

Policy Brief 22/01: Financing Our Future

A mechanism that can change the world – The real tragedy of the commons – Overcoming the tragedy of the horizon – The future wealth of nations – Funding and hedging planetary risks – The Tao of finance

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1. THE ARGUMENT – KEYWORDS – IN A NUTSHELL

1.1 THE ARGUMENT

Until now, development needs have primarily been financed through private sector financing, conventional public sector funding and philanthropy. These sources are not sufficient in terms of scale and speed to meet today's pressing finance needs. The global community is too busy repairing, stabilising and refunding the existing system in order to maintain its stability. An adjusted central bank mandate that led to the introduction of an electronic currency specifically designed to finance global commons would provide the necessary resources to achieve the UN SDGs while stabilising the existing monetary system.

The development of cryptocurrencies based on blockchain-distributed ledger technologies has prompted leading central banks around the world to study how this approach could potentially be used to directly inject purchasing power without depending exclusively on the commercial banking system. An international expert group is now looking at proposals for how this approach can be utilised to finance the huge multi-trillion dollar annual investment requirements for achieving the SDGs, with special emphasis on investments in human resources and environmental protection.

Financing our future requires additional liquidity of approximately five trillion USD every year over the next 15–20 years globally, beyond the traditional mechanism of monetary redistribution along the existing value chain. Crowding in private sector financing, conventional public sector funding (taxes and fees) and philanthropy will not be enough in terms of scale and speed to accomplish this. The financial system has become more unstable over the last 40 years, with over 425 banking and currency crises that incur costs of over 10% of GDP per event and increase the public debt load globally. These intrinsic limitations of the financial system thwart any technological and political efforts to make the world a better place, because the global community is too busy repairing, stabilising and refunding the system just to maintain a steady status quo or return to business as usual.

To finance our future, we need more financialisation, not less, but done in a different way. This can be accomplished by an additional green liquidity system designed to run in parallel to the existing monetary system. This supplementary system would run through different channels and operate with new distributive ledger technology, and would provide greater wealth and wellbeing thanks to multiple positive externalities.

1.2 KEYWORDS

Green CBDCs, cryptocurrencies, community currencies, parallel currency system, adjusted central bank mandate, blockchains, new monetary channels, Pareto superiority, strategic triangulation, financial engineering, alternative financialisation

1.3 IN A NUTSHELL

A modified monetary mandate for central banks (top down) with a parallel green central bank digital currency (CBDC), a private community currency system or a private corporate initiative (cryptocurrencies, earmarking, digital or blockchain-driven solutions, different channels) (bottom up) would stabilise international financial markets, strengthen monetary regulatory efforts, reduce negative externalities, increase social Pareto optimality and stabilise democracy. This is the indispensable missing link, as crowding in private sector financing, conventional public sector funding (taxes and fees) and philanthropy are not enough in terms of scale and speed to finance our future.

2. THE INDISPENSABLE TRIAD

Traditionally, we think of the free market and state intervention as opposites, with the smallest common denominator providing the best possible solutions. But then we end up with over-regulated markets and over-indebted public agencies, ultimately leading to suboptimal results for all of us. As an alternative to approaches focusing on causal relations, such as nudging, voluntary commitments, linear processing, simple stimulus responses, pushbacks or silo solutions, a method of ‘strategic triangulation’ can offer an additional tool to avoid the smallest common denominator and suboptimal results.

It involves introducing a third party that can overcome the polarity and instead unlock the full potential for both parties. Strategic triangulation can lead to a more systematic approach to problem-solving and allow us to overcome silo thinking.

Let's consider a specific example. A society decides to spend 40% of its GDP on public goods (hospitals, nurseries, universities, motorways, digital infrastructure, basic needs). If the society has sovereignty over its money creation process (i.e. if it can print money), does not have to rely on external debts nominated in a foreign currency and has the necessary human and natural resources, then it can eventually generate the amount of money needed by itself. Consequently, the subsidies and taxation schemes for the private sector initially brought in to finance these commons will be phased out over time. We would then end up with a free and competitive market system, which makes it possible to allocate goods and services optimally while at the same time having a high-functioning public sector, where the state authorities enable our commons.

We can take this argument one step further. The private purse is not the public purse: private households and corporates have to budget carefully so they don't go bankrupt. Private households and corporates cannot spend more than they earn in the first place. The public purse, however, is different. In a situation where there is a sovereign nation state with the ability to issue money, the financing of its public budget follows a fundamentally different logic to the private sector.

We simultaneously require a stronger enabling state and a stronger competitive fair market system in order to benefit from both institutions.

But both require a third party to be involved to overcome the constraints of any end-of-pipe financing. Central banks and regulators, operating in a proactive, preventive and restorative manner, can serve this role. This means that monetary policy will trump fiscal policy when it comes to financing our commons.

In short, a sovereign state able to issue a currency has only three constraints on the financing of its commons: the amount of natural resources, the amount of human resources and the amount of external debts issued in other currencies. The figure below illustrates this indispensable triad:

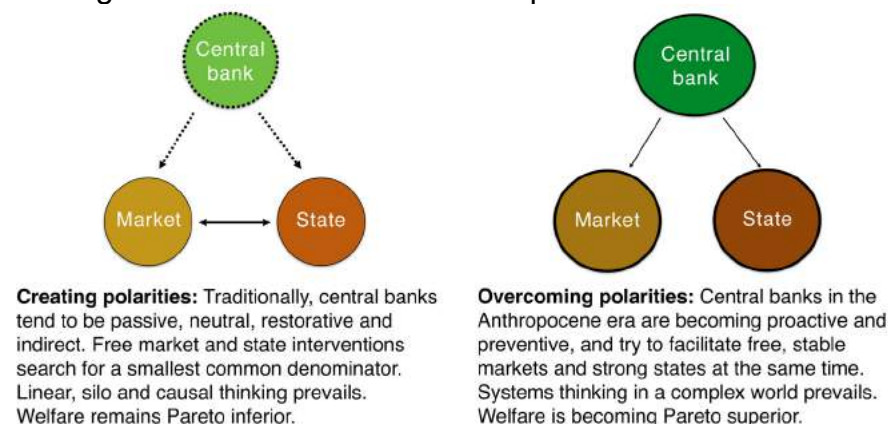


Figure 1: The indispensable triad – overcoming polarities

Our challenge is not to privatise the commons, but rather to adapt our financial system to the nature of the commons. In short, we need more and better finance. And in fact, this is happening already in a fledgling, experimental form. Monetary regulators and central banks are currently testing what are known as central bank digital currencies (CBDCs) in order to provide additional, targeted liquidity, thereby enhancing their steering capacity, bolstering price stability and generating thousands of new green jobs and public revenues as well as operating in an anti-cyclical manner.

If done in the right way, we would have the monetary mechanism in place to finance the UN SDGs and the associated commons. Eventually, we would have the tools available for new, almost unlimited forms of financial engineering to fund and hedge the associated risks. In short, we can wake this sleeping giant.

3. TRADITIONAL APPROACHES – OTHER PROPOSALS AND BEYOND – THE SIX-PACK – END-OF-PIPE FINANCING

In New York in 2015, world leaders signed up to a future roadmap with 17 Sustainable Development Goals (SDGs) based on the five Ps: people, planet, prosperity, peace and partnerships. Most of the SDGs focus on common goods such as clean air, universal access to healthcare, education and maintaining biodiversity. These goods are not exclusive and should be accessible to and enjoyed by everyone. There is enough scientific evidence, technological expertise and political consensus to achieve each of these goals, and they are valid for the entire planet. But achieving the goals is expensive, requiring around five trillion USD/year over the next 15–20 years to finance. Our global GDP, which includes all goods and services, is approximately 80 trillion USD/year. The conventional way to finance social and ecological projects globally has been by redistributing the money remaining at the end of this pipeline.

Historically, the global community has committed to spend 0.7% of global GDP – roughly 500 billion USD/year – to finance common goods. Other than the Scandinavian countries, the vast majority of the world has never attained this 0.7%. But even if all countries did so, this sum is not realistically enough to finance our future. Approximately eight to ten times more funding – equivalent to five trillion out of the global GDP of 80 trillion USD – is required to meet the social and environmental challenges we face. Withdrawing five trillion from the economic process, even in a gradual manner, would lead to a global recession. In fact, it is impossible to finance our future solely through monetary redistribution. In addition, the stability of the financial system itself is an impediment to sustainable financing. Over the last 40 years, the financial system has become more unstable, with over 425 banking, monetary or currency crises; and with every consecutive event, we are left with higher debt load and greater expenses, amounting to more than 10% of GDP.

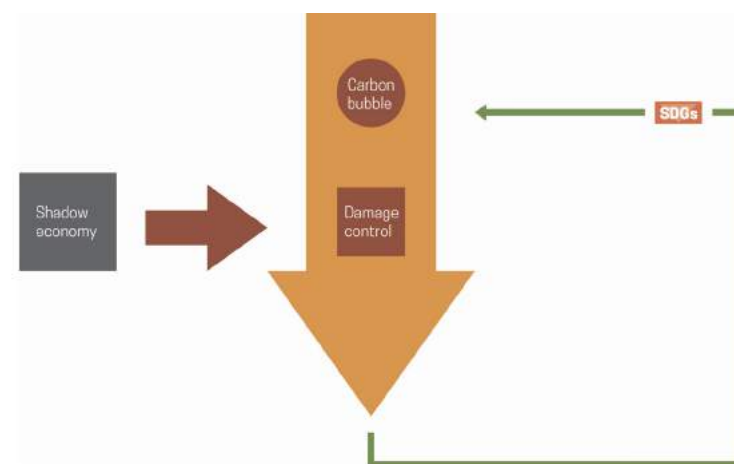


Figure 2: The grey box represents the black market (illicit transactions, fraud and informal sector) that pulls the entire value chain (big orange arrow) in the wrong direction. The small green arrow indicates the traditional 'end-of-pipe' redistribution in favour of social, ecological and public projects. Conventional redistribution is strictly limited by a range of economic conditions (locking in, crowding out, subsidies, etc.). This fails to achieve true, sustainable transformation.

Looking closer at this traditional approach reveals at least five steps, including multiple regulatory efforts (taxonomies, ESG standards, equity requirements); taxation schemes (carbon tax), fees and multiple subsidy programmes; the major role of private impact funding (VPCE: seed/early-stage/ mature investments, including charity funding); EX- swap strategies (including risk hedging instruments like interest swaps and derivatives); and private-public blended finance, state bonds and funds. All these instruments are valid, but remain traditional and are not sufficient to finance our common future. There will always be a shortfall that requires a different financial and monetary scheme.

The figure below illustrates this ‘six-pack’:

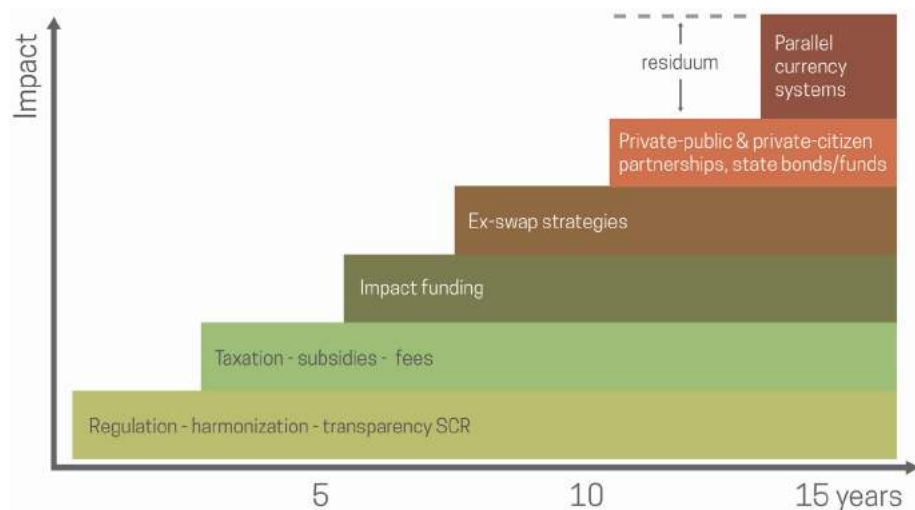


Figure 3: The ‘six-pack’ and the remaining shortfall

Since 2008, central banks have worked on multiple purchasing and accounting programmes. These have included Quantitative Easing (QE), Pandemic Emergency Purchasing programmes (PEPPs), Emergency Liquidity Assistance (ELA), Short-Term European Papers (STEPS), the Agreement on Net Financial Assets (ANFA), Long-term repurchasing operations (LTROs), the European Stability Mechanism (ESM), Outright monetary Transactions (OMTs), Securities Markets Programmes (SMPs), Asset Purchasing Programmes (APPs), Asset-Backed Securities (ABSs), Non-refundable Loans (NRLs), Target accounts and differential interest spreads between member states.

Despite their legal and technical differences, one factor they usually have in common is that the balance sheets of the regulators have grown substantially over the last decade: starting with 10% of GDP in 2008 up to 60% of GDP in 2020. The ECB alone is already taking on up to 30% of member states’ public debts.

Several additional proposals have been discussed in recent years on how to upgrade the existing monetary system, including the modern monetary theory approach, positive money and a central bank stablecoin. None of these proposals are without merit, but the WAAS initiative tries to provide a different and more advantageous proposal for how to finance our common future. It honours the endeavours but differs in at least two respects from all other proposals made so far: namely, the parallelisation and digitalisation of the current monetary system.

4. FINANCING OUR COMMONS – A NEW MONETARY MECHANISM THAT CAN CHANGE THE WORLD

In order to cover the shortfall described in the previous section, there are three options available: a modified monetary mandate for central banks (CBDCs), private cryptocurrencies (e.g. Ripple, Skycoin, Ethereum) or complementary community currencies (e.g. LETS, barter systems, regiomoney). Each of these options would stabilise international financial markets, increase monetary regulatory efforts, reduce negative externalities, stabilise consumer pricing, increase welfare and wellbeing, generate millions of additional jobs and stabilise democracy. This can be started within six months, has the potential to end poverty in less than a year and would have a measurable and profound impact on our lives, our society and our planet in less than two years. Such a mechanism is the missing link beyond governance, technology, demographics and behavioural changes.

In short, we need more, much more financialisation, but delivered in a more democratic and humane way in order to increase wealth for the other two thirds of the global population and to protect the planet at the same time.

Is there a different way to finance our future? Based on systems thinking, we propose an outside-the-box solution to generate the funds needed to finance global common goods: **(a)** Central banks would be given a new monetary mandate to create and issue the five trillion USD equivalent of liquidity using blockchain technologies. Alternatively, **(b)** properly regulated corporate initiatives (cryptocurrencies) or complementary communal currencies (LETS, regiomoney) would receive a mandate to issue additional liquidity. These funds would be earmarked and used exclusively to finance SDG-related projects. This electronic liquidity would run through alternative monetary channels to those of the conventional system. The established commercial banking system and international development finance institutions like the World Bank, IMF, EIB and regional development banks will play a new and crucial role.

We would then have a supplementary currency operating in parallel to the conventional monetary system generating the five trillion USD equivalent needed annually for the next 20 years. Research on optional parallel currency systems has shown several dozen positive effects. For example, this new technology could be used to create and channel targeted financial liquidity to millions of African citizens through their mobile phone network. In India, the existing microcredit banking system could be used to transfer additional liquidity to millions of Indian citizens. Any dollar spent and invested through these green, parallel channels has the potential to reduce or even eliminate absolute poverty globally within less than one year. The electronic format would prevent corruption and fraud, as each transaction would be transparent and public. Once the currency was accepted for payment of taxes, local authorities would have additional liquidity to rebuild public infrastructure such as nurseries, parks, hospitals and libraries.

And the millions of NGOs globally would finally receive the funding they need to do their jobs properly. This targeted added liquidity would enhance education and provide otherwise unachievable access to universal healthcare. It would reduce resource depletion and clean up the air, avoiding the negative effects on our planet and on public health. We would eventually unlock the untapped potential and creativity of millions of unemployed people by creating new jobs, thereby unleashing the creativity of billions more.

MONEY

- Private Investors
- PPP (Fiscal Money)
- Philanthropy
- Parallel Currencies

MECHANISM

- R** Regulation (CB; BIS)
- E** Execution (EIB, DB, IGO, States)
- A** Additional Liquidity
- C** Complementary, Parallel, Digital
- T** Technology (Targeted, Smart Contract, DLT)
- I** Intensive - Intermediary - Consumptive Channels
- O** Observed / Monitored by the UN
- N** No Illicit Transactions, Fraud and Corruption
- S** Steering, Stabilizing Towards Sustainability (NGOs)

MEASURES

- Green Growth
- Jobs
- Negative Externalities
- Multiple Second-Round
- Effects
- Reverse Trafficking
- Informal Sector
- Alternative Technologies
- Public Revenues



Figure 4: The green corridor, parallel to conventional value creation, refers to a digital parallel currency (involving distributed ledger technology, smart contracts and semi-permission), which creates additional, targeted liquidity to finance the upcoming transformation. N.B. This mechanism can be used for private sector involvement (investment, charity) as well as blended finance (PPP) and/or CBDCs or cryptocurrencies.

The figure below gives a full picture of the monetary mechanism required to fully finance our global commons.

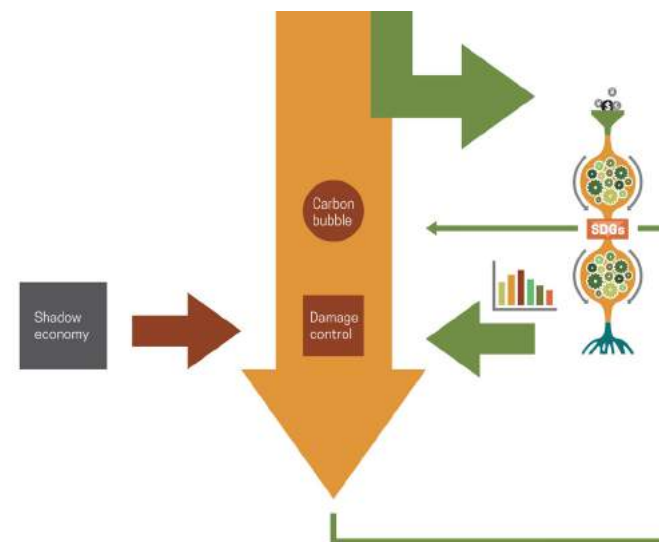


Figure 5: This additional, targeted liquidity creates the right conditions for the region as a whole – via additional jobs, increased tax income, regional resilience, stable prices and reduced social and ecological externalities – to not only consolidate the existing growth trajectory, but transform it over the long term.

5. WHY PARALLELISATION AND DIGITALISATION?

A parallel, special-purpose digital currency based on distributive ledger technology (DLT), accepted as legal tender to pay taxes and wages, convertible into traditional currencies, bearing a higher interest rate (than in the traditional marketplace) and issued by central banks (CBDCs) or regulated private agents (cryptocurrencies) could meet these requirements. It is like riding a bike with two wheels rather than a wobbly unicycle.

If we simply inject additional liquidity into the existing value chain, we not only risk consolidating the current track, which still depends on fossil fuels for over 78% of its energy needs, but also negating all our efforts or even making things worse. Assuming a multiplier of 1.5– 1.8, simply increasing the liquidity could do more harm than good. Any wind turbine or solar panel that is installed would feed back into the existing fossil value chain through multiple second-round and rebound effects. We need a wedge or parallel financial incentive that ensures a shift from the old to the new, from fossil towards a net zero economy.

5.1 WHY AND HOW TO DIGITALISE THE MONETARY SYSTEM?

Besides parallelising the currency system, which allows us to create inflation-proof, anti-cyclical and resilient incentives for a new green marketplace, the monetary channels should be digitalised with the support of a distributive Ledger Technology (DLT). DLT would have significant impacts on all economic activity; the following table summarises some of the major ones.

Transparency, trust and traceability	No free-rider effects, bribery or illicit transactions
Regaining control	Immutability
No money laundering	More data, information and insight
Better risk analysis	Conscious consumerism
Move towards a token economy	Managing spillovers/externalities
End-to-end automation	Paradigm shift
Disintermediation – financial efficiency	Move towards integral consciousness

Table 1: Why we need blockchain-associated technology

How to parallelise and digitalise the monetary system? From a practical perspective, we could start with four phases, all ensured by a smart digital contract that prevents some things we don't want (fraud, corruption, fossil dependency) and encourages others (green technology and jobs):

Phase 1:

We start by introducing a digital smart contract that prevents fraud, illicit transactions and informal sector activities.

Phase 2:

We then introduce additional financial instruments that allow us to hedge planetary and systemic risks, like harvest default swaps.

Phase 3:

Next, we accept direct digital cash transfers to affected populations, for purposes such as overcoming poverty and hunger.

Phase 4:

We begin to further steer our economic activities towards a more sustainable marketplace, avoiding social and ecological externalities, e.g. alcohol/tobacco ban, pesticides.

Table 2: The four phases for installing a parallel digital currency system

What would be the effects on the conventional economy? The annual five trillion USD equivalent of added liquidity would not hurt or harm the conventional economy. In fact, the opposite would be true. Corporate and state planning, production and price levels would become more robust and reliable with a longer-term vision. Furthermore, it would stabilise the cyclical economy of booms and busts. Despite arguments to the contrary, we need much more financialisation (finance/GDP).

However, it must be designed in a more democratic and humane manner, to protect the planet while increasing wealth for the two thirds of the global population currently in poverty. If there is a single most important variable besides technology, governance, behavioural changes and demographics for changing the world, it is a parallel and digital monetary system.

This is the game-changer. All this could be started in less than six months, if the six largest central banks agreed to create a parallel, optional, complementary currency. A redesign of the financial system would not solve all our problems, but it would allow all our problems to be addressed more easily. This, or a very similar mechanism, is the missing link to achieving better outcomes for the five Ps: people, planet, prosperity, peace and partnerships.

6. GOING DIRECT FOR OUR GLOBAL COMMONS - THE TOP TEN EXAMPLES

Better – More – Faster – Different – Targeted – Conditioned – Risk-adjusted and empirically tested

Instead of funding, hedging and managing our global commons using taxpayers' money, private investments or philanthropy alone, we suggest that central banks should become proactive rather than reactive and prevent problems rather than repairing the damage afterwards. A domestic public development bank may be able to manage the necessary financial services.

Below, we list the top ten examples of monetary tools and financial engineering that can be used for this purpose:

1. Harvest default swaps: Hedging extreme weather and droughts for millions of farmers with an upfront loading of additional, conditioned funding for adverse events. This preventive measure is far cheaper than financing millions of farmers falling below the poverty line.

2. Fossil to commons swaps: 70% of fossil reserves are public and should remain in the ground. Fossil to commons swaps collateralise lost revenue using green QE, subject to the condition that investment must only be in commons and public goods (the Alaska Nature Reserve Fund is one such preliminary financial contract).

3. Pandemic preparedness fund: We have to expect further pandemics to come. Fifty billion USD of upfront funding for the WHO is cheaper than repairing the system after the fact and paying for all the damage. (The Covid-19 pandemic has cost 15 trillion USD globally.) This would create a return on investment of > 300%.

4. Nature reserve conservation fund: An additional, conditioned fund (blended or purely public) issued to non-governmental organisations (like the WWF) to safeguard the 30% of protected nature reserves globally. The money would be spent on drones, software and rangers. Empirically, the return on investment is between 1:10 and 1:15.

5. Credit default swaps: In these swaps, the public sector provides an interest derivative to cover part of the additional private capital costs that come from investing in an adverse environment (e.g. a hospital chain in sub-Saharan Africa). The CDS market is highly liquid and provides solutions tailored to customers and projects.

6. Covering capital costs for renewables: Measures to cover the differences in capital costs between countries for investments in renewables. The delta is up to ten times higher for developing countries. The project risks remain with the private investors.

7. State guarantees: Additional money is used to hedge potential risk for VCPE investment in common goods like hospitals or nurseries (e.g. a build– operate–transfer agenda (BOT), which is commonly used in private–public partnerships (PPPs). Again, the project risks remain private, while the systemic risk is absorbed by green QE.

8. Active state involvement: Preloaded funding of national budgets, tailored and conditioned to national public goods.

9. Advanced commitment strategy (ACS): A private–public partnership where the public sector guarantees a certain amount/volume of, or price for, a necessary good (e.g. a vaccine).

10. Direct cash transfers: Direct digital transfer of cash to target populations exposed to hunger and poverty.

N.B. If we start implementing this green QE procedure using parallel digital (blockchain-based) channels, this will help to prevent fraud, corruption and illicit transactions and create the conditions for a green marketplace.

A combination of these top ten monetary tools would allow us to tackle most of the challenges ahead. Part of the funding would need to be front-loaded with additional, conditioned liquidity created by regulators and managed by national public development banks. This can be done whenever an identified risk is systemic or planetary and/or a good/service is defined as a commons and available to everybody. The potential return on investment (1:15) for the stakeholder community far exceeds any that might be expected from private investments.

7. SUMMARY

The indispensable missing link in the debate on sustainability is the monetary system. The existing system is too brittle, slow and low in volume to fund our global commons and to hedge the associated planetary risks.

Instead of advocating an abstract, purely theoretical financial framework, we are proposing the single best next step to allow us to finance our common future within the next 15–20 years. This requires additional liquidity of about five trillion USD annually and an upgrade of our monetary system into a dual mechanism. And the step recommended here can be started in less than six months.

Letting go of our current monetary monoculture would in the long run stabilise international financial markets, strengthen monetary regulatory efforts, reduce negative externalities, increase social welfare and wellbeing and stabilise democracies.

This will lead to a multi-stakeholder, non-regret approach for everyone involved. Multiple, empirically evidenced positive impacts can be identified, which would allow us to move past the constraints of a fossil-driven economy, tackle the multiple trade-offs and social/ecological externalities and overcome the dual tragedy of the commons and the horizon at the same time.

Instead of further privatising our commons, we can start identifying (almost) unlimited new, innovative financial instruments and forms of financial engineering, including blended finance, derivatives and swaps, direct digital cash transfers and new state guarantees.

On this approach, finance would not drive sustainability, but the other way round: sustainability would eventually drive finance.

8. POLICY RECOMMENDATIONS

- 1. Globally, we are in a deflationary situation:** Billions starving, millions unemployed, endless infrastructural and environmental challenges but not enough suitable liquidity to meet them.
- 2. The traditional way of financing our future is not enough:** Private sector involvement is important, but blended finance is key.
- 3. A backstop mechanism that clears up after the fact is not an option:** In fact, it is far too expensive. We need upfront financial loading to cope with the challenges ahead.
- 4. Taxation and borrowing before lending is a myth:** Additional domestic taxation will lead to fiscal exhaustion, and additional borrowing to future liabilities to the private sector, both further deteriorating our common goods.
- 5. Digitalisation and parallelisation of the monetary system will be a game-changer:** If we start issuing additional digital tokens (CBDCs or private cryptocurrencies) that can be used for wages and taxes, this will generate the liquidity that is needed.
- 6. A new role for regulators:** Extending the central bank mandate from inflation targets to sustainability will allow central/development banks and the World Bank to be officially involved in financing our future.
- 7. Feasibility:** Implementing new technology (DLT), adopting new monetary regulation and allowing new monetary channels to finance our future is politically feasible, fast and fair.
- 8. Financialisation and securitisation:** Using the wisdom and experience from existing, traditional financial engineering and upgrading it into blended finance. It is not necessarily a win-win, but definitely a non-regret approach.
- 9. The real intergenerational conflict is about where the money is spent:** A ravaged planet with no debts and successful austerity will create less prosperity for the next generation than an intact, healthy planet with a large and expanded central bank balance sheet.

9. REFERENCES – LINKS – ADDITIONAL TABLES AND FIGURES (SELECTION)

Over 300 talks, panels, conferences and publications are available through the author.

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Several additional papers and conference talks are forthcoming 2022.

9.1 LINKS (SELECTION)

1. **World Academy of Art and Science**
<https://new.worldacademy.org>
2. **Financing the Anthropocene** (5 min. primer)
<https://www.youtube.com/watch?v=8Z2eH75Rw9g>
3. **A Mechanism That Can Change the World**
(TED talk, suitable for general audience, 15 mins)
<https://www.youtube.com/watch?v=daEbMngJ7Q8>
4. **Blockchains – Financing the Future – Sustainability – SDGs** (UN talk, suitable for general audience, 30 mins)
<https://www.youtube.com/watch?v=7zc12ZPbMLE>
5. **The Real Tragedy of the Commons** (7 mins)
https://www.youtube.com/watch?v=CUy_pmEwEHk
6. **Hedging and Funding Planetary Risks** (11 mins)
<https://youtu.be/qr5980s6uVY>
7. **How to Finance the SDGs** (parts 1+2)
(interview, 13 mins)
<https://www.youtube.com/watch?v=D5G2HRO5Tk8>
8. **The “Real” Tragedy of the Commons: Can a Dual Currency System Achieve a Pareto-superior Equilibrium?** (aimed at academic audience, 15 mins)
<https://lt.org/publication/real-tragedy-commons-can-dual-currencysystem-achieve-pareto-superior-equilibrium>

9. **Financing Our Future (book)**

<https://www.amazon.de/Financing-Our-Future-Unveiling-Parallel/dp/3030648257>

10. **The Tao of Finance (abridged version)**

<https://www.amazon.de/Tao-Finance-future-nations-English-ebook/dp/B084G8VBKC>

9.2 ADDITIONAL FIGURES AND TABLES (SELECTION)

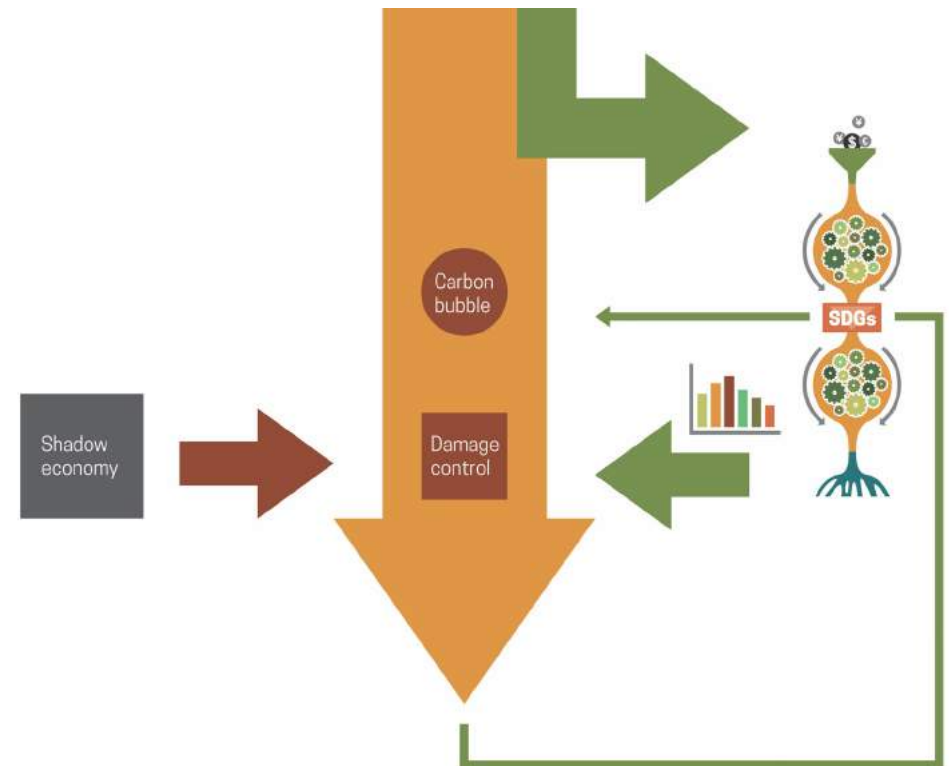


Figure 6: The full picture: the fossil value chain and the green marketplace: a monetary mechanism that can change the world

Table 3: The impact of a dual digital currency approach: evidence-based and non-silo thinking

37. Avoiding the dependency on external debts	38. Reduced transactions costs	39. enabling monetary policy over fiscal policy in times of external shocks	40. Historical evidence of over 1000 y
33. Impact on tax havens, off shoring, off balancing	34. Tackling the tripple crisis (Pandemics, loss of biodiversity, climate change	35. Entering a Data-enriched green market place (inverse information asymmetry)	36. Tackling bank runs, repo-overnight crisis and break downs of cash flow
29. beyond traditional regulation (end of pipe, predistributive)	30. new financial engineering & hedging	31. blended finance & securitization	32. risks & unmet needs drive finance (de-risking for the private sector)
25. overcoming the force to grow	26. reducing cost for damage control	27. investor freeze & gaining long-termism	28. safe, targeted & fast conditioned, upstream approach
21. unleashing our commons	22. green public revenues	23. positive carry trader	24. managing opportunity costs
17. fraktal & scalable	18. green jobs and income	19. carbon bubble & fossile dependency	20. beyond wind fall revenues
13. multiple second round effects	14. resiliency & anti-fragility	15. overcoming the ,new normal'	16. beyond open societies & digital autocracies
9. anti-cyclical (Investor of last resort	10. anti-inflationary Monetary Inflation Break	11. peace & security	12. adjusted risk assessment (data, reporting directives)
5. disentanglement effect for private and public sector	6. advanced regulatory steering (data base)	7. positive externalities (Health, Social inclusion, jobs), co-benefits	8. confidence, trust & social capital (commons become collaterals)
1. regaining control and self efficacy (Market maker of First resort)	2. illicite transactions shadow economy	3. Pareto superiority no-regret approach	4. positive distributive effects

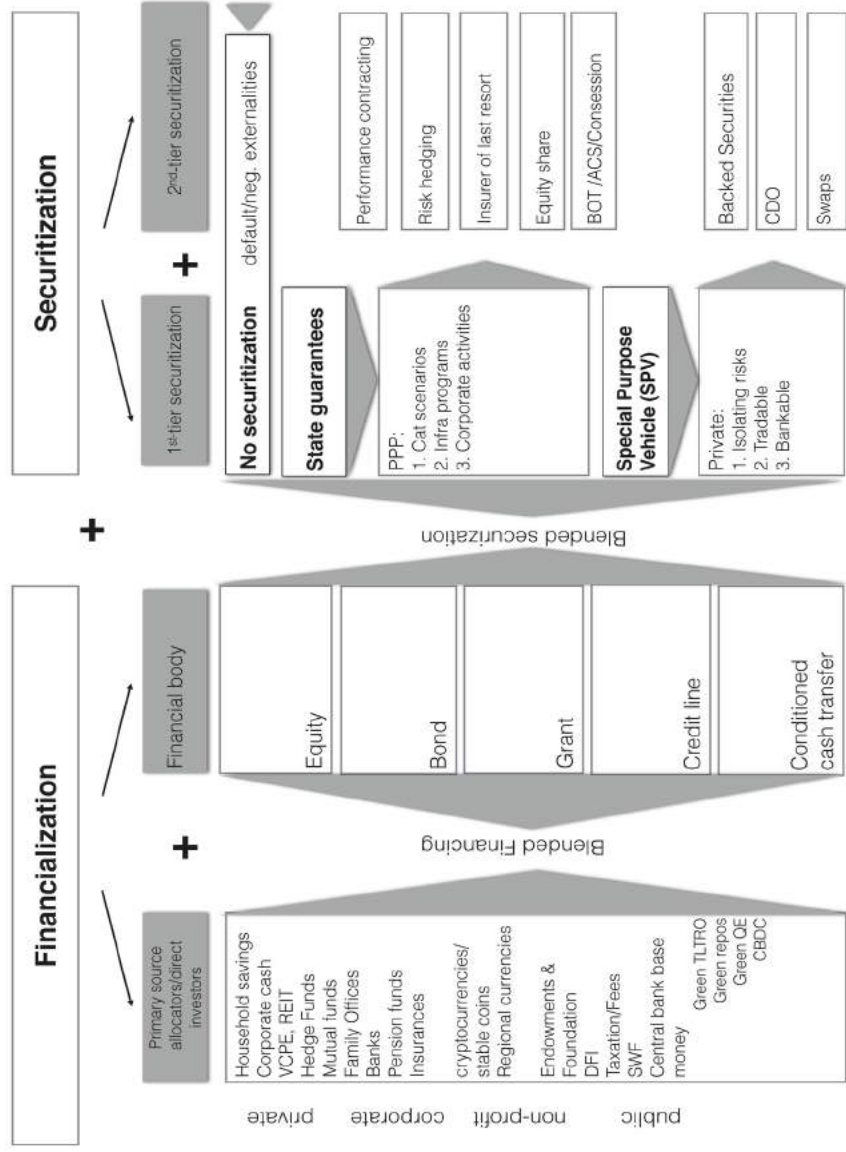


Table 4: An initial system for hedging planetary risks and funding our common future

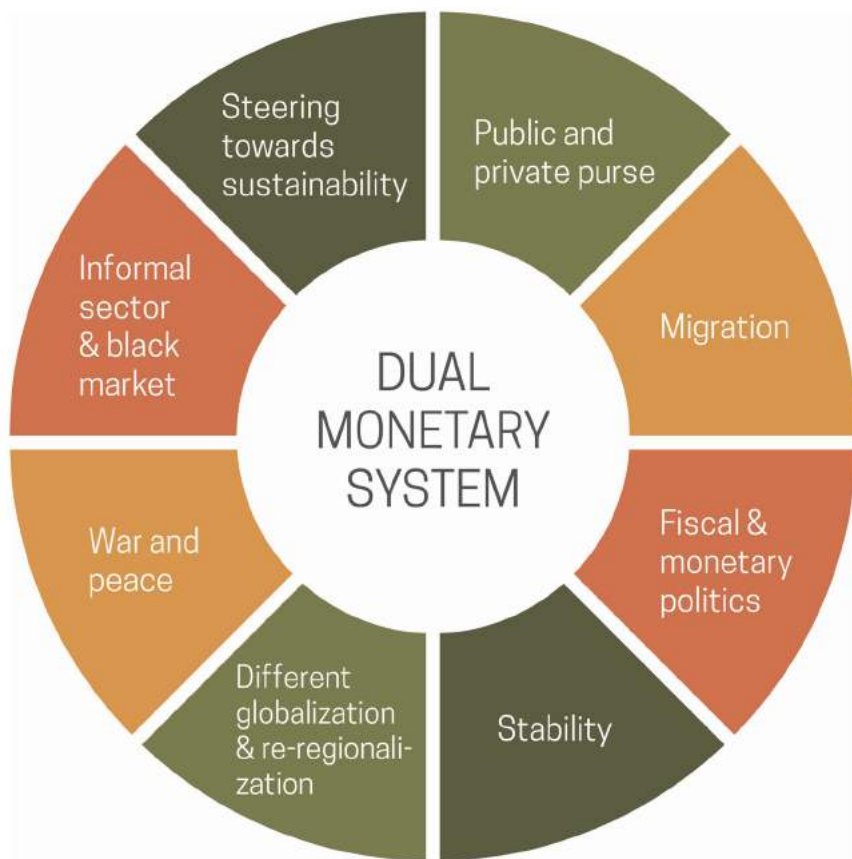


Figure 7: A multi-stakeholder, non-regret approach

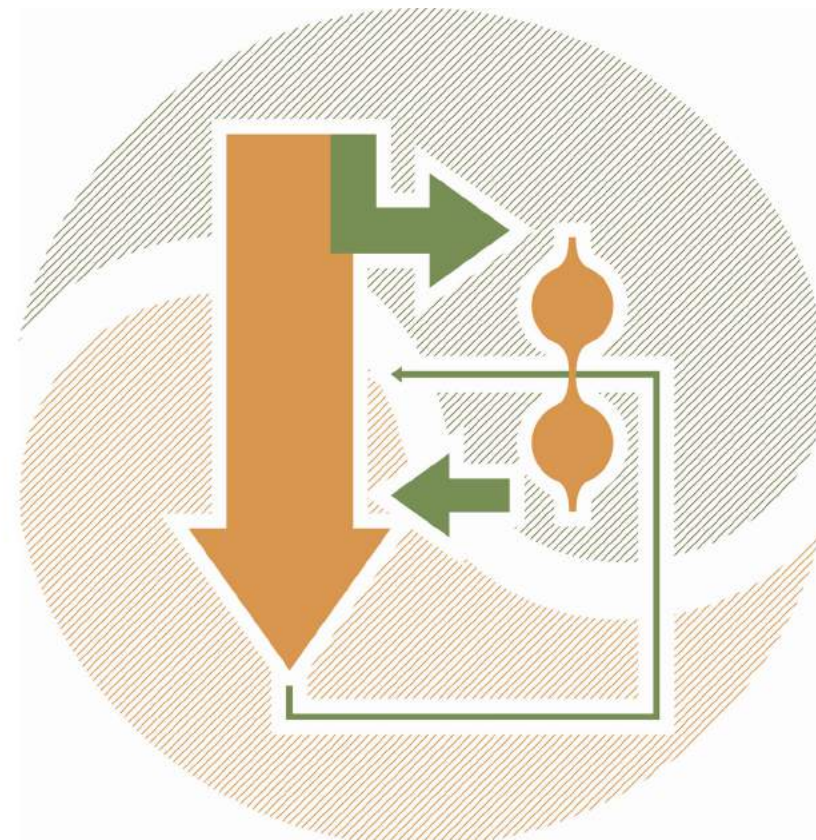


Figure 8: The Tao of finance: overcoming dualistic, linear, silo and causal thinking and moving to a systemic, complementary, non-linear approach

10. CONTACT



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