets, platforms and online brokers focus on non-complex products.

Most importantly, less sophisticated individuals or those with modest portfolios often struggle to manage their financial affairs and need to be protected from mis-selling practices. The use of default options, mandatory auto-enrolment and execution-only (low-risk investments) versus discretionary mandates or advisory-based models could be more suitable for them.

The trends towards fully bearing the investment risk should also be carefully analysed because it may deter certain types of potential savers. Financial education is also important, but it cannot replace affordable advice, open distribution channels, redress tools or tax incentives.

Regulatory conditions

Sectoral silos could be tackled with the horizontal review of the disclosure, inducements and suitability rules. Regulation should balance investor protection with inclusion/access and be guided by the general principle that products with similar economic characteristics are treated in the same way.

Levelling the playing field between packaged and non-packaged products is also necessary. Sustainable finance (integrating ESG preferences in client profiling and product selection, transparency on features and performance, or the eco-label for financial products) and digitalisation/technology (robo-advice, platforms, comparison tools) will remain important cross-cutting behavioural drivers.

Feeding evidence back into EU policies is not an easy task due to, for example, inconclusive findings or heterogenous conditions. Changes must be informed by normative/positive and behavioural finance based on micro-data, large-scale consumer testing, mystery shopping and benchmarking exercises, in addition to business model analysis across the value chain (manufacturing, distribution, investment).

Isolating institutional determinants or incentives that are present only at national level might add another layer of difficulty for the cross-border dimension. Much work remains to be done to create a fully integrated retail market.

While necessary, driving pricing discipline may not be sufficient. Identifying market segments and/or investment strategies (active vs passive) where investors are in a suboptimal situation is however imperative, without necessarily favouring one product over another.

In their reports on costs and performance, ESMA and EIOPA continue to highlight data challenges, in particular with regards to distribution and advice. The focus has been so far on disclosure, but any other tools (mandated fee levels) could gain traction if preceded by adequate impact assessment.

The Pan-European Personal Pension Product (PEPP) was the first of its kind to introduce an 'all inclusive' cost cap; its economic viability will depend on both savers and providers.

Going forward

Retail investors need coherent and reliable narratives around capital markets. This requires moving away from reductive debates about products and providers. Rather, a comprehensive agenda for retail investors should focus on solutions (and underlying asset classes) to meet specific financial objectives (fully scalable and/or customised). And ultimately, the financial industry must deliver 'good value for money'.

The CMU 2.0 Action Plan alone is not likely to solve long-standing structural problems. Ensuring that retail investors benefit in practice from the same safeguards as professional and institutional investors is essential. Weaknesses in supervision and enforcement could give rise to regulatory arbitrage or market fragmentation, which will be to the detriment of these investors. ■

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Endnotes

1. The differences would be even more pronounced without the UK.

2. For example, MiFID2, IDD, PRIIPS, UCITS, AIFMD, ELTIF, Solvency2, IORP2, PEPP, SFDR, etc.

This commentary is part of a dedicated series, as a follow-up to the CEPS–ECMI Task Force Report on Asset Allocation in Europe: Reality vs Expectations released in April 2020.

Monetary policy in a pandemic emergency

Europe successfully absorbed the shock of COVID-19. Christine Lagarde says the second wave presents new challenges and risks, but the blueprint for managing it is the same

The purpose of this year's conference is to examine the challenges facing central banking in a shifting world. We will be discussing many of the long-term trends monetary policy has to contend with, including shifting patterns of globalisation, climate change and a lower natural interest rate.

Actually, the largest shift central banks are facing today may well turn out to be the pandemic itself. As John Kenneth Galbraith said, *"the enemy of the conventional wisdom is not ideas, but the march of events."* And the events we are seeing today are momentous.

The coronavirus (COVID-19) has produced a highly unusual recession and is likely to give rise to a similarly unsteady recovery. I would like to talk about how the ECB's monetary policy has responded to this unique environment, and how we can best contribute to supporting the economy going forward.

A highly unusual recession

The deliberate shutdown of the economy triggered by the COVID-19 pandemic has produced a highly unusual recession. Most importantly, it has infiltrated and crippled sectors that are normally less sensitive to the economic cycle. In a regular recession, manufacturing and construction are typically hit harder by the cyclical downturn, while services are more resilient. But during the lockdown in the spring, we saw the reverse.

Compare our experience in the first half of this year with the first six months following the Lehman crash. After Lehman, manufacturing contributed 2.8 percentage points to the recession and services contributed 1.7 percentage points. But this year, the loss was 9.8 percentage points for services and much less, 3.2 percentage points, for manufacturing.

This has three important implications. First, research finds that the recovery from a services-led recession tends to be slower than from a durable goods-led recession, as services create less pent-up demand than consumer goods[1]. For example, people are unlikely to take twice as many holidays abroad next year to compensate for their lack of foreign travel this year.

Second, as services are more labour-intensive, services-led recessions have an outsized effect on jobs. Five million people in the euro area lost their jobs in the first half of this year. Of those, almost half worked in retail and wholesale trade, accommodation and food services, and transportation, despite these activities representing less than one-fifth of output. In the six months after Lehman, the worst affected sector – industry – suffered only 900,000 job losses.

The ECB was there for the first wave and we will be there for the second wave. We are, and we continue to be, totally committed to supporting the people of Europe

And third, these job losses hurt socio-economic groups unevenly. In the first half of 2020, the labour force contracted by almost 7% for people with low skills – who typically also have lower incomes – while it fell by 5.4% for those with medium skills and rose by 3.3% for those with high skills. This is double the loss of low-skilled jobs we saw in the six months after Lehman.

In addition to their social impact, job losses for people with lower incomes present a particular threat to the economy, because around half of those at the bottom of the income scale face liquidity constraints and therefore consume more of their income[2]. The labour-intensity of the worst-hit sectors also heightens the risk of hysteresis and 'scarring' in the labour market.

While job retention schemes have played a key role in mitigating these risks, they could not eliminate them entirely. Even though many workers quickly returned to regular employment once restrictions were lifted, a large number of people who lost their jobs in the spring left the labour force and stopped looking for work, with 3.2 million workers classified as 'discouraged'. This is so far different from the post-Lehman period, when the drop in employment was matched by a rise in unemployment.

And young people have been particularly affected, seeing disproportionate lay-offs and delayed entry into the labour market. Research finds that this can have a variety of long-lasting effects, including lower earnings ten to fifteen years later, and worse future health conditions[3].

So, from the outset, this unusual recession has posed exceptionally high risks. That is why an exceptional policy response has been required. And what has defined this policy response, in Europe in particular, is the policy mix. Learning the lessons of the last decade, there has been a renewed consensus that the composition of policies

matters for overcoming the crisis. More than ever before, macroeconomic, supervisory and regulatory authorities have dovetailed and made each other's efforts more powerful.

Policy responses to the pandemic

What has this meant for monetary policy? There are two main ways in which we have adapted the ECB's policy to the pandemic: via the design of our tools and via the transmission of our monetary policy.

First of all, we have responded to the unique features of the recession by designing a set of tools specifically tailored to the nature of the shock, including recalibrating our targeted longer-term refinancing operations (TLTROs), expanding eligible collateral, and launching a new €1.35 trillion pandemic emergency purchase programme (PEPP).

The PEPP in particular has the dual function of stabilising financial markets and contributing to easing the overall monetary policy stance, thereby helping to offset the downward impact of the pandemic on the projected path of inflation.

The stabilisation function of the PEPP is ensured by its flexibility, which is crucial given the unpredictable course of the pandemic and its uneven impact across economies. In this context, the PEPP's flexibility allows us to react in a targeted way and counter fragmentation risks. This was key in reversing the tightening of financing conditions that we saw in the early days of the crisis.

In parallel, the stance function of the PEPP gives us the scope to counter the pandemic-driven shock to the path of inflation – a path that has also been greatly influenced by the specific characteristics of this recession. Not only has inflation fallen into negative territory, but we have already seen services inflation, which is normally the more stable part of the price index, drop to historic lows.

But the PEPP, together with the other measures we have taken this year, has provided crucial support to the inflation path and prevented a much larger disinflationary shock[4]. And its impact has been amplified by interactions with other policies. For instance, the combined effect of the ECB's monetary and supervisory measures is estimated to have saved more than one million jobs[5].

At the same time, the nature of the pandemic also affects the transmission of monetary policy. Normally, an easing of financing conditions boosts demand by encouraging firms to borrow and invest, and households to bring forward future income and consume more. In turbulent times, monetary policy interventions also eliminate excess risk pricing from the market.

But when interest rates are already low and private demand is constrained by design – as is the case today – the transmission from financing conditions to private spending might be attenuated. This is especially true when firms and households face very high levels of uncertainty, leading to higher precautionary saving and postponed investment[6].

In these circumstances, it is crucial that monetary policy ensures favourable financing conditions for the whole economy: private and public sectors alike. Indeed, these are the times when fiscal policy has the greatest impact, for at least two reasons.

First, fiscal policy can respond in a more targeted way to the parts of the economy affected by health restrictions. Research shows that, while monetary policy can increase overall activity in this environment, it cannot support the specific sectors that would be most welfare-enhancing. Fiscal policies, on the other hand, can directly respond where help is most needed[7].

We have seen the efficacy of such targeting in the euro area this year. The ECB's Consumer Expectations Survey shows that households with lower income have seen a greater reduction in the hours they work, but they have also received a higher share of government support.

As a result, while compensation of employees fell by more than 7% in the second quarter, household disposable income fell by only 3%[8], because government transfers compensated for the loss of income.

Second, fiscal policy can break 'paradox of thrift' dynamics in the private sector when uncertainty is present. Public expenditure accounts for around 50% of total spending in the euro area and can therefore act as a coordination device for the other 50%.

Our consumer survey demonstrates this: people who consider government support to be more adequate display less precautionary behaviour. And in this way, by brightening economic prospects for firms and households, fiscal policy can help reinvigorate monetary transmission through the private sector.

The risk of an unsteady recovery

But regrettably the economic recovery from the pandemic emergency could well be bumpy. We are seeing a strong resurgence of the virus and this has introduced a new dynamic. While the latest news on a vaccine looks encouraging, we could still face recurring cycles of accelerating viral spread and tightening restrictions until widespread immunity is achieved.

So the recovery may not be linear, but rather unsteady, stop-start and contingent on the pace of vaccine roll-out. In the interim, output in the services sector may struggle to fully recover.

Indeed, services were already showing a declining trend before the latest round of restrictions: the services PMI fell from 54.7 in July to 46.9 in October. And while manufacturing has so far remained relatively resilient, there is a risk of the recovery in manufacturing also slowing once order backlogs are run down and industrial output becomes better aligned with demand.

In this situation, the key challenge for policymakers will be to bridge the gap until vaccination is well advanced and the recovery can build its own momentum. The strength of the rebound in the third quarter suggests that the initial policy response was effective and the capacity of the economy to recover is still in place. But it will require very careful policy management to ensure that this remains the case.

Above all, we must ensure that this exceptional downturn remains just that – exceptional – and does not turn into a more conventional recession that feeds on itself. Even if this second wave of the virus proves to be less intense than the first, it poses no less danger to the economy.

In particular, if the public no longer sees the pandemic as a one-off event, we could see more lasting changes in behaviour than during the first wave. Households could become more fearful about the future and increase their precautionary saving.

Firms that have survived up to now by increasing borrowing could decide that remaining open no longer makes business sense. This could trigger a 'firm exit multiplier', where the closure of businesses faced with health restrictions cuts demand for complementary businesses, in turn causing those firms to reduce their output[9].

If that were to happen, the recession could percolate through the economy to sectors not directly affected by the pandemic – and potentially trigger a feedback loop between the real economy and the financial sector. Banks

might start tightening credit standards in the belief that corporate creditworthiness is deteriorating, leading to firms becoming less willing or able to borrow funds, credit growth slowing and banks' risk perceptions rising further.

The ECB's bank lending survey is already signalling a possible tightening in the months to come. We are also seeing indications that small and medium-sized firms are expecting their access to finance to deteriorate.

A continued, powerful and targeted policy response is therefore vital to protect the economy, at least until the health emergency passes. Concerns about 'zombification' or impeding creative destruction are misplaced, especially if a vaccine is now in sight.

Remember that lockdowns are a non-economic shock that affects productive and unproductive firms indiscriminately. Policies that protect viable businesses until activity can return to normal will help our productive capacity, not harm it.

The right policy mix is essential. Fiscal policy has to remain at the centre of the stabilisation effort – the draft budgetary plans suggest that fiscal support next year will be significant and broadly similar to this year, and the Next Generation EU package should become operational without delay.

Supervisory authorities are working to ensure that banks can continue to support the recovery by readying them for a potential deterioration in asset quality[10]. And structural policies have to be stepped up so that policy support can accompany the wide-ranging changes that the pandemic will bring, such as an accelerating spread of digitalisation and a renewed focus on climate issues[11].

The outlook for monetary policy

So what is the role of monetary policy in this response? It is clear that downside risks to the economy have increased. The impact of the pandemic is now likely to continue to weigh on economic activity well into 2021.

Moreover, demand weakness and economic slack are weighing on inflation, which is expected to remain in negative territory for longer than previously thought. This is partially due to temporary factors, but the fall in measures of underlying inflation also appears to be connected to the weakening of activity. And developments in the exchange rate may have a negative impact on the path of inflation. Continued policy support is therefore necessary to achieve our inflation aim. But we should also consider how best to provide that support.

The unusual nature of the recession and the unsteadiness of the recovery make assessing the inflation path harder than in normal times. Shifts in consumption baskets caused by supply-side restrictions are creating significant noise in the inflation data[12]. And the stop-start nature of the recovery means the short-term path of inflation is surrounded by considerable uncertainty.

In these conditions, it is vital that monetary policy underpins inflation dynamics by supporting demand and preventing second-round effects, where the negative pandemic shock to inflation feeds into wage and price-setting and becomes persistent. To that end, the best contribution monetary policy can make is to ensure favourable financing conditions for the whole economy. Two considerations are important here.

First, while fiscal policy is active in supporting the economy, monetary policy has to minimise any 'crowding-out' effects that might create negative spillovers for households and firms. Otherwise, increasing fiscal interventions could put upward pressure on market interest rates and crowd out private investors, with a detrimental effect on private demand.

Second, monetary policy has to continue supporting the banking sector to secure policy transmission and prevent adverse feedback loops from emerging. Firms are still dependent on new flows of credit. And those that have borrowed heavily so far need certainty that refinancing will remain available on attractive terms in order to avoid excessive deleveraging.

In other words, when thinking about favourable financing conditions, what matters is not only the level of financing conditions but the duration of policy support, too. All sectors of the economy need to have confidence that financing conditions will remain exceptionally favourable for as long as needed – especially as the economic impact of the pandemic will now extend well into next year.

Currently, all conditions are in place for both the public and private sectors to take the necessary measures. The GDP-weighted sovereign yield curve is in negative territory up to the ten-year maturity. Nearly all euro area countries have negative yields up to the five-year maturity. Bank lending rates are close to their historic lows: around 1.5% for corporates and 1.4% for mortgages. And our forward guidance on our asset purchase programmes and interest rates provides clarity on the future path of interest rates.

But it is important to ensure that financing conditions remain favourable. This is why the Governing Council announced last month that we will recalibrate our instruments, as appropriate, to respond to the unfolding situation. The Council is unanimous in its commitment to ensure that financing conditions remain favourable to support economic activity and counteract the negative impact of the pandemic on the projected inflation path.

In the weeks to come we will have more information on which to base our decision about this recalibration, including more evidence on the success of the new lockdown measures in containing the virus, a new set of macroeconomic projections and more clarity on fiscal plans and the prospects for vaccine roll-outs.

While all options are on the table, the PEPP and TLTROs have proven their effectiveness in the current environment and can be dynamically adjusted to react to how the pandemic evolves. They are therefore likely to remain the main tools for adjusting our monetary policy.

Looking beyond our next policy meeting, our ongoing strategy review gives us an opportunity to reflect on the best combination of tools to deliver financing conditions at the appropriate level, how those tools should be implemented, and what features our toolkit needs to have to deliver on such a strategy.

Conclusion

The pandemic has produced an unusual recession and will likely generate an unsteady recovery. All policy areas in Europe have responded promptly and decisively. The European policy mix has proven that when different authorities work together – within their respective mandates – countries can successfully absorb the pandemic shock.

The second wave of COVID-19 presents new challenges and risks, but the blueprint for managing it is the same. The ECB was there for the first wave and we will be there for the second wave. We are, and we continue to be, totally committed to supporting the people of Europe.

In pursuit of our mandate, we will continue to deliver the financing conditions necessary to protect the economy from the impact of the pandemic. This is the precondition for stabilising aggregate demand and securing the return of inflation to our aim. ■

Christine Lagarde is President of the ECB

Endnotes

1. Beraja, M and Wolf, C (2020), "Demand Composition and the Strength of Recoveries", mimeo.

2. Data from the ECB's pilot Consumer Expectations Survey.

3. Von Wachter, T (2020), "The Persistent Effects of Initial Labor Market Conditions for Young Adults and their Sources", Journal of Economic Perspectives, Vol. 34, No 4, pp. 168-194.

4. Lagarde, C (2020), "The monetary policy strategy review: some preliminary considerations", speech at the "ECB and Its Watchers XXI" conference, 30 September.

5. Altavilla, C, Barbiero, F, Boucinha, M and Burlon, L (2020), "The great lockdown: pandemic response policies and bank lending conditions", Working Paper Series, No 2465, ECB, Frankfurt am Main, September.

6. Bloom, N, Bond, S and Van Reenen, J (2006), "Uncertainty and Investment Dynamics", NBER Working Paper Series, No 12383, National Bureau of Economic Research, July.

7. Woodford, M (2020), "Effective Demand Failures and the Limits of Monetary Stabilization Policy", NBER Working Paper Series, No 27768, National Bureau of Economic Research, September.

8. Year-on-year changes.

9. Guerrieri, V, Lorenzoni, G, Straub, L and Werning, I (2020), "Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?", NBER Working Paper Series, No 26918, National Bureau of Economic Research, April.

10. Enria, A (2020), "Supervisory challenges of the pandemic and beyond", speech at the Handelsblatt European Banking Regulation Conference, 3 November.

11. Lagarde, C (2020), "Remarks at the G30 International Banking Seminar", contribution during the session "Rebuilding and Sustaining Growth", 18 October.

12. Kouvavas, O et al. (2020), "Consumption patterns and inflation measurement issues during the COVID-19 pandemic", Economic Bulletin, Issue 7, ECB, November.

This article is based on a keynote speech delivered at the ECB Forum on Central Banking, Frankfurt am Main, 11 November 2020

The two sides of the (stable)coin

Global stablecoins signal the need for change, but they can pose serious risks, says Fabio Panetta. We should remain open to global competition to foster innovation and be prepared to make the most of it

The payments industry is undergoing a digital transformation, and this transformation is accelerating. We can now pay with cards that are stored in our mobile wallets, ready for a transaction to be initiated at the touch of a button. Mobile payment apps allow us to easily pay or send money to friends. New services based on application programming interfaces, such as payment initiation services, are expanding consumers' choice of e-commerce payments.

Fintechs have sparked the latest wave of innovation. In a recent survey by the European System of Central Banks, over 200 new payment solutions were reported, of which more than one-third were provided by start-ups[1].

New providers have progressively shifted their business models from fee-based to data-driven, where payment services are provided free of charge in exchange for personal data that offer deep insights into users' preferences.

The global technology firms – the so-called big techs – are using this model to leverage their large customer base and expand in global markets. Thanks to their global footprint, they are uniquely positioned to offer services in the area of global cross-border transactions, where current solutions are low quality and expensive.

This is the backdrop against which stablecoins have emerged. They could be used by the big techs to offer innovative payment solutions that work both within and across national borders. While stablecoin initiatives are still in their infancy, they should be carefully analysed as they could radically transform the payments landscape.

I will discuss the potential advantages and risks of stablecoins, and their implications for the payments market, the financial sector and the overall economy. I will then turn to the forward-looking policies that are needed to steer innovation towards welfare-enhancing outcomes.

Two sides of the same (stable)coin

Stablecoins are digital units of value designed to minimise fluctuations in their price against a reference currency or basket of currencies[2]. To this end, some stablecoin initiatives pledge to hold a reserve of state-issued currencies or other assets against which stablecoin holdings can be redeemed or exchanged. Stablecoins became the subject of heated debate last year, after the technology giant Facebook and its partners announced their own global stablecoin, Libra.

Global stablecoins are initiatives which aim to achieve a global footprint[3], without necessarily relying on existing payment schemes and clearing and settlement arrangements. For example, Libra is an integrated construct that simultaneously encompasses a new settlement asset, a new payment rail and new end-user solutions.

The process of digitalisation cannot be reversed – on the contrary, it is picking up speed. Global stablecoins are an expression of the need for change

Global stablecoins could drive further innovation in payments, responding to the need for cross-border payments and remittances that are more efficient and cheaper. Indeed, the Financial Stability Board has proposed a roadmap to enhance cross-border payments that recognises a role for sound global stablecoin arrangements[4].

The flip side of stablecoins is the host of risks they can pose to our social and economic life.

For example, data-driven models could pose a risk of misuse of personal information for commercial or other purposes, which could jeopardise privacy and competition and harm vulnerable groups. Another concern is that wide acceptance of stablecoins offered by foreign companies would make European payments dependent on technologies designed and governed elsewhere.

This could raise potential issues of traceability in the fight against money laundering, terrorist financing and tax evasion. It could also make the European payment system unfit to support our Single Market and single currency and vulnerable to external disruption, such as cyberattacks.

Risks to financial stability and monetary sovereignty

Other risks involve the monetary and financial system. In fact stablecoins, if widely adopted, could threaten financial stability and monetary sovereignty[5]. As I mentioned earlier, stablecoin issuers often promise that their stablecoins can be converted into fiat currencies. But this promise generally differs significantly from the convertibility mechanism for bank deposits or e-money.

In the case of bank deposits, one-to-one convertibility to the fiat currency is safeguarded by deposit insurance schemes and prudential regulation and supervision. The value and safety of e-money holdings are protected by the fact that e-money issuers must hold customer funds in custody by third parties.

These safeguards may not apply to stablecoins, which are therefore vulnerable to runs. If the issuer does not guarantee a fixed value, the price of the stablecoin will vary with the value of the reserve assets, and a run could occur whenever users – who bear all the risks – expect a decrease in the redemption price of the stablecoin. But a run could also occur if issuers do guarantee a fixed value of the stablecoin, if they are perceived as being incapable of absorbing losses.

Moreover, the need to cover redemptions could force the stablecoin issuer to liquidate assets, generating contagion effects throughout the entire financial system. In the case of a global stablecoin, this would affect multiple markets at once.

The payment network of a systemic stablecoin arrangement could also be a source of instability. Stablecoin arrangements are payment systems, insofar as they permit the transfer of value between stablecoin holders. Moreover, stablecoin arrangements can qualify as a payment scheme[6].

Just like any other payment system or scheme, if liquidity, settlement, operational and cyber risks are not properly managed, they may threaten the functioning of stablecoin arrangements and lead to systemic instability.

Large investments in safe assets by stablecoin issuers could have implications for monetary policy. By affecting the availability of safe assets, these issuers could influence the level and volatility of real interest rates, with potentially undesirable consequences for financial conditions from a monetary policy perspective. Market functioning could also be negatively affected.

Furthermore, to the extent that stablecoins are used as a store of value, a large shift of bank deposits to stablecoins may influence banks' operations and the transmission of monetary policy.

Extreme scenarios are probably not around the corner. Under current conditions, the reserve assets of the stablecoin issuers would be remunerated negatively[7], so non-interest-bearing stablecoins would hardly be viable unless they were subsidised by the issuer. We must nonetheless remain alert to possible developments that may affect how a central bank exercises its core mandate.

Risks would seemingly be mitigated by allowing stablecoin issuers to deposit funds in accounts at the central bank. This would eliminate custody and investment risks for stablecoins and underpin their issuers' commitment to redemption at par value into fiat currencies.

But other fundamental problems would then emerge. In fact, the perceived safety of a private settlement asset – the stablecoin – would come at the risk of relegating other settlement assets, especially public assets, to a minor role.

A large take-up of stablecoins could replace sovereign money – a public good offered for centuries by the state to its citizens – with a 'club good', whereby payment services are offered to a select group of people in exchange for platform membership and personal data.

This would not be acceptable. The function of sovereign money reflects citizens' need for safety and their trust in the State. Central banks offer sovereign money to all citizens, and manage it in the public interest. Citizens should not have to choose between the convenience of their favourite apps and devices and safety, of which central bank money remains the highest expression. And we should safeguard the sovereignty of public money.

Market structure, competitiveness and technological autonomy

Stablecoins would profit from the comparative advantages that characterise big tech business models and their

control of large platforms. They could therefore amplify the risks inherent to big tech's expansion in the payments market[8].

The advantages of big tech firms are largely based on the control of crucial infrastructure for commerce and economic activity across Europe – from online marketplaces to social media and mobile technologies[9].

If access to this infrastructure by third-party payment solutions were unduly restricted to benefit a stablecoin issuer, competition and consumer choice might be harmed. Furthermore, big techs may discourage investment by firms that are prone either to sweeping competition or acquisition[10].

As I mentioned earlier, there is also a risk of global stablecoin issuers being handed the keys to vast amounts of personal data sitting on big tech platforms. Besides raising data privacy concerns[11], this could become a powerful vehicle to transmit market power from one market to another, especially in the provision of financial services.

Ultimately, entrusting foreign providers with the control of large pools of personal data could entail significant costs for both EU citizens and firms. The issues at stake range from data security and compliance with EU data protection law to cutting off the lifeblood of European financial innovation.

From analysis to policy

European authorities need to respond to the ongoing transformation of the European payments landscape and to the potential expansion of large foreign players by promoting a competitive and innovative market and completing the regulatory and oversight framework.

In order to contribute to reaching these objectives, the Eurosystem is implementing a comprehensive policy based on complementary elements.

The first element is the Eurosystem retail payments strategy. It pursues objectives such as promoting pan-European initiatives that allow consumers and merchants to have easy access to efficient payments[12], rapidly deploying instant payments, and harmonising electronic identity and electronic signature services and their use in payments.

The second fundamental element is the possible introduction of a digital euro. A digital euro would be a digital equivalent of banknotes. It would provide citizens with costless access to a simple, risk-free and trusted digital form of central bank money. It would both shape and promote the digitalisation of payments, in turn supporting the modernisation of the European economy.

The Eurosystem is assessing the economic, financial and technological challenges a digital euro would raise, as well as its societal and strategic implications. Earlier this month, we published our Report on a digital euro and started a public consultation[13]. We will assess the feedback we receive, so that if and when developments around us make it necessary, we will be ready to issue a digital euro that meets the needs of European citizens.

A digital euro would complement cash, not replace it. While its role is diminishing, cash remains the main way people make retail payments in the euro area, and we will ensure that it remains widely available and accepted as a reliable payment instrument and store of value.

These policies are being complemented with appropriate regulation capable of addressing the risks posed by new players while enabling innovation in financial services.

The ECB is introducing an innovative payment oversight framework. We have just launched a public consultation on a new framework for electronic payment instruments, schemes and arrangements (the PISA framework)[14].

This new framework reviews some of our oversight tools and responds to the various technological and market changes by redefining the scope of our oversight activity and providing a future-proof, harmonised and proportional framework inspired by the principle of 'same business, same risks, same rules'.

In parallel, the European Commission has published a proposal for a Regulation on Markets in Crypto-assets (MiCA)[15], which sets Europe on a steady path to tackle emerging challenges. The legislative journey has just begun and will provide further opportunities for fine-tuning the proposal. The ECB is analysing it with a view to providing a formal legal opinion.

Implementing these oversight and regulatory initiatives will guarantee that the prospective use of stablecoins to provide payment services within the EU will respect the same standards that currently exist for payment systems and instruments.

A multi-sectoral response from central banks, financial regulators, data protection authorities and competition authorities is necessary. The European Commission, in its Retail Payments Strategy for the EU, announced that it will examine the need for legislation in this area[16].

Introducing systemic products based on stablecoins before the necessary elements of a comprehensive policy have been implemented, especially as regards the oversight and regulatory response, could endanger rather than benefit the European financial system.

In September, five EU member states (Germany, Spain, France, Italy and the Netherlands) issued a joint statement which maintained that no global stablecoin[17] project should begin operation until the relevant legal, regulatory and oversight requirements have been addressed and met by the project.

And in October, the G7 Statement on Digital Payments[18] recognised the regulatory and public policy issues arising from global stablecoins.

Conclusion

The process of digitalisation cannot be reversed – on the contrary, it is picking up speed. Global stablecoins are an expression of the need for change.

However, they can pose serious risks, both to our monetary sovereignty and financial stability and to the EU's market structure, competitiveness and technological independence. We should continue to be open to global competition in order to foster innovation. But we should first ensure that we are prepared to make the most of it, to the benefit, not the detriment, of EU citizens.

The ECB's response to the ongoing transformation of the payment system is first and foremost a policy response. Our focus is on stimulating the development of safe and efficient EU payments that are fit for global competition. ■

Fabio Panetta is a Member of the Executive Board of the ECB

Endnotes

1. For a detailed analysis of these solutions, see ECB (2019), "Implications of digitalisation in retail payments for the Eurosystem's catalyst role", July.

2. Bullmann, D, Klemm, J and Pinna, A (2019), "In search for stability in crypto-assets: are stablecoins the solution?", Occasional Paper Series, No 230, ECB, August.

3. G7 Working Group on Stablecoins (2019), Investigating the impact of global stablecoins, October.

4. Financial Stability Board (2020), Enhancing Cross-border Payments: Stage 3 roadmap, October.

5. ECB Crypto-Assets Task Force (2020), "Stablecoins: Implications for monetary policy, financial stability, market infrastructure and payments, and banking supervision in the euro area", Occasional Paper Series, No 247, ECB, September.

6. This is the governance body that sets the rules for the transfer of value using the underlying payment systems.

7. In comparison, around 1.25% of euro-denominated deposits (mostly short-term deposits by non-financial corporations) are currently estimated to be remunerated at negative rates.

8. See Financial Stability Board (2020), BigTech firms in finance in emerging market and developing economies, October.

9. The European Commission reports that at least one million businesses in the EU are selling goods and services via online platforms, and 58% of Europeans use social media at least once a week. European Commission (2019), How do online platforms shape our lives and businesses? – Brochure, 18 September.

10. The Economist (2018), American tech giants are making life tough for startups, 2 June.

11. See footnote 3.

12. In 2019 the ECB's Governing Council formulated the five objectives that any such initiative needs to fulfil: pan-European reach and seamless customer experience; convenience and low cost; safety and security; European brand and governance; and global acceptance.

13. ECB (2020), Public consultation on a digital euro: public consultation (questionnaire), list of questions. Deadline: 23:59 CET on 12 January 2021.

14. ECB (2020), Public consultation on the draft Eurosystem oversight framework for electronic payment instruments,

schemes and arrangements. Deadline: 18:00 CET on 31 December 2020.
15. European Commission (2020), Digital finance package, 24 September.
16. European Commission (2020), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a Retail Payments Strategy for the EU, 24 September.
17. Joint Statement on asset-backed crypto-assets (so called "Stablecoins"), 11 September 2020.
18. G7 Finance Ministers and Central Bank Governors' Statement on Digital Payments, 13 October 2020.

This article is based on a speech delivered to Il Salone dei Pagamenti 2020, Frankfurt am Main, 4 November 2020

Digital platforms and antitrust

A proper regulatory framework is needed to relieve concerns about online platform competitive practices, argue Geoffrey Parker, Georgios Petropoulos and Marshall Van Alstyne

Digital platforms are at the heart of online economic activity, connecting multi-sided markets of producers and consumers of various goods and services. Their market power and their privileged ecosystem positions raise concerns that they may engage in anti-competitive practices that reduce innovation and consumer welfare.

This paper deals with the role of market competition and regulation in addressing these concerns. Traditional (ex-post) antitrust intervention will be less effective in markets driven by network effects unless it is combined with a proper (ex-ante) regulatory framework. Antitrust tools should focus on value creation and its distribution before focusing on competition.

The scope of regulatory intervention should satisfy three criteria:

i) value creation from operation of the platforms does not decrease due to the policy intervention; in particular, interventions should not reduce network effects;

ii) allocative efficiency is based on distributing the value created in a fair way among market participants eg. use of the Shapley Value. Fair and transparent rules must govern the platform ecosystem;

iii) dynamic efficiency and competition ensure that incentives for market misconduct and anticompetitive strategies such as artificial entry barriers are eliminated.

Market interventions that target a firm's market power should ideally retain value creation while also encouraging small firm entry and innovation. Data has a central role in online markets. Value creation is reinforced through a recursive a data capture and data deployment feedback loop which is enabled by machine learning technologies.

A regulatory intervention that facilitates data sharing mechanisms, such that data will not only confer value to market leaders but also to their competitors to the benefit of consumers, is crucial for creating more competitive and innovative digital markets.

Introduction

Digital platforms are proliferating in many countries and across numerous sectors of the economy. They frequently launch by matching two sides of a market (typically supply and demand), but often add additional types of users and are thus described as multi-sided platforms[1]. Because of rapid advances in ICT (information and communications technologies), platforms have lower costs than previous market forms and achieve scale that can create significant value for the interacting sides of their markets.

A potential risk that may threaten this necessary coordination at the global scale is the industrial policy goals of different countries and jurisdictions that are divergent

We assert that they are a new way of addressing the fundamental problem of economic organisation: how to co-ordinate supply and demand in the absence of complete information. More specifically, through data collection, analysis, and aggregation they reduce the information asymmetries that can give rise to market failures (eg. adverse selection and moral hazard) and distort trade (Akerlof, 1970).

In other words, platforms can be described as digital resources that enable efficient interactions between external producers, content providers, developers, and consumers that lead to value creation from (online or even offline) trade (Parker *et al* 2016; Constantinides 2018).

To do that, i) they adopt open digital infrastructures that allow multiple stakeholders to orchestrate their service and content needs; ii) they establish governance rules and invest in governance enforcement mechanisms that seek to balance platform control with the necessary incentives for platform participants to engage with the platform and generate value for one another (Constantinides *et al* 2018). Platforms need to have in place an effective and fair dispute resolution system that corrects trade distortions in a timely manner.

Broadly we can distinguish between two groups of platforms:

- Aggregators are platforms that provide some valuable service to their users in addition to their interaction with external producers that they facilitate. For example, search engines like Google and Microsoft's Bing allow their users to reach a vast quantity of information. To do so, they invest in the effort of 'crawling' the internet in order to catalogue and organise information resources. Users who patronise these search engines also see external producers' (eg. advertisers) products and services.

In most cases, online search is provided through such platforms at zero price and the search platforms monetise their operations by charging advertisers a price per user interaction that is realised through a generalised k-th price auction for the allocation of k advertising slots per search keyword. Social media platforms like Facebook and Twitter are another example of this category. Users receive value through non-monetary interactions with their friends and influencers but, at the same time, they are invited to get in touch with advertisers through the personalised promoted content these platforms project to their users.

- Marketplaces are platforms that have as a primary objective to create efficient matches between consumers and suppliers of goods. Online marketplaces of goods and services such as eBay, Uber and Booking.com facilitate the matching between third parties in an efficient way through data collection, analytics, and techniques that reveal their users' preferences. In this category, there are also platforms that manufacture and sell their own products and services. Amazon Marketplace, Apple iTunes, and Google Play are examples of this subcategory.

An important concept to understand the rapid growth of platforms relative to incumbent firms is the 'inverted firm' structure (Parker *et al* 2017, 2018). The basic premise of the argument is that firms have long had a fundamental choice to organise internally as hierarchies or externally using markets (Williamson, 1973).

Large firms have scale advantages, market access advantages, R&D advantages that small players do not. Von Hayek (1945) provides one answer for why open markets might ever be more efficient than vertical integration.

The answer is based in the idea that knowledge that is distributed in time and space such that external participants might use that knowledge to create value in ways that employees never could. Similarly, a lead user can combine their knowledge of private problems in ways that a focal firm would not have access to.

The rapid growth of the internet has allowed the large-scale aggregation of small-scale network effects, that is, the phenomenon where systems become more valuable to users as a function of the number of users (see David, 1985; Katz and Shapiro, 1985; Varian and Shapiro, 1998). For example, an Alibaba product match, an Uber driver that attracts a rider, or a Google search that improves by use has a 'spillover' that is too small for an individual to capture or trade. Platforms, however, can capture and aggregate those positive spillovers and make it possible for system users to benefit.

Depending on the degree of a platform's openness, value creation can be primarily internal, primarily external, or some intermediate combination. Internal value creation is achieved through platforms' own production of output (products and services) that is directly valuable to their users. External value creation refers to external contributors such as app developers and external producers who can increase the user's benefit from participation in the platform.

So, in the context of our analysis, value creation is defined as the total value that a platform can bring to its online ecosystem (the sum of platform's benefit, surplus to supply side users and app developers, and consumers surplus).

The allocation of value creation between the platform and its ecosystem of value adders defines the so- called inverted-firm problem, an important problem in platform strategy models (Parker *et al* 2017, 2018). Many platforms have followed the path of external production and they harness some of their users as producers representing an external labour force that is not captured by the traditional labour statistics.

Figure 1 depicts a selection of platforms and 'traditional' firms with similar market capitalization but with much different number of employees. This shows one consequence of platforms, as inverted firms, shifting production from inside to outside: the number of direct employees can fall dramatically relative to incumbent firms[2].

Figure 1. Market capitalisation and employment for selected platforms and other firms

Firm	Start year	Employees	Market cap ($ billion)
BMW	1916	134,682	42.446
Uber	2009	22,263	62.791
Marriott	1927	176,000	46.35
Airbnb	2008	12,736*	38***
Walt Disney	1923	201,000	244.829
Facebook	2004	44,942**	589.041
IBM	1911	350,600	122.217
Salesforce	1999	35,000**	163.603
New York Times	1851	4,320	5.319
Twitter	2006	4,600*	25.604

*Source: Data on number of employees comes from Wikipedia and refers to 2018 except the cases below. Data on market capitalisation comes from the real time information of Yahoo Finance accessed on January 30, 2020. Exceptions: *Number of employees for Airbnb and twitter refers to 2019. **Number of employees from Facebook and Salesforce refers to 2020. ***Airbnb market capitalisation refers to 2018 and it is provided by Statista.*

The emergence of dominant platforms with advantageous information about participants in the markets they control has drawn significant attention from regulators and economists. Such platforms are at the heart of online economic activity, connecting multi-sided markets of producers and consumers of various goods and services. Their market power, in combination with their privileged ecosystem position, raises concerns that they may engage in anti-competitive practices that reduce innovation and consumer welfare.

This paper deals with the role of antitrust in addressing these concerns. Digital markets can be particularly challenging for antitrust instruments as traditional tests of market power and dominance do not seem to work very well.

First, a well-established market definition in some digital markets can be problematic as market boundaries can be unclear. Because many online goods are offered free, without any monetary price attached to them, it is very challenging to apply the small but significant and non-transitory increase in price (SSNIP) test to identify the relevant market (Hesse, 2007).

This becomes even more challenging in the case of multi-sided platforms as the relevant market in such a case should look at all sides of the platform. In the absence of prices, product or service quality becomes an important variable of competition, especially in the markets of zero price goods. However, a good objective measure of quality in digital markets is still missing.

Second, digital markets are very dynamic. There is a small number of digital firms that have been involved in a large number of acquisitions of small firms and start-ups. While such mergers escape antitrust scrutiny when 'traditional' merger control rules are applied, there are concerns that, in some cases, proposed acquisitions are triggered by the strategic motives of large platforms to protect their market position from potential rivals.

An open question is: when do mergers correspond with a wilful acquisition that does not reduce welfare and when do they serve strategic motives that raise entry barriers?

Third, the development of data analytics and machine learning has been proven revolutionary in monetising platforms' digital services and that has led to new market strategies. New theories of harm have been developed to address the complexity of the digital ecosystem, but they rarely have been tested in practice to assess their validity. At the same time, it is not clear how we can address anticompetitive strategies as the impact of potential remedies is unknown.

In what follows, we begin by discussing why we observe a rise of market power in digital markets and what the main theories of harm from high market concentration in platforms markets are. We then provide a critical evaluation of proposed solutions to antitrust problems related to digital platforms.

Last but not least, we provide specific recommendations on how antitrust and regulation can address the theories of harms through the innovation of tools that can be used for this purpose.

Market power in digital markets: causes and implications

The strategies of platforms have specific features that are relevant to market competition and policy:

- Multi-sidedness: the one side of the market can derive an added value from its interaction with the other side of the market (see, eg. Rochet and Tirole, 2003; Parker and Van Alstyne, 2005; Armstrong, 2006; Rysman, 2009). This value can be either symmetric between the two sides (eg. in the case of a marketplace where the primary objective is the trade of goods) or it may be the case that the one side derives more value from the

interaction with the other (eg. in an aggregator where users place greater value on the platform's content and advertisers place higher value on interaction with users).

A platform may decide to subsidise one side of the market when its presence on the platform is very valuable to the other side. In aggregator platforms, advertising is the main source of business revenue. Since advertisers are attracted by the consumer users of the platform, platforms will often provide content for a very low price, or even for free, to consumers in order to attract them.

- Economies of scale: digital goods and services are typically produced at a significant fixed cost but no or little variable cost (Varian, Farrell and Shapiro, 2004). In other words, the cost of production is much less than proportional to the number of customers served. Hence, once established, digital firms can grow quickly by expanding their operations to new users at minimum cost.

- Data-driven economies of scope: machine learning and artificial intelligence has vastly improved the value of data for firms. By collecting, analyzing and aggregating large amounts of data, firms can improve product quality and expand their activities into new areas.

  Because machine learning yields better insights when it is trained on larger datasets, firms with access to large amounts of data can raise the quality of their services in ways that firms with restricted access to data cannot (see chapter 13 in Stucke and Grunes, 2016; Whittington and Hoofnagle, 2012; OECD, 2014; Gantz and Reinsel, 2011).

- Network effects: the user's value from participating in the platform can increase with the participation of other users in the platform. Network effects can be direct or indirect. Direct network effects are, for

example, observed in social network platforms such as Facebook where the value users derive from the platform increases with the number of friends using it. Indirect network effects are, for example, observed in aggregators where the aggregation of data from additional users helps the platform to improve its product quality for all its participants.

Network effects can go both directions. For example, in the Android ecosystem, the more users there are, the more attractive the platform for app developers and advertisers will be. This implies a greater variety and quality of products and services offered to the users. So, the platform becomes even more valuable and more users wish to join which in turn attracts more developers in a virtuous cycle.

The above characteristics of the platform ecosystem interact with each other in a way that in many cases creates more competition for the market and less competition within the market. Strong network effects combined with economies of scale and scope sharply increase the first mover advantage and diminish the benefit from entry by a second mover.

The first mover can quickly increase its installed base, improve the quality of its services through the data-driven channel and further increase the number of its users at moderate cost of production. Given that digital markets have typically high fixed entry costs, competition shifts to which firm will be the first to enter a market. Once the firm has established itself, it is more difficult for a second mover to enter and compete in a profitable way.

On the one hand, this implies that firms have increased incentives to innovate and invest in new unexplored markets. On the other hand, they are discouraged from investing in markets where there is already a dominant digital player.

Even if market definition in two-sided markets and specifically in digital platform markets is, in principle, problematic, market tipping has created some super-platforms that have reached a scale that has allowed them to expand their operations in several closely adjacent markets.

Using the data generated knowledge from one market, and taking the advantage of their scale, they can expand their services to new markets, some of which have been areas of specialisation for 'traditional' firms. This expansion can be both vertical and horizontal.

For example, Amazon evolved from an online marketplace to a physical one (acquisition of Whole Foods Market) or a producer of films and TV series (Amazon Prime Video). Google first provided the Android operating system for mobile phones and then entered the market for smartphone production.

Some digital platforms like Facebook expanded their business to financial services and cryptocurrencies where information about people's preferences is important for providing high quality and well-tailored services to individuals.

With such expansion, big platforms have become a significant force of disruption in the economy. The disruption can have many market equilibrium outcomes with implications for competition and market power.

Incumbents in non-digitalised sectors have incentives to innovate and adopt digital technologies in order to compete more efficiently with their market digital newcomers, to the benefit of consumers. On the other hand, it is still hard for them to compete with platforms that have both superior knowledge (data) and can take the advantage of their already established digital network.

The 2019 UK Report of the Digital Competition Expert Panel, by combining data from different sources (eg. StatCounter, Comscore, Plum Consulting) concludes that concentration is particularly prominent in the following digital markets:

- Online search, which is dominated by Google, with some competition from Microsoft Bing,
- Social media, dominated by Facebook and the services it owns, with some competition from Twitter and Snapchat,
- Digital advertising, dominated by Google and Facebook,
- Mobile app downloads, which is a duopoly between Apple and Google,
- Commerce through online marketplaces, where Amazon is a dominant platform, with some competition from eBay.

Empirical evidence suggests that the trend of increasing market power is not only a characteristic of digital markets, but of the economy as a whole. Loecker *et al* (2020) study the evolution of market power for the US economy since the 1950s.

Based on firm-level data, they find that, while market power was more or less stable between 1955 and 1980, there has been a steady rise in market power since 1980, from 21% above cost to 61% above cost in 2016. In the same spirit, Diez *et al* (2018) study the evolution of mark-ups of publicly traded firms in 74 economies from 1980-2016 conclude that mark-ups have increased by an average of 39 percent since 1980.

The observed rise in market power since 1980 can be attributed to several factors. Most relevant to this chapter are the following:

- Lack of competition: higher concentration could reflect a decline in market competitiveness (Gutierrez and Philippon, 2017).

- Towards efficient production: differences in productivity between firms may lead to a reallocation of demand toward the highest-productivity firms as goods become more substitutable (Autor *et al* 2019).

- Increasing information intensity: the composition of economic output is moving toward products and services that are delivered digitally instead of physically (Barefoot *et al* 2019, McAfee and Brynjolfsson, 2008).

The empirical trends are particularly prominent for digital markets according to Calligaris *et al* (2018). In particular, they assign an index of digital intensity to each sector which is based on sectoral tangible and intangible ICT investment, purchases of intermediate ICT goods and services and use of robots.

They find that the increase in mark-ups from 2001-03 to 2013-14 is larger for the average firm in a digital-intensive sector than the average firm in the pool of non-intensive digital sectors. So, there is a positive correlation between mark-ups and digitalised sectors which is stronger over time.

However, such findings should be viewed with some caution. First, how to measure markups is a topic of a current debate. For example, Philippon (2019) does not find an increase in mark-ups and concentration in the EU. He only points out a sharp increase of concentration in the US markets.

At the same time, Traina (2018) criticises the way that markups are measured in the above-mentioned literature. Hall (2018) finds no evidence that mega-firm-intensive sectors have higher price/marginal cost markups, but he reports some evidence that markups grew in sectors with rising mega-firm intensity.

The implications of increasing markups are also under debate. One implication is that this trend captures the increase in market concentration. But, it may instead refer to higher production efficiency, namely, declining marginal costs, especially in technology related or information intensive markets, which lead to increasing markups without necessarily any increase in prices.

Our take on this is that the increase in concentration, especially in US markets, has been large enough that it is difficult to ignore. But, specific sectoral dimensions of this trend require further research to reach concrete policy implications.

Market power in digital markets: main theories of harm

Market power that is gained through an efficient competitive process is good news because it implies efficiency in the production process and high-quality products and services. The winner of the competition for a given market is expected to be the most efficient firm to serve the market.

When a dominant position is associated with maximisation of efficiency in production and value creation should be welcome. This is the reason why competition law does not consider a dominant market position to be anticompetitive or illegal.

It only focuses on the cases in which market power is abused to protect or increase dominance by i) distorting allocative efficiency: whether the created value is distributed in a fair way among market participants or the

dominant firm abuses its power in the expense of its competitors, external producers and consumers; ii) reducing dynamic efficiency: whether dominant platforms' strategies artificially raise barriers to its competitors or external suppliers to become more efficient and further increase the value creation to the benefit of consumers.

The theories of harm associated with market power and anticompetitive conduct have to do with three key market variables: price, quality, and innovation. High prices, low quality, and low investment on innovation that are not supported by the competitive equilibrium can lead to inefficiencies and harm consumers.

Below, we provide the main theories of harm associated with digital platforms. Examining the validity of these theories in practice requires a case-by-case analysis.

Excessive prices

On the relationship between platforms and external producers, the economic literature has analysed how market power and network externalities can lead to harmful pricing strategies by platforms. They can be inclined to offer low or zero prices and high-quality services to consumers and charge excessive prices to the other side (eg. advertisers, external producers).

That in turn means that the other side will incur a higher cost to reach consumers and that will be reflected in the final prices of their products and services with negative implications for consumer welfare. Armstrong (2006) defines this as a competitive bottleneck: a platform, by attracting one side, exploits its market power over the other side by charging a monopoly price as it becomes the only channel that facilitates interaction between the two side.

In this way, the platform gets the highest share of value creation while it becomes more difficult for competing platforms to stay in the business because they lack access to the most valuable side (consumers).

The question is, when is it less likely for the competitive bottleneck to arise as an equilibrium? The degree of multihoming at the platform level is an important factor. When at least some of the consumers simultaneously visit more than one platform, the competitive bottleneck equilibrium is less likely to arise (Beleflamme and Peitz, 2019, Bakos and Halaburda, 2020).

A particular strategy in the case of online marketplaces that has been found to be anticompetitive by multiple competition authorities in Europe[3] is the most favoured (or price parity) clause (Ezrachi, 2015, Petropoulos, 2018). Under such (often long-term) contractual agreements, external suppliers commit to charge a price on the platform that is not higher than prices charged on other platforms (and retailers in general) where they supply products and services.

Edelman and Wright (2015) show that when price parity clauses are defined too broadly, they have the potential of undermining the dynamics of competition and reducing consumer welfare. This can occur in two ways: i) price parity clauses may limit competition between platforms on the level of the commissions they charge to suppliers. This can potentially lead to a higher commission charge to external producers and eventually to higher prices being charged to final consumers; ii) they may hinder entry into the market because they effectively lock all prices at the same level.

For example, in the OFT's case against Expedia and Booking.com, the small online travel agency Skoosh.com complained that the clause raised barriers to entry and harmed Skoosh's ability to build a presence in the market, to the detriment of competition.

On the relationship between platforms, and digital firms in general, two classical problems of antitrust can become relevant: Price discrimination and algorithmic (tacit) collusion. On the former, digital firms, with data collection and

analysis, can approximate with great accuracy their consumers' willingness to pay and employ personalised pricing strategies that leave them with only a moderate surplus (this is what Ezrachi and Stucke 2016 call behavioural price discrimination).

Algorithmic systems employed by digital firms to set prices for consumers can observe in real time not only demand conditions but also the pricing strategies of their competitors. In a repeated game theoretic approach this can lead to a very stable tacit collusive price equilibrium which by definition is above the competitive level.

The high stability of collusion in this case is achieved because any deviation from the collusive equilibrium by one firm is immediately observed by the others which can react by adjusting prices to punish the deviator (in line with the grim-trigger strategies of Friedman, 1971).

Calvano *et al* (2018) provide an experiment with pricing algorithms and run computer simulations which show that algorithms consistently learn to change prices above the competitive levels even when they do not communicate with each other.

What is particularly challenging in this case is that tacit collusion is not illegal according to competition law. In practice, without the existence of hard evidence to prove conspiracy it is very hard to block such strategies.

It should be noted that, despite the intensive discussion in the antitrust community over the risk of collusive prices, only one antitrust case involving algorithmic pricing has been opened so far. It involves the adoption of specific pricing algorithms by online firms for the sale of certain posters sold through Amazon Marketplace in the United States, with the goal of coordinating changes to their respective prices. The case ended with a guilty plea[4].

The European Commission's e-commerce sector inquiry found that price monitoring software is extensively used and can generate competition constraints:

- Retailers use software to monitor the prices of their competitors, and the majority of them consequently adjust their own prices to those of their competitors.

- Manufacturers use software monitoring practices to detect whether their retailers comply with the prices they recommend.

These practices imply that, indeed, firms learn about price fluctuations in their competitors' product in real time, frequently before such fluctuations are observed by potential consumers that shop online.

Pricing with algorithms that can observe prices of competitors at real time resembles the case of immediate-response oligopoly markets. A well-known example of such a market is the one of for commercial US airline bookings that led to the 1994 airline tariff publishing case (see Borenstein's chapter in Kowka and White, 1999).

US airlines set up a central clearinghouse for the distribution of fare change information. On a daily basis, airlines sent new fare information to this clearinghouse as well as old fares to be removed and existing fares to be changed for given routes.

In response to that, the clearinghouse produced a compilation of all industry fare change information and sent that computer file, which included thousands of fare changes, to a list of recipients (major airlines and computer reservation systems).

A usual practice was that airlines pre-announced fares before implementation. This allowed competitors to observe how prices would change and let them adjust their pricing behaviour before price changes were implemented. The remedy was to prevent airlines from pre-announcing fares.

Although the airline pricing structure resembles to some extent our case of competition with algorithms, we note that the remedy imposed on the airlines would likely not be effective for algorithmic pricing, because price changes are now observed in real time and are not pre-announced. Any potential collusive equilibrium is therefore more likely to be tacit than explicit.

Inferior quality

By analysing user data in real time, platforms can determine users' emotional state and offer targeted sales. This includes creating incentives for users to spend more time on a platform to the exclusion of other activities. By enticing users to stay longer on a platform, the probability of interaction between two sides of the platform increase. However, as this interaction might be the product of an emotional manipulation, it can decrease consumer welfare (see final report from the Stigler Committee on digital platforms 2019).

In addition, the analysis of users' data can also lead to discrimination based on users' personal information (racial, ethnic origin, skin colour, location), which can be perceived as leading to lower quality for specific demographic groups.

A more recent theory of harm has to do with data privacy (Economides and Lianos, 2019). In the Facebook/ WhatsApp merger case, the European Commission emphasised that privacy policies constitute a non-price parameter of competition. The degradation of privacy policies could lead to a decrease in product quality.

Since data collection and analysis is of vital importance in platform business, in their efforts to increase their market power and to remain as necessary gate keepers of their internet business, some platforms may be engaged in excessive data collection and manipulation thus reducing data protection and quality of service.

In the more recent German Facebook case, for example, the Federal Cartel Office concluded that Facebook abused its market power by pooling data from third-party apps (including its own WhatsApp and Instagram systems) and that it expanded its online tracking to people who aren't members of the platform through Facebook 'like' or 'share' buttons.

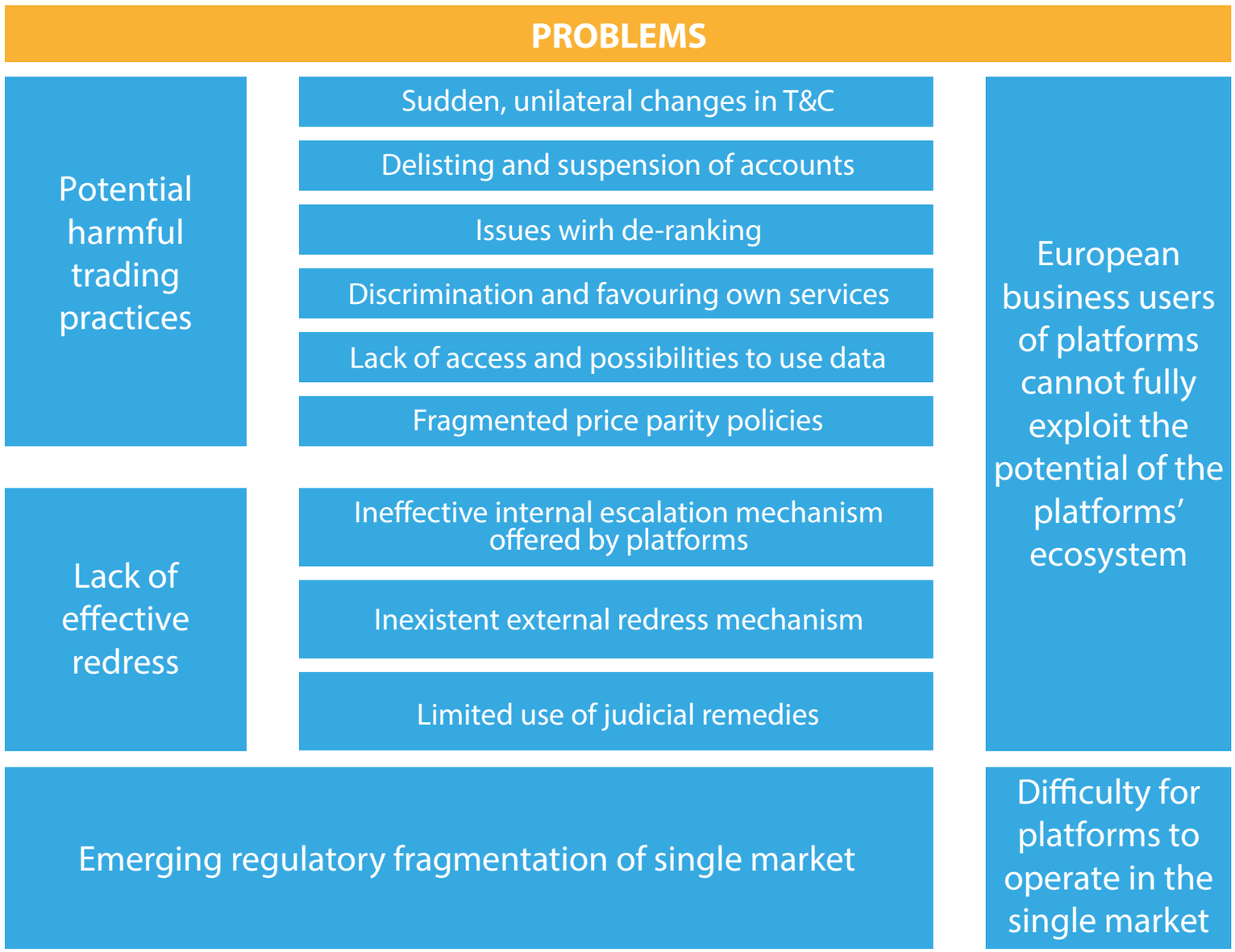
It is important to understand that potential misuses of data that lead to lower quality of service may endure even if competition in the platform level increases. This is because such misuses are, in many cases, a hidden problem that is not observed by the users.

This is analogous to security software where users do not have the expertise to evaluate whether a security package works or not (Anderson, 2001). In the latter case, firms can compete by cutting price but lowering costs via hidden quality reductions (eg. provide protection against fewer types of attacks).

In a similar way, when competition among platforms increases, this may result in lower (observable) prices for each platform's service, but it may also provide further incentives for a (unobserved) data exploitation to recover some of the profit loss due to the increase of competition and lower price equilibrium.

Focusing on the relationship between platforms with their business users, the European Commission (European Commission, 2018) has run a business survey which identified that business users may receive inferior quality services by some platforms with whom they interact (Figure 2). Some examples of typical responses by business

Figure 2. Overview of inferior quality problems related to business users



Source: European Commission (2018).

users over the platforms' provision of quality issues that emerged from this survey are: sudden unilateral changed in the access terms and conditions, favouring own services, delisting and suspension of accounts, and so on.

Platforms have control over framing consumer choices, policies for goods supplied through the platform, and technical standards. In many cases, they keep complete control over the user relationship as well as platform access rules. They therefore have incentives to avoid the threat of entry and disintermediation. Data can substantially help platforms to do that.

They may not share critical information with their trading partners that could potentially lead to the threat of disintermediation, but this can also lead to forgone production efficiency gains. In some cases, this implies that trading partners are forced to operate without clarity over market conditions. Platforms may also provide complementary services by being present in the upstream market.

Then, by adjusting the access policy of their upstream competitors they can enjoy further benefits through the promotion of their own upstream services to consumers. Strategies that platforms employ to achieve that include: exclusive contracts, biased recommendations (eg. European Commission's Google Shopping case), bundling and technical incompatibilities (eg. European Commission's Google Android case and Intel case).

Such practices that are related with the vertical structure of digital markets can affect all the three key variables discussed above. The vertical integration of big platforms that provide services to upstream markets can generate an incentive problem that hurts small upstream competitors and may even lead to market foreclosure with detrimental welfare effects.

However, as already discussed, the potential anticompetitive implications should be analysed in a case-by-case analysis, because they can also bring efficiency gains in trade and production.

Reduced incentives for innovation

The implications of market power on innovation has been a topic of active debate in academia. There is no consensus between endogenous growth models, agency models, and empirical evidence on whether market power reinforces or discourages innovation.

Literature has focused on the impact of competition on firms' innovation incentives, defined as the difference in the profits a firm earns when it innovates and when it does not. This 'incentive-effect' of competition can be either positive or negative.

On the one hand, firms that operate in a competitive market have incentives to innovate to escape from competition and enjoy higher market shares (the 'escape-competition' effect following Aghion et al (2005), which is a slightly modified version of the 'replacement effect' of Arrow 1962).

On the other hand, firms that enjoy monopoly rents have higher incentives to innovate to protect their market position and discourage entry by potential competitors (the Schumpeterian effect, based on the notion of creative destruction introduced by Schumpeter, 1934).

Most of the theoretical contributions have focused on the interaction between these two opposing forces for different market structures and characteristics of innovation.

In the case of platforms, the theory of harm in investments on innovation focuses on the fact that once the competition for the market phase has been completed and the winner has emerged, the latter has incentives to engage in anticompetitive practices to limit the threat for successful entry and innovation.

But, by raising entry barriers, incentives for innovation decrease. Since innovation is a way to improve a firm's market position against its competitors, if the probability of entry by competitors is reduced through other practices that rely on market power, then innovation is less necessary to protect a market position.

But the story does not stop here. According to this theory of harm, incentives for innovation by small firms are also hurt. It is difficult for start-ups to find funds and convince investors to trust them in order to innovate if they compete (or try to enter) in a market with very established platform or if they compete in a platform's trading partner market but all the trading surplus is appropriated by the platform.

A venture capital firm will not want to invest in a start-up that directly competes with a tech giant. It will also not want to invest in a start-up operating in a vertical market whose surplus is appropriated by the platform.

Further theories of harm

Platforms have two critical sets of information, information over competitors' offers in the upstream market where they also have their own shop (vertical integration) and potential competition by small firms that could potentially grow and become competitors.

For the first set, platforms may have incentives to engage in predatory pricing to force upstream competitors to exit the market and at the same time expand their offerings and improve their quality to capture more demand.

For the second set, they may proceed with a 'killer' acquisition so that they will not face the threat of entry in the future. When a platform identifies a small entrant that is quite innovative and may threaten its market position in the future, it may be inclined to acquire it, not because of the extra value it will bring in the business, but because they want to avoid potential competition in the future.

In digital markets, especially the ones dominated by a big platform, merger activity is quite intense. Big platforms frequently acquire smaller firms in the same or closely adjacent markets. Since one of the merged entities is small and without significant market power, such mergers in the most of cases escape the scrutiny of competition authorities.

Such acquisitions can also have detrimental effects for the whole digital ecosystem in terms of investments and innovation. Kamepalli, Rajan and Zingales (2020) provide evidence that shows a decrease in investment in startups by venture capitalists after major acquisitions by Facebook and Google.

Market power in digital markets: potential solutions

In this section, we critically evaluate proposed solutions and we propose an avenue that could potentially solve many of the associated problems. In the centre of our approach is data and its contribution to value creation. Data helps multi-sided platforms to better profile their customers and offer them higher quality services.

In addition, through the aggregation of data, they can capture underlying trends in the ecosystem and further improve quality, controlling for exogenous factors. We expect that the amount and variety of data collected by platforms (which we will collectively call the size of the data sample) to be positively related with value creation.

Factors determining the relationship between data and value creation the types of data collected given the considered application. Data is the key input in algorithmic systems. It is of vital importance for training algorithms to become more efficient in their tasks.

The relationship between value creation and data also depends on the specific market and the advancement of sectoral-specific applications of machine learning and artificial intelligence.

Bajari *et al* (2019) look at the effect of increasing the size of data sample on accuracy in the context of Amazon's retail demand forecasting system. They feed their statistical models with data along two dimensions: the number of products N in the same category and the number of periods T for which a particular product has been on sale.

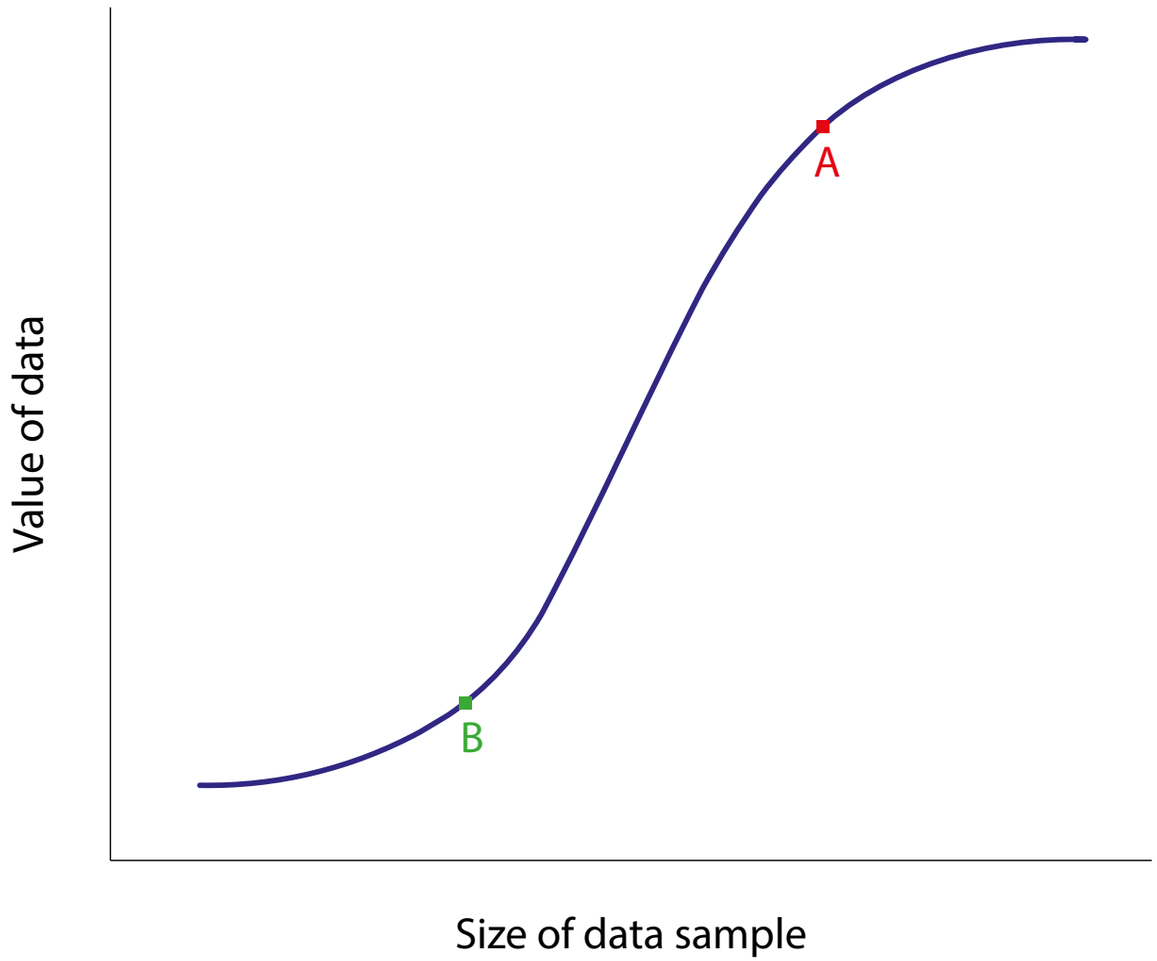
They find that additional data on previous forecasts and the subsequent realisation of retail quantities improves the accuracy of retail forecasts for a particular product, though at a diminishing rate.

However, diminishing returns are not necessarily the case when we look at the impact of an increase in the size of the data sample on the recommendation quality in a search engine environment. Schaefer *et al* (2018) illustrate that additional data from previous searches on the same keyword tends to improve the quality of search results.

If initial quality is not high, then the increase in the size of the data sample can have a greater impact than diminishing returns might suggest. Moreover, the study concludes that the type of data also matters. Personalised data is the most valuable for the specific application.

Closely tracking the activities of few users and accumulating their data over time may bring greater value than collecting non-personalised data that covers a large number of users.

Figure 3. Value creation when data is used for a specific purpose



Source: Bruegel.

We build on these insights as follows: Figure 3 presents an example of an algorithm that performs a specific task and in which data exhibits sigmoid returns to scale. The extra value of data depends on the size of the data sample already collected and analysed.

However, note that data can also be re-purposed, thus bringing additional value. For example, in cases where algorithms wish to capture consumer preferences that shift frequently, the size of the data sample can help firms to quickly identify these shifts and adjust their digital services accordingly.

Moreover, the data sample in one market, when it is sufficiently large, can be helpful when entering a closely adjacent market. Overall, when data is used only in algorithmic systems with a specific task, it is more likely to exhibit diminishing returns to scale.

But, when it is used in additional applications or in capturing dynamic trends, then it can also

exhibit increasing returns to scale. Further empirical research is needed to assess the exact magnitude of economies of scale in such cases.

Proposed solutions

One of the most widely discussed solutions has to do with breaking up the big platforms. If the breakup is horizontal and involves breaking a monopoly platform to two (or more) within the same market, then, as Figure 3 suggests, value created can decrease.

Consider that the monopoly platform before the break has accumulated a lot of training data and it is at point A. If the breakup has as an outcome the creation of two equivalent platforms at point B, then the new policy can significantly decreased the value created.

Consider now an alternative scenario: that the break up allows each of the firms to use the same amount of data as before the break up (both platforms are at point A), thus cloning the platform. Then, there is no loss of value in the short-run, but this equilibrium may be unstable in the long-run.

Since both platforms offer the same services, under the presence of network externalities and economies of scale, competition for the market ensues. The first platform that manages to increase its users will start growing and, in the end, there might again be a dominant platform. Competition between MySpace and Facebook was at one time very intense but Facebook emerged as the winner and became a dominant platform in social networks.

The growth of platforms such as Twitter and LinkedIn can be explained by the fact that they offered sufficiently differentiated services and found room to increase their market position. So, a horizontal break up may not work as intended because it can lead to efficiency losses and may only reduce market power in the short run.

We could also consider a vertical break up, similar to Senator E Warren's proposal. As already discussed, many platforms have extended their operations along the vertical line. They not only facilitate interactions between consumers and external producers but they also produce upstream products and services themselves.

Vertical integration in this case can provide an information advantage for the platform's upstream subsidiary over demand and the strategies of upstream competitors. Vertical integration can generate extra value because the upstream provider has better information about what consumers want and it can also solve the double marginalisation problem.

Nevertheless, it may provide incentives for the platform to preferentially treat its own subsidiary at the expense of external suppliers. A break up could remove such anticompetitive incentives.

But, it could also reduce the value creation from the production by the upstream subsidiary. What we argue below is that a well-designed regulatory framework that eliminates the risk of mistreatment of the external suppliers and facilitates symmetric information sharing at the upstream level could work better because at the same time value creation would not decrease and a level playing field in the upstream market can be restored.

Some big tech platforms are present in multiple closely adjacent, parallel markets. A breakup could also occur by restricting each platform to operate in only one market. There are two challenges with this approach.

First, in some cases, it is very difficult to find a clear separating line between different digital markets. Second, the data and information in one market can have a strong positive spillover effect in another one that is closely related. Thus, a breakup can again lead to a reduction in the value creation.

Another solution that received extensive coverage is to treat data as labour (Posner and Weyl, 2018): Data has an immense value for platforms. It can be used to train algorithms and improve products. As a result, they argue that platforms should provide a fair payment to each individual for using their data.

In other words, the use of these platforms should be viewed as a labour contract for each individual. This proposal calls for the formation of independent data labour unions which will regulate the price individuals will be paid and will manage the transaction. Since individuals have both limited time and attention, unions will need to solve the allocation problem by setting prices in an appropriate way. Unions should also set lower prices (or zero prices) for small entrant platforms to counterbalance network effects, data value effects, and economies to scale.

Obviously, direct monetary transfers to users could increase consumer surplus. In fact, in the case of Facebook, in a static environment, Benzell and Collis (2019) find that this increase will be around 24%. But, there are a number of reasons that this approach may not work, at least, at the current stage where a formal model for its implementation is missing.

First, it is empirically unclear whether the users of the platforms derive lower value than the value the platforms derive from them. In the former case, any monetary transfers from platforms to consumers may have negative dynamic effects on incentives for investments on innovation and improvement of services. So, such transfers can be welfare reducing in the long run.

Second, it is very difficult to imagine the formation of new state independent data unions that will have the power to impose the market prices for data. History has shown that labour unions in many cases lack bargaining power (especially in work provided through digital platforms) and that prices can only be restricted by formal (state) regulatory intervention.

As we argue below, it is the regulatory framework that will be put in place that can be instrumental in incentivising data sharing mechanisms with benefits for individuals. Finally, we should not ignore that, in many applications, it is not the individual data but its aggregation that significantly increases value creation.

There are also proposals that move away from competition by considering other instruments that can apply. For example, taxation of digital platforms has been proposed as a way to redistribute in a better way the value created in platform ecosystems.

While such a tax can have important redistributive implications, it does not seem so promising in solving the theories of harm associated with market power. We also need to put in place other instruments that can lead us directly to a more efficient dynamic market competition.

The way forward

Our[5] main takeaway is that traditional antitrust intervention (typically taking place ex-post) will be less effective in markets driven by network effects unless it is combined with a proper regulatory framework (which is set ex-ante).

Hence, instead of discussing whether antitrust should change its legal standards and principles as proposed by the New Brandeis approach (as well as the consumer welfare criterion as it has been suggested by legal scholars like Steinbaum and Stucke, forthcoming) to address concerns of platform market power, we propose an alternative as follows. The rest of this section is based on our forthcoming research where we develop the details of our proposal (Parker, Petropoulos and Van Alstyne, 2020).

In the remainder of this piece, we summarise its main features. Antitrust tools should focus on value creation before focusing on competition. The scope of regulatory intervention should satisfy the following three criteria:

i) Value creation from operation of a platform does not decrease because of the policy intervention; in particular, interventions should not reduce network effects.

ii) Allocative efficiency is based on distributing the value created in a fair way among market participants e.g. through use of the Shapley Value. Fair and transparent rules must govern the platform ecosystem.

iii) Dynamic efficiency and competition ensure that incentives for market misconduct and anticompetitive strategies such as artificial entry barriers are eliminated.

This approach requires a harmonic relationship between antitrust and regulation with several implications.

The first one has to do with the definition of the relevant market. It can become extremely difficult to define the market, especially in the case of the provision of free goods. Free goods platforms typically bundle complements so that interactions across search, mapping, email, and home devices create network effects.

Instead of examining markets, it may be better to focus on the provision of the specific service and the value they generate to the digital ecosystem. In this way, we can be more concrete in defining substitutable services and assess the level of competition for each particular service.

In fact, Brynjolfsson and Collis (2019) provide a new methodology on how to assess the substitutability of free goods in an incentive compatible way at the service level. They use digital survey techniques to run massive online choice experiments examining the preferences of hundreds of thousands of consumers.

They estimate the consumer surplus for a great variety of goods, including the ones that are offered at zero price. They find that the median compensation Facebook users were willing to accept to give up the service for one month was $48. On this basis they estimate that US consumers have derived $231 billion in value from Facebook since 2004 (Brynjolfsson *et al* 2019).

Such an experiment can be easily be extended by assessing what would have been the choice of a user if one of the platforms would not have been available. Users' choices in such a case can assess the degree of substitutability between platforms.

If such an approach is combined with an assessment of the substitutability on the other side of the market (eg. advertising), which typically exhibits positive prices and where it is therefore easier to apply standard antitrust methodology, we can get a more comprehensive picture over the competitive pressure for the provision of that service.

On the side of antitrust and its only ex-ante instrument, merger control, authorities should develop a more forward looking perspective when they evaluate merger cases, especially the ones that raise the suspicion of a killer acquisition. For this they need to assess what the potential competition effect is if the merger is not allowed. Would WhatsApp become a direct competitor of Facebook if the merger was not allowed?

If the answer is likely to be yes, then the merger may decrease consumer welfare as it restricts potential competition that could lead to lower prices and higher quality and therefore be prevented. But, in practice, it is very challenging to assess potential competition.

One avenue that can be helpful with this respect could be to measure the substitutability of platforms' services during the merger evaluation (which could be based on the methodology suggested in the previous paragraph). That can take place with the employment of surveys and online questionnaires and experiments that ask users (through a design that satisfied incentive compatibility) about what platforms would attract their attention if a specific platform was no longer available.

For the impact of the merger on concentration in the other side of the market where positive prices are used to clear the market, traditional tools in merger simulation can be applied. Hence, in this way we can assess the impact of a proposed merger. Closely substitutable platforms can potentially lead to a competitive equilibrium with direct welfare implications for the merger case.

At the same time, we should strengthen ex-post evaluation of merger cases and be ready to impose remedies that are contingent to specific future outcomes. If it becomes clear that the remedies attached to the past approval of a merger do not have the desired effects, there should be flexibility so that such remedies could be modified accordingly.

It would be helpful if remedies are periodically reviewed to assess whether they have the desired effect and are updated accordingly. The specific targets in terms of the welfare impact of a merger should be clearly communicated at the time of the approval of the merger.

Remedies should be flexible to change in order to ensure that the specific targets are reached, if needed. Last but not least, particular attention should be paid to the details of the merger deal (eg. price of the takeover), as it may signal strategic motives, as well as at the impact of the merger on the incentives and ability of firms to innovate.

Mergers that are classified as killer acquisitions are more likely to have negative impact on innovation (Kamepalli, Rajan and Zingales, 2020).

Regardless of the specific merger cases that are being evaluated, the option of well targeted market surveys at different points of time could be very useful. They could provide a better understanding of the substitutability between alternative options and how they evolve over time, even if they do not operate in the same markets.

With respect to the second instrument of antitrust on price fixing agreements and tacit collusion, the empirical challenge is that it is very difficult for the authorities to assess what the competitive price is in real time. Algorithms have accurate information at any point of time on demand conditions and the selling strategies of competitors.

The approach with respect to tacit collusion should have two dimensions: i) authorities need to be more active in market data collection (prices, sales) to allow them to better estimate demand conditions and assess whether prices are well above competitive levels.

With this respect, authorities may have to develop their own algorithms to resemble market conditions; ii) authorities should also engage in a dialogue with the concerned firms as well as the platforms with which these firms operate in order to find the best possible way to restore consumer welfare. This second dimension follows in spirit the participative antitrust approach proposed by Tirole (2017).

It is unrealistic to expect that authorities will be able to get as good information about the market conditions and characteristics as platforms have. Platforms, because of their position in the digital ecosystem, have better chances to detect abnormal pricing behaviour from their external producers that suggest some form of tacit collusion.

Even if authorities in the course of evaluating a given case, get access to good quality market data, it will take a large amount of time to understand its implications for the case.

In the Google shopping case, the European Commission broke records on the amount of data they collected and processed, but the case itself took more than 7 years for the publication of the decision[6]. So, the approach we propose here requires frequent interaction between authorities and platforms that will lead to mutual recognition and understanding of the firms' strategies that do not reduce consumer welfare.

During the COVID-19 pandemic crisis, authorities were working closely with platforms[7] to identify price gouging practices by online sellers using their services. Such forms of cooperation can continue during normal times to assess excessive, tacit collusive pricing.

A third instrument of competition law is that firms with dominant positions are restricted in the market strategies they can adopt. Since antitrust intervention is ex-post in this case, antitrust has a limited ability to address successfully the associated theories of harm, even if authorities rely more on interim measures.

While the above antitrust measures can be helpful, they are unlikely to be effective without further policy intervention. What we suggest is a regulatory framework that will address the problem ex-ante with respect to the principles of competition law that apply ex-post. Competition policy should be viewed as a measure of last resort that is applied ex-post only when regulation does not have the desired effect.

On the demand side it is important to ensure that multihoming is possible between platforms. A first step to achieve this is to reduce the switching costs and ensure data portability. Experience from banking services can inform how data portability might work.

The Open Banking Initiative allows consumers to obtain and transmit their banking activity in a standardised and secure fashion to regulated and approved third-party firms in UK (final report from the Stigler Committee on digital platforms, 2019). At the same time, open standards should be encouraged where interoperability between different competing platforms is enforced.

Regulation on the supply side is also crucial. First, transparency needs to be enforced in the platform environment so that external suppliers have access to all the necessary information that they need for their efficient operation on the platform. The European Commission has recently implemented regulation to improve transparency and establish trust in the platform ecosystem.

Second, platform access policies should follow the principle of non-discrimination (unless an objective justification of no consumer harm over discriminatory policies in place can be provided) in order to ensure the level playing field between external suppliers and platform's upstream subsidiaries.

As we argued above, data accumulation leads to higher value creation. The challenge we need to address is that it also confers a competitive advantage. Big platforms with large amounts of data generate high value and efficient services.

But, that also makes it more difficult for smaller firms to compete with them and provide alternative options to consumers. Ideally, what we want is to both keep value creation at high levels while also encouraging small firms to compete more effectively with high-tech giants. To do that, we need to design data sharing mechanisms that enable small firms to get access to data.

In this way, data will not only confer value to the market leaders but also to their competitors, to the benefit of the whole ecosystem. Then we will be able to keep value creation at high levels, while also increasing market competition, contributing to allocative and dynamic efficiency.

The market design for data sharing can be challenging. Fortunately, regulators of financial services like the PSD2 regulation in the EU have created one possible path. PSD2 explicitly empowers account holders with the authority to share data, removing the financial institution's role as gatekeeper.

The motivation for this regulation is to reshape the financial sector in a way that small fintech firms have sufficient room to grow and compete with established banking institutions. The incumbents raised the possibility that such regulation would have the unintended consequence of giving preferential access to large technology companies.

Applying a similar regulation to other sectors could level the playing field as the issue becomes more evident with the entry of big digital platforms into the financial service sector that do not have to follow PSD2 regulations.

Data sharing should take place without providing incentives for data exploitation. GDPR provides a framework of rules for data sharing, but only in the case that data is related to an identified or identifiable person (personal data).

In principle, the consent of the user is required. However, according to the Article 6(1)(f) of the GDPR[8], data sharing of personal data can be lawful without user's consent when: *"processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party, except where such interests are overridden by the interests of fundamental rights and freedoms of data subject [user] which require protection of personal data."*

Namely, a consent is not required in a limited number of cases when the risks of data sharing are small and potential usefulness of data sharing is high. So, with consent or without, the GDPR provides an avenue that facilitates data sharing if that increases consumer welfare (as in our proposal) when privacy risks are low.

It should be noted that anonymised data that is aggregated faces a lower risk of exploitation (Li *et al* 2017). While, in principle, the GDPR does not apply to anonymous datasets, research has shown that anonymising individual level personal data in such a way that individuals cannot be re-identified is very difficult, especially, for rich datasets that include multidimensional information (Montjoye *et al* 2015).

In cases where anonymity becomes a challenge, the employment of methods such as homomorphic encryption or secure multiparty computation can become helpful. Despite these concerns, we expect that the welfare benefits from data sharing are going to be higher than the risks so long as those risks are appropriately managed.

To sum up, the way forward requires both specific innovations in the use of antitrust instruments, as well as a regulatory intervention that will set the necessary standards for facilitating data sharing between competitors. Given the global reach of digital platforms, this approach requires a base level of coordination and collaboration at the international level.

To see this, consider the following example: In Europe, antitrust authorities adopt a more dynamic view in merger control, across the lines illustrated above, but US authorities continue to apply the same old-fashioned and ineffective static framework.

It is clear that this situation is not ideal for solving the market power issues of digital platforms. Platforms can merge with their potential competitors in the US market and use their increased market power in the US market in

a way that provides them with a competitive advantage even in the European market. So, the proposed updates of antitrust tools require a platform of continuous exchange and coordination between enforcement bodies and legislators. The International Competition Network can be the nexus of coordination between antitrust authorities and practitioners among the countries that are members.

Despite its extensive global coverage, some major economies like the Russian Federation and the People's Republic of China are not members of this body. So, additional discussions should take place between this network and the competition authorities that participate in the BRICs association.

Authorities can innovate by adopting practical new techniques in the application of competition law in digital markets and coordinate on studying specific markets through surveys and other tools.

In terms of case law and legislative actions, when needed, some further coordination and convergence will be particularly welcome, maybe through extending interaction under the OECD umbrella on these issues.

On our recommendations for data sharing mechanisms, we need to ensure the free flow of data and minimise the cases of data localisation. To achieve this, we need to make sure that strong privacy protection is in place when data transfers take place.

A promising avenue can be the bilateral data transfer agreements between different jurisdictions under some common characteristics and principles. For example, the EU-US Privacy Shield dictates that Europeans are protected according to the GDPR standards even when their data is transferred to the US.

Similar bilateral agreements have been signed with other countries that wish to have access to data of European citizens. By building on such agreements and expanding their reach, we can solve coordination problems in terms of privacy rules. Consequently, we can design flexible data sharing mechanisms that solve market power problems that go beyond the borders of specific jurisdiction.

While some base level of coordination across boundaries is important, jurisdictions should also keep their freedom and flexibility to adjust specific rules to their own economic realities and characteristics in a way that does not contradict the basic principles.

Besides, we expect that such flexibility will be critical for establishing the necessary common ground. From the lengthy reports published from jurisdictions across the world, we see that they frequently identify the same market competition challenges from the operation of digital platforms. So, why not also adopt, in principle, common solutions?

A potential risk that may threaten this necessary coordination at the global scale is the industrial policy goals of different countries and jurisdictions that are divergent. For example, the US, EU and China are ambitious in their artificial intelligence strategies and are trying to increase their prominence and influence.

A particular dimension of this ambition is reflected in the industrial strategies adopted in each of these three jurisdictions. Such strategies try often to influence the way competition policy is applied (recall for example the intensive debate behind the Alstom-Siemens merger case) and made it more lenient to protectionism motives.

The new approach we propose here requires both ex-ante regulation as well as ex-post competition policy measures to be applied without any dependence on political or industrial policy motives. It is necessary to keep

the application of competition principles independent and consider them as the basis for any industrial policies that come into force (see for example Petropoulos, 2019, on the harmonic relationship between competition and industrial policy).

Competition policy should not serve any protectionism function. It should serve market efficiency and consumer welfare. Of course, we recognise that suppressing national aspirations for the common good poses diplomatic challenges, but that should not prevent us from establishing common goals. ■

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Endnotes

1. There is a large and growing literature on multi-sided platforms. See for example, Gawer and Cusumano (2002), Hagiu and Wright (2015), Parker and Van Alstyne (2018), Adner, Puranam and Zhu (2019).

2. Although the number of direct employees may be lower, the overall number of people in the system may actually increase.

3. See for example the press releases by the Office of Fair Trading (OFT) on August 29, 2013, under the title "OFT Welcomes Amazon's Decision to End Price Parity Policy," and the German Competition Authority on November 26, 2013, under the title "Amazon Abandons Price Parity Clauses for Good.". See also COMP/C-2/39.847 that concerns Apple and its iBookstore.

4. See US vs David Topkins, https://www.justice.gov/atr/case/us-v-david-topkins

5. With the exception of the merger control instrument.

6. Although, the case did not have to do with a price fixing agreement, it illustrates how difficult it is to collect and analyse data in the frame of a formal antitrust investigation.
7. https://www.concurrences.com/pdf_version.api/article-93963.pdf
8. https://www.privacy-regulation.eu/en/article-6-lawfulness-of-processing-GDPR.htm

References

Adner, Ron, Phanish Puranam, and Feng Zhu (2019) 'What Is Different About Digital Strategy? From Quantitative to Qualitative Change', Strategy Science 4, no. 4: 253–61, https://doi.org/10.1287/stsc.2019.0099
Aghion, P, N Bloom, R Blundell, R Griffith, and P Howitt (2005) 'Competition and Innovation: an Inverted-U Relationship', The Quarterly Journal of Economics 120, no. 2: 701–28, https://doi.org/10.1093/qje/120.2.701
Akerlof, George A "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism." The Quarterly Journal of Economics 84, no. 3 (1970): 488. https://doi.org/10.2307/1879431
Anderson, R (2001) 'Why Information Security Is Hard - an Economic Perspective', Seventeenth Annual Computer Security Applications Conference, https://doi.org/10.1109/acsac.2001.991552
Armstrong, Mark (2006) 'Competition in Two-Sided Markets', The RAND Journal of Economics 37, no. 3: 668–91, https://doi.org/10.1111/j.1756-2171.2006.tb00037.x
Arrow, Kenneth J (1962) 'Economic Welfare and the Allocation of Resources for Invention', The Rate and Direction of Inventive Activity, 609–26, https://doi.org/10.1515/9781400879762-024
Autor, David, David Dorn, Lawrence F Katz, Christina Patterson, and John Van Reenen (2020) 'The Fall of the Labor Share and the Rise of Superstar Firms*', The Quarterly Journal of Economics, March, https://doi.org/10.1093/qje/qjaa004
Bakos, Yannis and Hanna Halaburda (2020) 'Platform Competition with Multi-Homing on Both Sides: Subsidize or Not?" CESifo Working Paper No. 8126, https://ssrn.com/abstract=3545723
Bajari, Patrick, Victor Chernozhukov, Ali Hortaçsu, and Junichi Suzuki (2019) 'The Impact of Big Data on Firm

Performance: An Empirical Investigation', AEA Papers and Proceedings 109: 33–37, https://doi.org/10.1257/pandp.20191000
Barefoot, Kevin, Dave Curtis, William Jollif, Jessica Nicholson, Robert Omohundro (2019) 'Measuring the Digital Economy', Bureau of Economic Analysis technical report, accessed 5 May 2020, https://apps.bea.gov/scb/2019/05-may/0519-digital-economy.htm
Belleflamme, Paul, and Martin Peitz (2019) 'Platform Competition: Who Benefits from Multihoming?" International Journal of Industrial Organization 64: 1–26, https://doi.org/10.1016/j.ijindorg.2018.03.014
Benzell Seth G. and Avinash Collis (2019) 'Multi-Sided Platform Strategy, Taxation, and Regulation: A Quantitative Model and Application to Facebook', mimeo
Borenstein, Severin, and Nancy L Rose (1994) 'Competition and Price Dispersion in the U.S. Airline Industry', Journal of Political Economy 102, no. 4: 653–83, https://doi.org/10.1086/261950
Brynjolfsson Erik and Avinash Collis (2019) 'How should we measure the digital economy?' Harvard Business Review
Brynjolfsson, Erik, Avinash Collis, W Erwin Diewert, Felix Eggers, and Kevin Fox (2019) 'GDP-B: Accounting for the Value of New and Free Goods in the Digital Economy', https://doi.org/10.3386/w25695
Calligaris, Sara, Chiara Criscuolo, and Luca Marcolin (2018) 'Mark-Ups in the Digital Era', OECD Science, Technology and Industry Working Papers, https://doi.org/10.1787/4efe2d25-en
Calvano, Emilio, Giacomo Calzolari, Vincenzo Denicolo, and Sergio Pastorello (2018) 'Artificial Intelligence, Algorithmic Pricing and Collusion', SSRN Electronic Journal, https://doi.org/10.2139/ssrn.3304991
Constantinides, Panos, Ola Henfridsson, and Geoffrey G Parker (2018) 'Introduction—Platforms and Infrastructures in the Digital Age', Information Systems Research 29, no. 2: 381–400, https://doi.org/10.1287/isre.2018.0794
David, Paul A (1985) 'Clio and the Economics of QWERTY', The American Economic Review, 75.2: 332- 337
Diez, Federico, Daniel Leigh, and Suchanan Tambunlertchai (2018) 'Global Market Power and Its Macroeconomic Implications', IMF Working Papers 18, no. 137: 1, https://doi.org/10.5089/9781484361672.001
Economides, Nicholas and Ioannis Lianos (2019) 'Restrictions on Privacy and Exploitation in the Digital Economy: A

Competition Law Perspective', NET Institute. Working Paper #19-15
Edelman, Benjamin, and Julian Wright (2015) 'Price Coherence and Excessive Intermediation', The Quarterly Journal of Economics 130, no. 3: 1283–1328, https://doi.org/10.1093/qje/qjv018*
European Commission (2017) 'Final report on the E-commerce Sector Inquiry', SWD (2017) 154 final
European Commission (2018) 'Impact Assessment Accompanying the document Proposal for a Regulation of the European Parliament and of the Council on promoting fairness and transparency for business users of online intermediation services', COM (2018) 238 final
Ezrachi, Ariel (2015) 'The Competitive Effects of Parity Clauses on Online Commerce', European Competition Journal 11, no. 2-3 (February): 488–519, https://doi.org/10.1080/17441056.2016.1148870
Ezrachi, Ariel, and Maurice E Stucke (2016) Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy, Harvard University Press, https://doi.org/10.4159/9780674973336
Friedman, James W (1971) 'A Non-Cooperative Equilibrium for Supergames', The Review of Economic Studies 38, no. 1: 1. https://doi.org/10.2307/2296617
Gantz, John, and David Reinsel (2011) 'Extracting Value from Chaos', International Data Corporation (IDC) View
Gawer, Annabelle, and Michael A. Cusumano (2002) Platform leadership: How Intel, Microsoft, and Cisco drive industry innovation, Boston, MA: Harvard Business School Press
Gutiérrez, Germán, and Thomas Philippon (2017) 'Declining Competition and Investment in the U.S.', https://doi.org/10.3386/w23583
Hagiu, Andrei, and Julian Wright (2015) 'Multi-Sided Platforms', International Journal of Industrial Organization 43: 162–74, https://doi.org/10.1016/j.ijindorg.2015.03.003
Hall, Robert (2018) 'Using Empirical Marginal Cost to Measure Market Power in the US Economy', https://doi.org/10.3386/w25251
Hesse, Renata B (2007) 'Two-sided platform markets and the application of the traditional antitrust analytical framework', Competition Policy International 3.1

Kamepalli, Sai Krishna, Rajan, Raghuram G and Luigi Zingales (2020) 'Kill Zone', University of Chicago, Becker Friedman Institute for Economics Working Paper No. 2020-19, https://ssrn.com/abstract=3555915 or http://dx.doi.org/10.2139/ssrn.3555915

Katz, Michael L., and Carl Shapiro (1985) 'Network externalities, competition, and compatibility', The American Economic Review 75.3: 424-440

Kwoka, John E, and Lawrence J White (1999) The Antitrust Revolution: Economics, Competition, and Policy, New York: Oxford University Press

Li, Ninghui, Tiancheng Li, and Suresh Venkatasubramanian (2007) 't-Closeness: Privacy Beyond k- Anonymity and l-Diversity', IEEE 23rd International Conference on Data Engineering, https://doi.org/10.1109/icde.2007.367856

Loecker, Jan De, Jan Eeckhout, and Gabriel Unger (2020) 'The Rise of Market Power and the Macroeconomic Implications', The Quarterly Journal of Economics, https://doi.org/10.1093/qje/qjz041

McAfee, A, and E Brynjolfsson (2008) 'Investing in the ICT That Makes a Competitive Difference', Harvard Business Review, Vol. 86 No. 7/8: 98–107

Montjoye, Y-A De, L Radaelli, VK Singh, and AS Pentland (2015) 'Unique in the Shopping Mall: On the Reidentifiability of Credit Card Metadata', Science 347, no. 6221: 536–39, https://doi.org/10.1126/science.1256297

OECD (2014) 'Data-Driven Innovation for Growth and Well-Being', Interim Synthesis Report, Organisation for Economic Cooperation and Development

Parker, Geoffrey G, Georgios Petropoulos and Marshall W Van Alstyne (2020) 'Digital Platforms, Market Power and Antitrust: A proposal towards efficient data sharing mechanisms', mimeo

Parker, Geoffrey G, and Marshall W Van Alstyne (2005) 'Two-Sided Network Effects: A Theory of Information Product Design', Management Science 51, no. 10: 1494–1504, https://doi.org/10.1287/mnsc.1050.0400

Parker, Geoffrey, and Marshall Van Alstyne (2018) 'Innovation, Openness, and Platform Control', Management Science 64, no. 7: 3015–32, https://doi.org/10.1287/mnsc.2017.2757

Parker, Geoffrey, Marshall Van Alstyne, and Sangeet Paul Choudary (2016) Platform Revolution: How Networked Markets

Are Transforming the Economy and How to Make Them Work for You. New York: WW Norton & Company
Parker, Geoffrey, Marshall Van Alstyne, and Xiaoyue Jiang (2017) 'Platform Ecosystems: How Developers Invert the Firm', MIS Quarterly 41, no. 1 (January): 255–66, https://doi.org/10.25300/misq/2017/41.1.13
Petropoulos, Georgios (2019) 'How should the relationship between competition policy and industrial policy evolve in the European Union?' Bruegel Blog, 15 July, available at https://www.bruegel.org/2019/07/how-should-the-relationship-between-competition-policy-and-industrial-policy-evolve-in-the-european-union/
Petropoulos, Georgios (2018) 'Vertical restraints and e-commerce', Concurrences Review N° 1, Art. N° 86057
Philippon, Thomas (2019) The Great Reversal: How America Gave up on Free Markets. Cambridge, MA: The Belknap Press of Harvard University Press
Rochet, Jean-Charles, and Jean Tirole (2003) 'Platform Competition in Two-Sided Markets', Journal of the European Economic Association 1, no. 4 (January): 990–1029, https://doi.org/10.1162/154247603322493212
Rysman, Marc (2009) 'The Economics of Two-Sided Markets', Journal of Economic Perspectives 23, no. 3: 125–43, https://doi.org/10.1257/jep.23.3.125
Schaefer, Maximilian, Geza Sapi, and Szabolcs Lorincz (2018) 'The Effect of Big Data on Recommendation Quality: The Example of Internet Search', SSRN Electronic Journal, https://doi.org/10.2139/ssrn.3161325
Schumpeter, Joseph Alois (1934) The Theory of Economic Development: an Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle, Harvard University Press
Shapiro, Carl, and Hal R Varian (1998) Information Rules: a Strategic Guide to the Network Economy. Boston, MA: Harvard Business School Press
Steinbaum, Marshall, and Maurice E Stucke (2020) 'The Effective Competition Standard: A New Standard for Antitrust', University of Chicago Law Review
Stigler Committee on Digital Platforms (2019) Final report
Stucke, Maurice E, and Allen P Grunes (2016) Big Data and Competition Policy, Oxford: Oxford University Press
Tirole, Jean, and Steven Rendall (2017) Economics for the Common Good, Princeton: Princeton University Press

Traina, James (2018) 'Is Aggregate Market Power Increasing? Production Trends Using Financial Statements', SSRN Electronic Journal, https://doi.org/10.2139/ssrn.3120849
UK Digital Competition Expert Panel (2019) Final Report
Varian, Hal R, Joseph Farrell, and Carl Shapiro (2004) The Economics of Information Technology: An Introduction, Cambridge: Cambridge Univ. Press
Von Hayek, Friedrich August (1945) 'The use of knowledge in society', The American Economic Review 35.4: 519-530
Whittington, J and CJ Hoofnagle (2012) 'Unpacking Privacy's Price', 90 North Carolina Law Review 1327
Williamson, Oliver E (1973) 'Markets and hierarchies: some elementary considerations', The American Economic Review 63.2: 316-325

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