



## EIB ANNUAL ECONOMICS CONFERENCE jointly organised with OECD, SUERF and Columbia University

### *Striving for competitiveness and inclusion: what policies for Europe?*

Luxembourg, 26-27 November 2019

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#### Conference Proceedings

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The EIB-OECD-SUERF-Columbia conference on 26-27 November reinforced the call for high quality investment in Europe to facilitate the transition towards a carbon-neutral economy, promote the wider adoption of digitalisation, and support more inclusive growth. The conference took place at the EIB headquarters in Luxembourg, at the time of the release of the EIB Investment Report and the OECD Economic Outlook.

Under the leitmotiv that “Europe cannot afford to wait down another downturn, it needs to tackle structural gaps now”, the main issues discussed by speakers and panellists were the following:

- Investment activity in the European Union has now recovered from the last recession, and is somewhat above the long-term average overall but still lagging in the South. However, EU firms are increasingly concerned about the political and regulatory environment, and expect the macroeconomic climate to worsen. The number of EU firms planning to reduce investment has risen for the first time in four years. EU firms are also more pessimistic than their US peers.
- Europe needs to take bold action to sustain its global leadership in the fight for climate change. To achieve a net zero-carbon economy by 2050, the EU must substantially raise its investment in its energy systems and related infrastructure. While the United States leads in climate-related R&D spending, China has recently quadrupled its spending, overtaking the EU. Europe’s weak performance in climate-related R&D is a threat to its competitiveness, given the importance that still-immature technologies will have in the transition.
- The adoption of digital technologies in Europe is slow, with a growing digital divide among firms. Digital firms tend to invest more, innovate more and grow faster, enjoying first-mover advantage. Many of the older, smaller and medium-sized companies in Europe persistently lag behind in digital adoption, hampering productivity growth.

- One of Europe's strengths has been its social model, but this model needs to be renewed and adapted in the face of rising inequality and new strains from technological change. Social cohesion is key to Europe's ability to adapt to a changing world economy and to meet the demands of the zero-carbon transition. Social mobility is essential for getting the most out of Europeans' talents and ambitions, maximising economic performance and prosperity.

While keynote speeches were "on the record", Chatham House rules applied for the panel sessions. The conference proceedings will reflect this, driving conclusions from panel debates, without attributing specific views to single panellists.

## Day 1

### Opening remarks and scene-setter

**Vice-president Andrew McDowell (EIB) delivered the opening remarks.** He expressed his concern that a decade after the global financial crisis, European policies are still much focused on short-term issues, while the long-term pressures and challenges have been mounting. On the back of trade uncertainty, the world economy has been slowing down, with the most recent figures pointing to 0.3% GDP growth on a quarter-to-quarter basis. Germany's economic performance has been affected particularly heavily.

**The vice-president articulated that the financing costs are at historic lows.** This has raised the concerns a) about the effectiveness of monetary policy as a counter-cyclical tool and b) the equilibrium dynamics between savings and investments in such an environment.

**Digitalization has been transforming finance and corporate business models worldwide.** However, the adoption of digital technologies in Europe has been lagging. As new forms of work and processes are emerging, policymakers urgently need to rethink the innovation ecosystem, starting with skill and education policies, through R&D investments, to product and service innovation strategies.

**The future of Europe is linked to the transition towards a net zero-emission economy.** In this respect, the EU ambition to strengthen the EIB's role as the EU's climate bank marks a quantum leap as the most ambitious investment climate strategy in the world.

**To set the scene for the discussions, Debora Revoltella (EIB) presented the key findings of the EIB's 2019-2020 Investment Report.** She highlighted the structural transformation needs of the European economy: Europe cannot afford to wait for another cyclical downturn, and it needs to step up investment to address the structural needs of the EU economy. However, investment is constrained by a number of factors, notably by availability of skilled staff and uncertainty. The corporate sector in the EU is also increasingly concerned about regulatory and political climates. The availability of finance for the smallest companies is still limited and the size of funds throughout the scale-up process of firms is much smaller in EU than in US. The gaps are also visible in terms of digitalization. The EU lacks new global technology leaders and leadership in new sectors. Weak government infrastructure investments hold down private-sector infrastructure expenditures. As Europe's reluctance to change may be associated with the stickiness of the system, the public sector can bring technical capacity to unlock the private sector's ability to invest. EU competitiveness challenges cannot be dissociated from the fight against climate change – as related investments are still insufficient to meet the EU's ambitious goals – as well as from the challenges from rising income inequality, both at the EU and national levels.

## Panel session I – Investment in Europe

The presentation was followed by a lively panel debate, with the participation of **Pier Carlo Padoan (former Minister of Finance in Italy)**, **Daniel Gros (Chairman CEPS)** and **Vitor Gaspar (IMF Director Fiscal Department)**. The three panellists held differing views on investment needs, but converged on the need for more quality investments to take place.

**Uncertainty and market rigidities are withholding investment opportunities.** The lack of structural reforms prevents profit opportunities from materialising, which is a drag on the efficient allocation of resources. Moreover, the system-wide uncertainty, and in particular political uncertainty, postpones scheduled investment projects. However, one panellist noted that uncertainty is an intrinsic part of the investment landscape. If the EU invested too much in the past, the marginal returns on investments are currently lower, discouraging new investments.

**Panellists agreed that there is a need for better and better-targeted investment.** Panellists seem to find a compromise view, on a need not necessarily for more investments, but for better and better-targeted investments. They all agreed that there are large needs associated to the green agenda for Europe. While the main reductions in climate emissions must come from China, India and the US, Europe can lead by example. At the same time, the EU's green agenda needs to be improved, because without a systematic approach to the problem, the sectoral solutions will just be ineffective on the wider scale. At times of technological change and rising inequality, panellists also discussed the increasingly important role of labour skills. Well-targeted educational policies are therefore key to support aggregate and sustainable growth.

## Keynote speech

**Philippe Aghion (Harvard University)** delivered the keynote. He discussed the role of the state and the future of capitalism. He highlighted that there are two lines of thought addressing this issue, with different policy implications. The first group advocates the view that “this time is no different”. Accordingly, rising income inequality and deteriorating environment are the reflection of degenerated capitalism, as also historically only a few benefitted at the expense of others. This would suggest that governments should increase taxes for the rich, and society should move beyond capitalism as ill suited to cope with the challenges of today's world. The speaker disagreed with this view and supported the view that “this time is different”.

**He recalled the Schumpeterian view of ‘creative destruction’ and innovation-led growth.** Innovative entrepreneurs engage in fierce competition to earn profits, thereby enhancing technologies, ultimately leading to higher growth. This process pushed laggard firms out of the market, which has distributive impacts between agents.

**In this view, top income inequality is the outcome of temporary rents earned by the most productive innovators.** However, the speaker argues that social mobility is also stimulated as a part of the innovation process, as long as there is free entry into markets and adequate competition enforcement, property rights are protected, and knowledge is diffused. Importantly, economic rents of innovation are only temporary. Under these conditions, innovation does not increase inequality in a broad sense. The example of the IT revolution confirms these observations.

**As evidenced by empirical economic research, innovation can also play against itself.** Two main factors play a role in that. First, innovators tend to innovate in the same branches of activity where they already operate, and they might neglect other technologies such as greener ones with higher social value. Second, after extracting temporary rents, current innovators might lobby to protect their position and prevent others from entering their market segment.

**As a result, capitalism cannot survive without smart regulation, which would set the right incentives.** A proper tax system to support greener and more inclusive growth is one step in that direction. At the same

time, it is important that the tax system remains reasonable, and that the state does not tax the innovators too heavily. Appropriate competition policy, particular in the digital area, is needed to stimulate temporary rents, while preserving long-term incentives to innovate. Regulating political campaigns to limit the power of lobbies is also particularly important to ensure that incumbents do not have the means to stall the innovation process.

**As regards the areas supporting innovation, a number of horizontal and vertical policies stand out.** Education, health, basic research and labour market are the key horizontal policies, while subsidizing green innovation and properly designed industrial policy are the most important vertical ones. Policy support to address market failures in the financing of disruptive innovation, as was done with DARPA projects, can additionally support innovative and inclusive investments and guarantee sustainable growth.



*Pier Carlo Padoan, Debora Revoltella, Daniel Gros, Vitor Gaspar*



*Philippe Aghion*

## Panel session II – Investment finance in Europe

**Laurence Boone (OECD) launched the debate noting that the recent OECD economic outlook forecasts a mere 2.9% increase of global GDP for 2019, the lowest since the financial crisis, and growth is expected to remain stuck at 3% until 2021.** Low investment is part of the reason behind subdued global growth – investment is cyclically slowing but has also structurally changed, remaining below pre-crisis levels and with the EU lagging behind activity in the US. In turn, insufficient investment raises the risks that the subdued outlook continues and that structural challenges, notably climate change and digitalization, remain unaddressed. This raises the questions of whether monetary policy is still capable of (sufficiently) stimulating investment and growth in the current environment, and why, as well as what policy mix is needed to boost growth in Europe going forward.

**Peter Praet (former ECB), Catherine Mann (Citigroup), Jordi Gual (CaixaBank), Boris Vujčić (Croatian National Bank) contributed to the subsequent panel discussion.**

**While monetary policy worked well to tackle the repercussions from the financial crisis and stimulate the recovery, now the EU economy is facing a new shock.** It stems from policy-induced uncertainty (notably trade conflicts undermining business confidence) coupled with the consequences of underinvestment by public authorities that now manifest in capacity constraints. Policies need to focus on the supply side, and tackling structural issues, supporting for instance the digital transformation and completing the Capital Market Union (CMU) to better channel excess savings.



**Demand-side problems also contribute to low investment activity.** Firms in the EU fall short on animal spirits and the financial system with its strong reliance on bank finance does not cater for risk-takers. Policy responses should hence focus on strengthening corporate demand for investment, using (more) public investment as a catalyst for private investment activity, and providing greater certainty on the regulatory environment. Together, this could boost investment activity and help advancing on climate transition.

**Panellists discussed the negative implications of a persistent low interest rate policy, arguing that it does not overcome firms' reluctance to invest.** It is mainly due to uncertainty, but it also allows less competitive companies to remain on the market. Progress on public risk sharing (creating an EU safe asset, completing Banking Union (BU) including the European Deposit Insurance Scheme (EDIS), resolution regimes, and harmonization of insolvency law) is a prerequisite. With regards to the policy mix, more support from fiscal policy is needed to stimulate investment and allow monetary policy to 'normalize' again. It is often not a lack of finance that holds innovative firms back, but other issues, such as taxation. Bank finance is not best suited for them, but one of the upsides of the low rate environment is that it helps to channel funds towards other providers of finance in the financial system (asset management, funds etc.)

**Panellists agreed that at this point monetary policy is not enough to stimulate growth and that a rethink of the policy mix is needed.** The approach needs to be coordinated, restoring confidence, growth and inclusiveness. This requires all three aspects – fiscal, monetary and structural policies – to be active, and instead of viewing these as separate pillars, policymakers need to consider their mutual interactions.



*Jordi Gual, Laurence Boone, Catherine Mann, Boris Vujčić, Peter Praet*

## Dinner speech

**Richard Baldwin (IHEID)** delivered the dinner speech on the future of work. He argued that the world of work in advanced economies is beginning to go through its third major transformation, which will be faster than the previous ones, and at the end it will lead to a “better world” in terms of job satisfaction.

**The previous major transformations involved the shift from agriculture to factories in the aftermath of the industrial revolution, and the shift from factories to office jobs from the 1970s.** The third major transformation will involve the transition from service-sector jobs towards the so-called “shelter-service” jobs, driven by digitalisation.

**The transformation will be strongly influenced by “globotics”:** an amalgam of globalisation and robotics. “Globots” can mean both white-collar robots – software that can do things that only humans could do before – and telemigrants, who are workers telecommuting from abroad. They will affect white-collar jobs by either replacing or downgrading their employment status. Machine learning plays a key role in this process.

**While labour markets are not yet prepared to the paradigm shift, the speed of the transformation will be much faster than during the previous grand transformations.** When it came to the automation of industrial production, the laws of mechanics applied, whereas during the current transformation the laws of electricity are dominating the landscape. This results in lower transition costs on the employers’ side, hence faster transition, but workers are not ready for it.

**In the longer run, globotics will bring benefits to employees.** In the short term, the speed of job destruction will exceed the speed of job creation for a period, creating tensions. However, the jobs of the future will be organised around such tasks that cannot be done by artificial intelligence. These tasks involve empathy, creativity, managerial and leadership skills etc. In the long run, the transformation will lead to more humane jobs, and more local jobs.

## Day 2

### Opening remarks

**President Werner Hoyer (EIB) opened the second day of the conference.** He highlighted the EIB’s ambition to be a major hub for expertise on investment and investment finance. He pointed out that the global and the European economy are cooling off, calling for an investment response, but this time the intervention needs to be broader and more structural. Europe invested too little in the past, particularly as regards innovation and digitalisation. As recognized in the EIB Investment Report, there are only few leading innovative firms, little is invested in research and development, while the adoption of digital technologies remains weak.

**On the positive note, climate change seems to finally get the attention it deserves.** It is paramount to keep the rising temperatures under control, which is still feasible. However, it will require a rapid switch to green technologies, and accelerated investment across the board. The President announced that the EIB Board of Directors endorsed the EIB Climate Strategy and new Energy Lending Policy, showing a real commitment to transforming the European economy and the EIB. He noted that while social inclusion has always been at the heart of Europe’s model, regional convergence has slowed dramatically during the last decade. In addition, digitalisation and climate change might even worsen this trend. The transition can only work if it works for all Europeans.

**The EIB can play a role in delivering strategically important investments.** Commitment and high expectations of the shareholders were visible via the capital increase, the Economic Resilience Initiative and the EFSI in the recent past and lately in the move towards the EU’s Climate Bank. However, the President observed that the EIB has been the de facto Europe’s climate bank for a number of years already, providing EUR 150 billion of finance and supporting EUR 550 billion of investment in climate-related projects since 2012. At the same time, doing the ‘business as usual’ will not be enough to support Commission’s ambitious plan of making Europe the first carbon neutral continent by 2050.

**The recently approved EIB strategy includes three key elements.** First, the share of EIB financing dedicated to climate action and environmental sustainability will increase from currently 28% to 50% by 2025. Second, the EIB aims to support EUR 1 trillion of investments in climate action and environmental sustainability in the critical decade from 2021 to 2030. The effort should be also in identifying project with greater impact. Third, all EIB financing activities will be aligned with the principles and goals of the Paris agreement by the end of 2020. Importantly, the Board also reached the compromise to end the financing of unabated fossil fuel

project, including gas, from the end of 2021. The President hopes that this milestone will also serve as an example for other IFIs and the financial sector more broadly to follow suit.

**The decision to move to the EU climate bank was not an easy one because different countries and regions are on a different transition path.** Indeed, 41 regions in the EU are mining coal, employing 240,000 people. It is therefore important that these regions are not left alone when going green. This is the aim of the dedicated Energy Transition Package. Even the best climate strategies cannot survive without public support, as the yellow vest movement showed.

**This does not mean that that the EIB is giving up on the competitiveness goal.** To the contrary, it will only be aligned better with the climate goals, which will now become ‘everything we do and everywhere we do’. Importantly, this also concerns the EIB’s operations outside of the EU, where the EIB is also active and aims to be in the centre of the European Development Bank. Investment in Africa is needed, as the population is growing rapidly. Another example is China, which is opening up massive scale coal power plans at home and other countries, Europe, in fact, has no other chance but to offer a green alternative. As CO<sub>2</sub> emissions have no boundaries, also our climate policies should be unconstrained.

**Europe has been investing 1.5% of GDP less in RDI and education for 15 years than its peers, which is unsustainable.** By de-risking the innovation projects, the EIB invested EUR 210bn since 2000 in innovation and skills across the EU. Given the amount we still need to catch up, the European Innovation Push is needed, but all tools seem to be at hand to succeed.

### **Fireside policy chat**

**The session was chaired by Vice-President Andrew McDowell (EIB); members of the panel included Philip Lane (ECB) and Klaus Regling (ESM).** The participants agreed that the global slowdown is largely attributable to the ongoing trade US-China disputes, which hit Europe in particular.

**China is one of the major growth engines of the EU economy.** Regardless of the US-China trade war, exports will be an important growth driver of Europe. That said, Europe should respond to external shocks, by replacing external demand with domestic demand, as supported by demand policies at regional level. Fiscal policy needs to act in a countercyclical manner, with both a long term and supply side focus. The ECB is constrained by a number of factors that determine real interest rates, including demographics. The question is: are negative rates providing stimulus? Until that happens, in an unprecedented world, we need to have an open mind about unprecedented tools.

**The euro area is now much stronger, and much better prepared to withstand shocks than ten years ago.** Institutional gaps were unveiled, and much more has been achieved than expected. Euro area policymakers proved they can reach consensus and make changes happen in crisis periods. The deepening of the euro area has continued. Still, there is more to be done, including 1) the common deposit insurance system needed to complete the BU, 2) the fiscal stabilization function within the monetary union, and 3) the creation of a safe asset for euro area.

**A key conclusion of the session was that without some centralisation of fiscal policy within the euro area, policy coordination with monetary policy would be difficult to achieve.** The current fiscal framework, based on unobservable variables such as potential output, has been broken after the crisis. Also, while the ultimate goal of keeping debt sustainable still remains, climate change challenges increase investment gaps. It is a difficult task to work out whether or not we should be more cautious with debt sustainability in the current low interest rate environment. It all depends on the reasons why interest rates are low.



Werner Hoyer



Klaus Regling, Andrew McDowell, Philip Lane

### **Session A1: Competitiveness and competition in times of disruptive technological change – do we have to fear the “winner takes it all?”**

**Reinhilde Veugelers (KU Leuven) chaired session A1; participants included Bart Van Ark (The Conference Board), Jan de Loecker (KU Leuven) and Ufuk Akcigit (University of Chicago).** Shall we state now “you can see digital everywhere but in the productivity statistics”? Productivity increased for firms that are intensive users of digital technologies in the EU but not in the US. The biggest hurdle to increase productivity is skilled labour. Today most digital skills are drawn in the digital production sector, whereas firms in other sectors face difficulties attracting talent.

**In the last decades, we have seen a drastic rise in mark-ups, but 75% of firms do not benefit from this evolution.** What is more, this pattern is not only observed in the tech sector but it is also happening in the retail and manufacturing sector. This increase did not come at the cost of consumers as it reflects a decrease in costs. The perfect competition assumption, prevalent in many economic models, should be questioned.

**In parallel, there is evidence of a slowdown in knowledge diffusion in the US.** In the last decades, we observed an increase in the productivity gap between leaders and laggards and a decline in entry rates. These developments can be explained by lower knowledge diffusion - reflected in an increase in patenting concentration in the last decades, as well as patents that are bought by the share of top-1% buyers.

**Similar trends can be observed in other countries.** In Turkey, the widening of the productivity gap between leaders and laggards can be explained by credit constraints. Since 2013, credit growth has slowed and credit concentration has increased. In Italy, the knowledge diffusion is hampered by political economy problems. Higher political connection comes with less innovation. Four recommendations stand out to address the issue: first, foster anti-trust policy; second, focus more on the composition of corporate R&D; third, in developing countries more emphasis should be put on micro firms rather than at small and medium sized firms; fourth, major efforts should be made in retraining current employees for more inclusive societies.

### **Session B1: Skills and policies? Ex ante vs ex post inclusiveness**

**Session B1 was chaired by Jan Švejnar (Columbia University), while Stefano Scarpetta (OECD), Katherine Havrlant (Google) and Isabel Vansteenkiste (ECB) were contributing to the panel discussion.** The debate focused on inequalities in learning and how to tackle them. The participants highlighted the need to strengthen life-long learning against the background of the ongoing digital transformation.



**There are three megatrends - digitalization, ageing, globalization – that are closely intertwined and are changing labour markets.** Longer working lives and fast technological change increase needs for life-long learning but training participation remains very uneven, with older and low-skilled workers participating less. Policy needs to focus on lowering barriers to training, address unequal access to training rights and encourage employers to train. Given the changing nature of work (e.g. freelancers, platforms), training rights should be decoupled from employment status. To increase training participation of specific groups, novel approaches are needed. Better certification of skills acquired provides a way to incentivize learning and adopting a task-based approach helps to identify specific training needs and facilitate job transitions.

**The lack of skilled labour has become a persistent problem, even in sectors where the slowdown of activity has already begun.** This points to structural changes in skill demand and slow adjustment on the supply side. This also increases polarization in labour markets, across skill segments and geographically. Recent research shows widening geographic polarization, as matching in urban labour markets has become better.

**The panellists concluded that skills policies should focus on fostering development of transversal skills in education, strengthening links between education systems and firms and life-long learning.** To incentivize firm training, policymakers should also consider tax incentives.

### **Session C1: Finance for innovation and inclusiveness**

**Pedro de Lima (EIB) chaired session C1, while Mario Nava (European Commission), Olivier Khayat (Unicredit), Laurent Clavel (AXA) and Jon Frost (BIS) participated in the discussions.** The panellists agreed on the key importance of capital market development for the financing of innovation in Europe.

**The discussion started with the assessment of the integration of digitalization and the CMU.** The regulatory framework should be neutral to the technological development. There exist two types of innovation: 1) new products (not much so far, e.g. Facebook's "Libra"), 2) new modes of distribution. Policy needs to focus on three areas: 1) retail participation to capital market, where digital is central, 2) improving funding for companies, e.g. for SMEs – here digital can make a change, 3) integrated market architecture. Overall, the regulators need to let the market development in digitalization moving.

**The panellists highlighted that Europe needs more equity capital, and free movement of capital.** Debt is not missing, but equity capital and a developed capital market is scarce. In addition, instant payment is not integrated on EU level. It should be regulated, otherwise it could "destroy capitalism". The EU needs to understand innovation, and have an appropriate regulatory framework.

**Why low rates are not fully feeding into private capital?** Real interest rates on US government bonds have declined persistently since the 1980s. More broadly, interest rates on other safe assets, such as highly rated corporations, have also declined. In stark contrast, the return on more risky assets does not appear to have declined significantly. The spread between the returns on risky assets and the returns on safe assets has increased. One of the key factors accounting for this spread is an increase in risk premiums. There is an increasing role for institutional players, such as insurance companies, to act as long-term investors. Innovation to tackle climate change, which requires long-term finance, is an example. To enable long-term finance for such causes, regulation needs to be adapted.

### **Session A2: Firm dynamism – start-up, scaling up, diffusion of innovation and reallocation of resources**

**Reinhilde Veugelers (KU Leuven) chaired session A1; participants included Eric Bartelsman (Vrije Universiteit), Giuseppe Nicoletti (OECD) and Roger Havenith (EIF).** They highlighted that while the EU has a lot of bank finance, it needs more equity and Venture Capital (VC). Although VC funding has increased in recent years, it is still a small asset class, in particular when compared to the US.

**Mechanisms behind innovations are changing rapidly with new technologies and thus, framework conditions need to be adjusted.** Today, resources are prevented from flowing efficiently by lobbying, large firms buying innovative start-ups, as well as historical data being stored in few firms. Thus, one can observe the abuse of market power e.g. in input markets, where the better quality innovators go to better quality firms, which can use patents to create competitive walls. Further, platforms may have decreased competition, and firms that already gathered large amounts of data will have a competitive advantage due to the rise of Artificial Intelligence. To get the benefits of digital technologies, one needs good competition regulation.

**High-performing firms invest in intangibles, while financing constraints clog up intangible investments, as intangibles are difficult to pledge.** Given that intangible investments are on the rise, financial frictions play an increasing role with potential negative consequences for productivity and firm dynamism.

**A large and increasing share of workers is covered by restrictive licencing systems.** The consequences of increased licensing on business dynamism can be sizeable. Productivity gains from reduced licensing would be particularly high for small firms as it is more difficult for them to attract talent or funding the initial investment.

**There was a general agreement that VC performance in the EU is catching up to the US, but the EU still has systemic problems in the scale up phase.** Half of European unicorns were sold outside the EU and the funding gap between the EU and the US is widening at later stages. Big digital firms shape future regulation with lobbying activities. It is therefore important that the EU keeps innovation leadership and pays attention to not lose successful start-ups to other countries. Looking forward, funds with social returns objectives (fostering Social Development Goals) on top of financial returns will get more important.

## **Session B2: Technological and climate change**

**Session B2 was chaired by Jan Švejnar (Columbia University), and the panel consisted of Pantelis Capros (University of Athens), László Varró (IEA) and Gunnar Muent (EIB).** Participants agreed that to deliver carbon neutrality by 2050, improvements in energy efficiency, electrification of transport, an increased role for renewable energy sources, and better storage technologies all have a role to play. New technologies need to achieve scale quickly. Carbon price is insufficient as a tool: regulations are needed to redefine markets.

**Technological change in the energy sector is rather slow.** Existing technologies for power generation have been around for decades. Wind and solar power are not the result of private sector disruption. Instead, government funding and big science laid the foundations. Subsidies, such as those orchestrated by the German government, were crucial to achieve the necessary scale. The net present value of subsidies spent on solar energy amounts to EUR 400bn, which corresponds to the size of the Apollo programme. Against this background, it is regrettable that public sector investment in renewable energy is stuck at 0.1% of fiscal expenditure. Decentralized and renewable energy are not the same. Outside of rural Africa renewable deployments typically utility scale power plants. To achieve energy transition, investment has been scaled up, particularly in grids.

**The panel was concluded with a discussion on the role of new technologies addressing climate change.** Currently solar and wind are the only renewable options, and alternatives are not on the horizon. The power sector accounts for only 25% of emissions worldwide, and addressing the other 75% requires different solutions. If the necessary technologies cannot be developed in time, one has to rely on carbon capture and storage (CCS). But as of now, no CCS facility at industrial demonstration scale exists. All in all, a portfolio of options is necessary to address climate change.

## Session C2: Technological change and the government sector

**Pedro de Lima (EIB) led the discussion in session C1, while Dirk Pilat (OECD), Mart Mägi (Statistics Estonia), Axel Dömeier (McKinsey & Co) participated in the discussions.** Participants agreed that it is important to develop of an integrated approach to the digital transformation. Some key implications of digitalisation are emerging for the conduct of policy-making. 1) Regulators should initially focus on adopting broad principles, leaving the creation of prescriptive laws until the markets mature. 2) Important to allow for experimentation and to retain an iterative approach. 3) Revisit decisions. 4) Assure appropriate technical capacity and understanding exist in order to ensure good implementation.

**Data strategies are of critical importance.** The key principles are value, trust, as well as collection and use. Digitalization also raises important regulatory issues, such as access to backbone and backhaul or right of passage.

**An inherent tension exists between the centralization and standardization tendencies in digitalization and de-centralised proliferation tendencies of government.** This tension not only exists at the vertical (regional level) but also at the resort (horizontal) level. Without harmonisation efforts across local levels, this creates a significant stakeholder coordination effort. Among the most important issues around effectiveness is measurement.

### Keynote speech: The state as investor of first resort: a mission oriented approach

**The keynote speech was delivered by Mariana Mazzucato (UCL).** She posed the question of the fitness of the standard policy framework to select, nurture and guide the capacities needed to address the challenges facing our societies today, notably achieving the sustainable development goals. Her conclusion was that, in order to succeed (to a sufficient degree) the public sector needs to allow for a greater degree of disruption and limited failure within its approach while taking greater control of managing the successes.

**She focused on the importance for the public sector to elevate its ambitions and narrative beyond passive facilitation to (pro-)active enterprising.** She highlighted that additionality is synonymous with boldness, audacity, uncharted territory, and risk. Clear mission-orientation is needed when defining public sector goals, implementation strategies and tools, and the tools employed should reflect the risks inherent in completion of the stated mission. The direction of innovation should follow the triple principles of being smart, sustainable and inclusive.

**She touched on the importance for public service providers to overcome the gap that tends to exist between citizens and a bureaucracy's front office,** i.e. to transform public entities from market fixing to market sharing and co-creation. Co-creating and co-shaping are required along the entire innovation chain. In thinking of reference structures, she listed a number of project-oriented challenge-based public sector institutions, notably DARPA, NIH and ARPA-E, but also SBIR or Mindlab in Denmark. Green technology is a fantastic field for research, since an abundance of data exist and a strong public sector signature.

**What is the kind of finance required? It depends on the nature of the project.** It is very important to ensure that less certain projects benefit from patient public development and deployment. In order to internalise the gains and losses from expected failures, it is also important that the public sector remains engaged. In this sense, having equity in the downstream application can provide upside to compensate for the risk spectrum across the portfolio.

**The forthcoming industrial strategy should focus on AI & data, the future of mobility, clean growth and the ageing society.**

## Panel session III – The EU: striving for competitiveness and inclusion

**Debora Revoltella (EIB) chaired a wide-ranging session on policy challenges; panellists included Robert Koopman (WTO), Mahmood Pradhan (IMF), Beata Javorcik (EBRD) and Jean-Christophe Laloux (EIB).** They agreed that Europe currently faces major challenges when it comes to productivity, and the solution needs to come in parallel with answers to the issues of climate change and social inclusion.

**The threat of trade restrictions fully suffices to bring about disruptions.** Not only by stalling global trade volumes, but by reducing the share of global value chains in international trade. Thus, threats carry the risk of inducing permanent changes to global trading system, with attendant permanent structural changes to global economic capacity.

**Europe currently faces major challenges when it comes to productivity.** First, while services account for an increasing share of employment in the EA, this sector is marked by low productivity. Among the correlate symptoms are the relatively low share of knowledge-intensive investment (ICT and intangibles), and the large share of employment in services provided by micro firms, whereas in the US the largest share of employment in services is provided by firms employing more than 250 workers. Second, the CMU remains incomplete. Cross-border fragmentation in services could be lowered via EU policies that complement national efforts, e.g. intra-EU trade barriers remaining high for various services sectors, with foreign entry particularly limited for professional services, such as legal and accounting. Deeper capital markets in the euro area could allow for more market-based financing, notably equity. Third, inequality, such as measured by the intergenerational persistence of earnings, maps well against democratic discontent. Finally, the balance of gains relative to the costs of efforts to mitigate climate change is generally positive, with the greatest upside for large, dynamic emerging economies (Russia, China, India, Indonesia, and Turkey).

**In EU accession countries manufacturing – notably automotive – employment is particularly high compared to emerging markets globally.** Indeed, this sector has supported integration and jobs. While related sources of growth may be subsiding, these member states face important challenges of governance and experience, augmented by demographic trends. For instance, institutional reform efforts ebbed once these member states joined the EU. Yet, firms do not perceive a need to prioritise energy efficiency. With customer pressure and taxes the most likely sources of reconsideration, there is a question of what this means for inclusion?

**The EIB is the bank of the 28 member states, crowding-in investment in pursuit of public policy goals, including innovation and climate priorities.** The EIB is committed to expand its engagement on climate. In addition to the direct impact of EIB investment, there is also a large structural large impact on jobs and GDP, notably EFSI. The EIB is focusing its venture debt initiative on key sectors, such as biotech; software; or energy efficiency. The EIB, as climate bank, provides significant investment into climate funds as well as direct financing into climate action. A large portfolio of infrastructure and climate funds contributes to mobilising insurance and pension funds for green investments. By crowding in private sector investment, the EIB leverages €1 of EIB pledged investment into €20 of total investment cost. In addition, the EIB provides high-risk direct financing for disruptive low-carbon energy technologies or new high risk direct for future of mobility.





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## Policy stocktaking and closing remarks

**Marco Buti (European Commission)** started by discussing the achievements of the Juncker presidency. The main goals of the former cabinet were to (i) promote recovery, (ii) end austerity, (iii) keep the integrity of the euro area and (iv) sustain the social cohesion. Progress was delivered on all the fronts, with reduction in public debt figures, sustained economic growth, job creation and strengthening of the euro. He acknowledged the role of EIB in creating jobs and spurring economic activity across the EU.

**Despite achievements, the challenges remain.** The growth is neither sustainable nor inclusive. There are still gaps in productivity and skill levels, and EU is still facing elevated levels of public debt. On top of that, the EMU architecture is far from complete and there are new risks to the cohesion policies stemming from the unfavourable political trends. The policy makers must act promptly by rebalancing the policy mix: monetary policy, fiscal policy and structural reforms.

**The primary goals on the policy roadmap should include the completion of the BU and CMU, the review of economic surveillance schemes, and completing of the economic union.** On top of that, EU should be more active geopolitically and set a well-defined international agenda. The key investment tool will be the InvestEU programme, which will be vital to maintain the social market economy and to bring us closer towards a climate-neutral continent.

**Debora Revoltella (EIB)** delivered the closing remarks, highlighting the convergence of views on the need to push for more and better investments and on the role of reforms to tackle the key obstacles on the European landscape. There is a clear need for smart and coordinated action.

### Conference websites:

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