



FINANCE AFTER THE PARIS AGREEMENT: THE NECESSARY TRANSFORMATION OF THE FINANCIAL SYSTEM

Objective: The policy brief makes the case that while the financial sector is key to reach the objectives of the Paris Agreement, it must be transformed to be able to consider the long-term public interest and common goods. Accordingly, it requires making finance sustainable as a whole rather than adding a layer of “sustainable finance”.

KEY MESSAGES

- ▶ The PA Art. 2.1(c) creates a collective responsibility to restructure the entire financial system. The current move on sustainable finance is a positive trend, which improves the potential contribution of the financial sector for climate change mitigation and overall sustainability but is insufficient to result in an alignment with the Paris Agreement climate target, which means full decarbonation of the economy by 2050-2070.
- ▶ Finance cannot limit itself to the aim of growing the “green” niches. It must address simultaneously the problem of “brown” and stop financing and investing in the carbon-intensive assets that are not compatible with Paris pathways.
- ▶ Policy makers should challenge their current approaches to both accelerate the pace and increase the ambition of the transformation of the financial sector, in order to fix finance against its incapacity to deal with long term public interest and common goods such as a stable climate.
- ▶ Most of the effort has been based on the tenet of market efficiency, while markets seem unable to anticipate and mitigate climate change in the face of the tragedy of the horizon. Self-regulation and disclosure are the principal provisions of sustainable finance frameworks, especially in Europe, but more pivotal propositions are on the table, targeting market short-termism, prudential rules, fiduciary duty, or accounting rules. Central banks and financial regulation are already used in some emerging economies to directly orient financial flows towards their green economic priorities.
- ▶ Finance must be reconciled with the long term, and financial regulators must have a clear mandate to do ‘whatever it takes’ to save the climate, in articulation with governmental policies.

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FINANCE: A NON-TRIVIAL KEY TO TACKLE CLIMATE CHANGE

The Paris Agreement (PA) has introduced a new overarching financial objective of “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (PA, 2016, Article 2.1(c)). The Article 2.1(c) goes way beyond the previous meaning of finance within the UNFCCC, which was exclusively focused on support to developing and most vulnerable countries.

The broader objective of the PA is to keep “global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius”. Following the IPCC, this means GHG emissions must peak as soon as possible, and we must stop being net-emitters of CO₂ by ~2050 to stay within 1.5°C and no later than ~2070 for the 2°C limit [it is important to keep in mind that net-zero emissions are needed to stabilize the temperature rise, for any temperature target]. The very limited global carbon budget left implies no significant amount of money can be pumped into activities that will continue to emit greenhouse gases into the atmosphere. The financing that enables such emissions has to be shifted away from carbon intensive technologies and carbon-dependent economic activities long before the net-zero target, because the capital

committed today develops infrastructure and business models that will remain in place and emit for decades to come, until much too late. While this sounds fairly obvious, such understanding has barely entered the policy arena so far.

The PA acknowledges that finance can no longer be limited to a marginal “means of implementation” in order to obtain additional emission reductions. The entire financial system must start shifting towards net-zero emissions and fuelling a new decarbonized economy and industry. But achieving such a transformational shift cannot be based on a misgiven representation of how the financial system really works. COP21 RIPPLES research argues that Finance should be considered as a specific sectoral system [D4.1, D4.2, Policy Brief Oct.2018]¹. The global reach and impact of finance on almost all sectors of the real economy indeed demands a particularly high need of coordinated international governance. Nevertheless, beyond the specificities of Finance as a sector, it is also fundamental to consider the financial system as an intermediary, and not a real target industry *per se*. It is indeed one of the most powerful and crosscutting industry but does not represent a final objective for the real economy.

FINANCIAL SYSTEM AND CLIMATE CHANGE: SUCCESS OR FAILURE?

The mobilisation of financial institutions against climate change has emerged in such a short period of time that it may appear as a success. However, despite vivid and undoubtedly positive enrolment of financial system participants, Finance is some distance from being aligned with what science requires. As seen above, the explicit temperature targets agreed in the PA entail an abrupt economy-wide transformation requiring an upheaval in the way both public finance and capital markets are financing the real economy and, in particular, industries and infrastructures. The IPCC have stated that we are running out of time to stay well-below 2°C, the national climate plans — through Nationally Determined Contributions (NDCs) — until 2025-2030 are not aligned with those long-term climate targets, and financial institutions are only starting to progressively broaden their perspective and their understanding of the PA 2.1(c). However, the financial system still tends to focus on “growing the green niches”, such as green bonds and investments in renewable energy assets, without really challenging current strategies across asset types and financial products. Typically, those institutions that have incepted divestment of some coal assets rarely initiated similar plans for their broader ownership in fossil-fuel companies nor carbon-intensive assets outside the fossil fuel industry. The recent commitment of the public European Investment Bank in that regard (EIB will end financing for fossil fuel energy projects from the end of 2021) is yet an exception, marking an important move towards greater alignment with the PA. Nevertheless, more broadly, while the investment narrative on climate change has truly shifted, investment trends worldwide have not yet followed suit.

The IPCC has been created in 1988. Since its first Assessment Report (1990), the question of the cost of mitigating climate change and associated financial measures progressively gained importance. But the financial system as a whole, especially financial markets and private financial institutions, only joined the discussion recently, unlike industrial sectors such as energy, cement, steel or transportation. 2014 can be seen as the beginning of the significant collective

action involving both public and private financial institutions in an international governance context, particularly with the UN Climate Summit, held one day ahead of the 2014 annual UN General Assembly Debate. Since then, the mobilisation of the financial sector literally erupted. In the intergovernmental domain, the number-one feature is certainly the Paris Agreement Article 2.1(c) described above. On the financial scene, the outstanding fact is the ever-growing mobilisation, both public and in-doors, of all types of entities that committed to a number of pledges and engagements (climate-related reporting, decarbonation of portfolios, divestment of coal and other carbon-intensive assets, support to green bonds and other climate-friendly financial products, etc.). These commitments have been reaching progressively the core business and strategies of financial institutions. This trend has also been grasped by governments, regulators and supervisors, launching a number of policy initiatives touching upon climate-related financial risks and the mobilisation of mainstream finance to support the global transition towards a sustainable economy (Task Force on Climate-Related Financial Disclosures,² Network for Greening the Financial System,³ French Article 173,⁴ Chinese Guidelines for Establishing the Green Financial System,⁵ EU Sustainable Finance Action Plan,⁶ etc.).

Indeed, investment needs are clear and require significant disruptions that are not visible in financial institutions so far. COP21 RIPPLES modelling shows [Figure 1,2] that Paris-aligned levels of investment — notably in energy supply — must increase dramatically over this decade and the coming ones compared to a reference baseline which assumes current commitments continue out to end of the century [cf. D3.5]⁷. Such a quick investment disruption must happen rapidly so as not to hamper the capacity to catch up with 1.5°C or even 2°C pathways.

1 Cf. COP21 RIPPLES website for deliverables: <https://www.cop21ripples.eu/resources/>

2 Task Force on Climate-Related Financial Disclosures (TCFD), <https://www.fsb-tcfd.org>

3 Network for Greening the Financial System (NGFS), <https://www.ngfs.net/en>

4 French Republic (2015) LOI n° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte - Article 173. Available at: <https://www.legifrance.gouv.fr/affichTexteArticle.do?idArticle=JORFARTI000031045547&cidTexte=LEGITEXT000031047847&categorieLien=id>.

5 The People's Bank of China et al. (2016) *Guidelines for Establishing the Green Financial System*. Available at: <http://www.pbc.gov.cn/english/130721/3133045/index.html>

6 EU Sustainable Finance Action Plan, https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en#overview; European Commission (2018) *Communication from the Commission to the European Parliament, the European Council, the Council, the European Central Bank, the European Economic and Social Committee and the Committee of the Regions Action Plan: Financing Sustainable Growth*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0097&from=ENcf>

7 Cf. COP21 RIPPLES website for deliverables: <https://www.cop21ripples.eu/resources/>

Typically, 1.5°C means in absolute terms a doubling of energy supply investment by 2030, and double again by 2050 compared to current levels. However, **Figure 1** shows that decoupling of demand ('1.5HD' curve) may lower the required investments to achieve a 1.5°C world than would otherwise be without any demand reduction ('1.5' curve).

Figure 2 shows that for the same 1.5°C scenarios the percentage of green investments must rise sharply by 2030 to around three-quarters of all energy sector investments, whereas for NDC trajectories extended to be 2°C-compatible, there is a steadier there is a steadier change in the mix of green versus brown investments out towards 2050. However, by 2050 all scenarios require over 80% of supply-side energy investments to be in green technologies.

COP21 RIPPLES [D2.3]⁸ also shows that in all ambitious scenarios, "2025 would be the end date for investment in unabated coal plants in the EU. Results show that under a beyond 2°C scenario [warming target 1.75°C], fossil-fuel investment (both with and without CCS) will drop to (nearly) zero after 2030 in almost all European countries." Despite being active and progressing quickly, we do not see in current financial institutions

strategies the sign that they already grasped such needed fundamental disruptions. In the financial regulation space, similar conclusions prevail: the focus is on smooth transition and avoiding catastrophic risk, but the only progress so far are on reporting, labels and voluntary schemes that tend to address green niches and not systemic changes. Finance cannot limit itself to the aim of growing the "green" niches. It must address simultaneously the problem of "brown" and stop financing and investing in the carbon-intensive assets that are not compatible with Paris pathways. Indeed, financing "green" without stopping "brown" can lead us to a +4°C world full of windfarms and solar panels. We therefore insist on the fact that the 'encounter' of finance with climate change cannot be a success if finance ignores science. The IPCC SR1.5 report gives a very clear sense of the emergency needed to reorient our economic and financial system in order to align with Paris-compatible pathways. COP21 RIPPLES results further insist on the dynamics that must be put in place. Financial institutions and regulators therefore cannot be satisfied with having changed their speech, they must move to concrete and profound actions, changing the basis of their behaviour on capital markets towards a greater consideration of long-term priorities and public goods such as climate stability.

⁸ Cf. COP21 RIPPLES website for deliverables: <https://www.cop21ripples.eu/resources/>

Figure 1. Total energy (supply-side) investments by scenario compared to reference (TIAM-UCL)

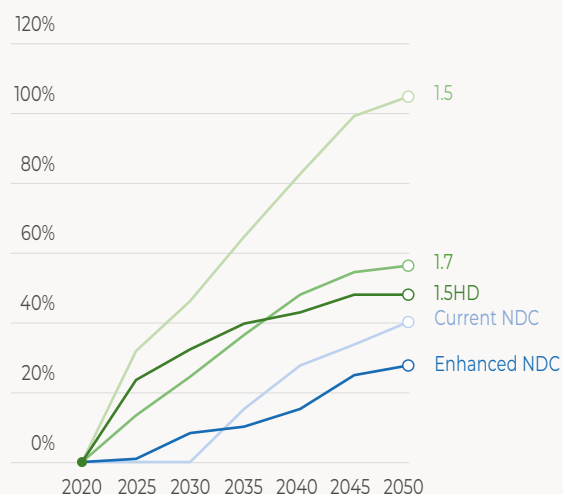
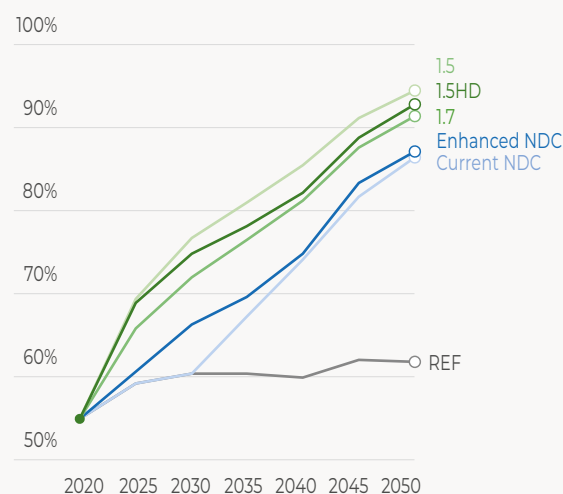


Figure 2. Global green energy investments as percentage of total energy (supply-side)



CLIMATE-RELATED FINANCE POLICIES COME INTO PLAY

Despite the science being clear now for decades,⁹ GHG emissions continue to increase, as a result of climate change being largely ignored by the economic and financial system. This led to what are probably the two major thoughts in financial economics concerning climate change over the last 15 years: “Climate change is the greatest market failure the world has ever seen” (Nicholas Stern, 2007¹⁰), and “Climate change is the Tragedy of the Horizon”¹¹ (Mark Carney, 2015¹²).

In the face of such an incapacity of traditional economic tools and regulations to cope with the climate problem, the first strong economic push was placed on putting a price on carbon, the second much more recent on calling upon climate-related financial policies (more broadly “sustainable finance policies”). After decades of debates and tons of scientific publications, carbon pricing is definitely more advanced and conceptually instituted than sustainable finance. Efforts to establish effective and impactful carbon pricing systems at global scale failed so far, despite several multi-country (e.g. Europe¹³), country (e.g. China), or regional (e.g. several states in the USA) level initiatives have been set up. The recent emergence of sustainable finance narrative and policies can be explained by the necessity to structure a broader framework in order to reconcile the financial system with long-term public interest and sustainability issues such as climate change, based on the understanding that pricing externalities such as carbon emissions can probably not do everything when the matter is to transform the whole system and not just optimize marginal financial flows with a climate constraint. While the underlying rationale seems to make the case for policy intervention, it appears that so far sustainable finance policy frameworks appeal primarily to market forces rather than more direct control means. Mark Carney’s “tragedy of the horizon” narrative illustrates this very well: after offering a strong demonstration that the financial system as it is does not work properly to address climate change, his main outcome is on disclosure and transparency of information, in order to “help the market itself to adjust efficiently”. Risk information is promoted to be the main

key to break the tragedy of the horizons, provided that “policy responses of governments and the technological breakthroughs of the private sector are credible”. However, the short-termism and misalignment of interests of financial market participants themselves are not challenged, whereas one could have expected Carney’s conclusion to focus on such elements.

Two jurisdictions stand out in regard to sustainable finance policies, namely China that started its *Green Credit Policy* in 2007 before launching in 2016 its *Guidelines for Establishing the Green Financial System*, and Europe that made an outstanding move towards sustainable finance in 2018 with its crosscutting *Action Plan on Financing Sustainable Growth*.

The European sustainable finance action plan (EUSFAP) covers both groups of activatable levers, building predominantly either on market forces or regulation power. The analysis provided by COP21 RIPPLES [D4.3a]¹⁴ shows that the EU approach relies to a large extent on disclosure and self-regulation, with the prime objective to ‘fix the markets’ and help them functioning more efficiently in the face of climate change, in order to stimulate financial institutions to support the decarbonation of the economy, while avoiding direct constraint and stringent regulation on what they should finance or not. The EUSFAP consists in a set of provisions spanning from a green taxonomy, to green bond standards, ecolabel for funds, rules on green financial benchmarks, or climate-related disclosures. The approach taken by China is more explicitly on guiding¹⁵ markets, with a clear focus on ‘green’ financial products (“green lending”, “green investment”, “green development funds”, “green insurance”, “environmental rights trading markets and related financing instruments”).

9 Cf. e.g. the First World Climate Conference held in 1979 in Geneva and the creation of the IPCC in 1988.

10 Stern, Nicholas (2007) *The economics of climate change: the Stern review*, Cambridge University Press.

11 This sentence gets clearer with the following: “We don’t need an army of actuaries to tell us that the catastrophic impacts of climate change will be felt beyond the traditional horizons of most actors – imposing a cost on future generations that the current generation has no direct incentive to fix.”

12 Carney, Mark (2015) ‘Breaking the Tragedy of the Horizon - climate change and financial stability’, Speech by Mr Mark Carney, Governor of the Bank of England and Chairman of the Financial Stability Board, at Lloyd’s of London, London, 29 September 2015. London: Bank of England. Available at: <https://www.bis.org/review/r151009a.pdf>.

13 European Union Emissions Trading System (EU-ETS) is the largest carbon pricing scheme, and first major carbon market.

14 Cf. COP21 RIPPLES website for deliverables: <https://www.cop21ripples.eu/resources/>

15 ‘Guidance’ in such context can be interpreted as ‘instructions’ from the Chinese Government rather than a voluntary option (cf. e.g. <https://www.climatebonds.net/2020/01/you-have-love-china-s-banking-regulator-cbirc-they-ve-just-announced-big-push-banks-have>)

Beyond the policy focus on disclosure that we see in Europe, but also in Japan or in some US States, other regulatory pathways are being discussed by governments and financial regulators and supervisors, relying on more binding approaches and less ambiguous on the economic activities that are to be financed or left aside. While those are still heavily debated in Europe, some inspiring provisions are already in place in other regions of the world, especially in developing and emerging economies. In particular, countries like China, Bangladesh, India or Brazil did start several years ago to use their financial regulation and central banks to directly orient financial flows towards environment- and climate-friendly activities.¹⁶ In the EUSFAP, the more profound provisions that target market short-termism, prudential rules, fiduciary duty, or accounting rules, are yet much more discreet and far from any concrete implementation.

In other words, the European approach to make the financial system more sustainable and 'Paris compatible' is still dominated by the efficient market hypothesis, and policy intervention is essentially devoted to stimulating that market efficiency. We see through the COP21 RIPPLES comparative analysis of sustainable finance policy provisions in Europe and China that finance policy makers seem to be hesitating between 'smooth' approaches relying on market efficiency and self-regulation (disclosure based), and 'more reformative' ones calling upon deeper regulatory frameworks, including e.g. macroprudential rules.¹⁷

This apparent inconsistency of operating on both sides (market efficiency and market regulation) simultaneously is not necessarily a fatal contradiction: it can result from a strategy to adapt to different political and governance contexts in both time and space and can illustrate a determination to mix the best of each approach. Nevertheless, we argue that it is questionable to envisage solving the climate change equation by relying primarily on market forces, when the challenge is to solve a global and long-term puzzle. Moreover, instead of focusing on the necessity to decarbonize the economy in order to tackle the threat climate change poses to society,

the emphasis on risk disclosure (well-illustrated by the preponderance of the TCFD framework) tends to give core importance to the short-term financial risks coming from climate change or from the decarbonation of the economy itself. With such a rationale, financial institutions then have to take decisions to ensure their short-term safety, not to save the planet. In absolute terms both goals can be aligned, but in the short term it is pretty clear that the interest of the "financial planet" and the interest of "the planet" are not. Because "*financial markets were not designed to manage the planet*"¹⁸ we certainly need wiser, braver, and more binding financial regulation frameworks that are really able to make finance contribute with all its power to the fight against climate change. This should not conceal the fact that finance is 'only' finance and cannot substitute industrial policy, innovation policy, fiscal policy, carbon pricing, land use policy, etc.

MAKING FINANCE SUSTAINABLE AS A WHOLE RATHER THAN ADDING A LAYER OF "SUSTAINABLE FINANCE"

The principal objective in this discussion is to make sure that finance can really take its role and assume its responsibility in the face of climate change. For this, it is essential that each policy decision is taken under the consideration of the implications of the "well below 2°C" warming limitation target. Finance should be no exception.

Self-regulation and gentle incentivizing are probably not enough to limit warming to 1.5°C or even 2°C, as financial institutions and market participants have basically no incentive to disrupt their operating ground by themselves and hence somehow shoot themselves in the foot. Indeed, as we saw above, a transition in line with the Paris Agreement requires a disruptive transformation. But the financial system does not appear to be ready to initiate such an economic upheaval, both

¹⁶ Cf. e.g. Dikau, S. and Ryan-Collins, J. (2017) Green central banking in emerging markets and developing country economies, New Economics Foundation.

¹⁷ Additionally, cf. the recent propositions included in the European Green Deal https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

¹⁸ Cf. Bouleau, Nicolas (2018) 'Financial markets were not designed to manage the planet', *Public Books*, December.

conceptually and operationally. This is due to both a lack of knowledge of what is required to finance a Paris-aligned economy, and a lack of will to start a real deep transformation, when most top and middle management are still incentivized on the same short-term financial performance scheme they have been for the last 20 years. Moreover, based on current trends it seems probable that the current financial system is actually not ready for such a mayhem resulting from stabilizing climate at +1.5°C or even +2°C, on both ends of the colour spectrum: neither it can deliver the change — mobilization of enough “green” capital in time —, nor it can withstand the change — potential systemic financial risk from “brown” capital to be left aside.

First, climate-focused financial policies must be considered in the long term. That includes planning ahead and making transparent how any ad hoc, short-term and/or phased initiatives will feed into long-term climate strategies and ultimately work to achieve net-zero carbon by 2050. Climate-aware financial policies must be pragmatic and transparent in terms of certain emissions reductions, both in the short and longer run.

Second, this also means that this endeavour cannot be limited to “climate finance action”. If all finance flows are to become aligned with a net-zero carbon pathway and climate-resilient development, then the broader economic and industrial policy framework must follow suit. Sub-national, national and international governance can no longer continue to replicate traditional economic assumptions, theories and narratives that fail to account for the urgency and essentiality of climate change. No economic policy or financial strategy can be deemed science-based, or Paris-aligned, if it will ultimately fail to keep our globe well below a 2.0 °C warming threshold.

Thus, all different levels of governance of the financial system, including financial regulation and supervision bodies must take a step back and account for how their financial policies — and more broadly their economic ones — sum up in face of climate goals. This oversight involves the consideration whether financial policies on different levels and through various modes might conflict or slow down other climate efforts. More broadly, this should also question the specificity of some general policy approaches that tend to put too much emphasis on finance whereas the ultimate target is industry. For illustration, it would certainly be inadequate to forbid or hinder a non-desirable activity or technology at financial institutions level but not from an industrial policy perspective

(imagine, say, a ban on investing in asbestos while asbestos is not banned as an industrial activity). Two parameters are essential for ensuring the financial system's contribution is consistent with the climate emergency displayed in the Paris Agreement: time horizon and mandates. The profound short-termism of the current financial system must be tackled at its root by financial regulation. Today's culture, incentives and mainspring of financial market operators are not just to be marginally distorted by disclosure and self-regulation but should be genuinely redefined. Therefore, if changing the rules for market players is unavoidable, it is also key that the rulers see their mandates evolve. Financial regulators, supervisors and central banks should indeed be tasked explicitly to deliver the maximum they theoretically can against climate change — acknowledging they are not to substitute to government policies —, so that they cannot argue their respective mandates do not allow them to do so. The imminence and extent of the threat as seen from many developing countries certainly explains why mandates *per se* do not seem to be a major obstacle to action for these countries' financial regulators. Recent declarations of Christine Lagarde, new President of the European Central Bank, open plausible ways forward on this front in Europe,¹⁹ in the frame of the ongoing discussion about a new European ‘green deal’.

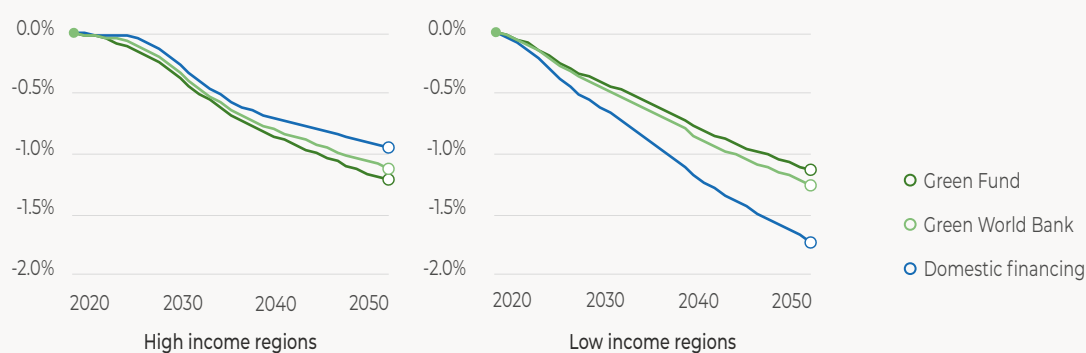
Another major point concerns the regions of the world that need most of the financing we are talking about: the still emerging discussion on sustainable financial system indeed tends to elude the crucial issue of developing countries, as the question of international solidarity and responsibility from developed countries. Finance will not reach any kind of sustainability if we cannot reinvent it to benefit to the poorest and the neediest. Yet the GDP impact of climate action and the impact of climate change on GDP are the highest for these low-income regions.

COP21 RIPPLES modelling [cf. D3.5]²⁰ provided evidence that the cost of capital has an important influence on investments but that often low-income regions face larger relative costs between brown and green energy. Therefore, reducing renewable capital costs even further in these regions is necessary

¹⁹ Financial Times (Nov.27, 2019) “Christine Lagarde wants key role for climate change in ECB review”, <https://www.ft.com/content/61ef385a-1129-11ea-a225-db2f231cfeae>

²⁰ Cf. COP21 RIPPLES website for deliverables: <https://www.cop21ripples.eu/resources/>

Figure 3. GDP impact of finance mechanism in high- and low-income regions



in order to make climate action financially viable and the financial sector must play a role. Also, the modelling showed (Figure 3) that the method of finance used can have significant regional equity implications and that choosing to provide transfers or low-interest loans from high to low income regions can somewhat offset the uneven impact of climate action on low-income nations.

CONCLUSION

To conclude, it is important to steer that the conjunction of finance and climate (or broader sustainability) should not be addressed through a limited “climate-finance” or “sustainable finance” viewfinder, which would be too specific and bypass the main causes and consequences. While it makes sense to have brought finance at the climate change discussion table, there is indeed no point to try to solve a global and systemic issue like climate change by only considering a mere part of the financial system. The financial system as a whole must be used

to combat climate change, to guarantee that all the progress that could be achieved for climate are not offset by other non-compatible objectives. And more broadly, finance and financial markets should be considered for what they are: a powerful intermediary to achieve a better allocation of capital. Finance is not a goal itself in the economy, nor it is the only tool to manage capital, especially from the perspective of governments. Fiscal policy in particular should complement financial and monetary policies, to reopen the long-term vision that financial markets themselves need to grasp in order to modify their view of what the future can be. Finally, all this has to be reframed in an even broader discussion that does not only consider climate change but all the other environmental issues (biodiversity, water/air/soil pollution, natural resources, ...) together, in a system approach that confronts the challenges of the global economy in the face of the limits of the planet.

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The COP21 RIPPLES project

“COP21: Results and Implications for Pathways and Policies for Low Emissions European Societies” aims to analyse the transformations in the energy systems, and in the wider economy, that are required in order to implement the Paris Agreement (NDCs), and investigate what steps are needed to attain deeper, more ambitious decarbonisation targets, as well as the socio-economic consequences that this transition will trigger.

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