



Turning the page

A radical agenda for economic transformation

Triodos  Investment Management

Introduction

The economic landmark of the previous decade was the global financial crisis of 2007-2008. In its aftermath, a broad consensus grew for the need to 'do it differently', 'less risks', 'more connection with the real economy'. Reactions were the same as always after a crisis: we need to restore growth, create jobs and make sure our government budgets remain in order.

Considering the urgency felt back then, the last decade has been disappointing. We are hardly 'doing things differently', while risk-taking increases by the day in this ultra-low interest rate environment, in search for financial returns. The connection with the real economy has never really been repaired. On top of that, we did not make enough progress in our fight against climate change and inequality.

There is only one conclusion: the financial crisis did not lead to the necessary fundamental change, despite the shock and the broad consensus afterwards. The core of our economic system remained unchallenged in every respect. And that is not only the biggest disappointment, but also the biggest threat. After more than ten years since the devastating experience of the financial crisis, we are still stuck in our economic model governed by the ideas of the so-called Washington Consensus of free trade, free markets and deregulation. This model delivered growth right up until the financial crisis, but also caused it. In addition, it led to (increased) inequality, huge debt, and huge waste in every respect.

In our view, we only have one choice: to change our current economic model. This requires far more than a few cosmetic changes. We need to make our economy less growth-dependent, less financialised and less harmful. And this means that we must get rid of our traditional reductionist economic approach and start looking at the economy for what it is: a complex, interdependent system firmly rooted in and part of our biosphere.

In this vision paper we take a closer look at our current economic system and explore its basic pillar: growth. We then explore where this system has brought us. Looking back to the global financial crisis of 2008 and its aftermath, we can only conclude that it is a broken model with devastating side-effects. A system that needs a radical overhaul. In part two of this paper we present three steps how this change could be brought about.

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Executive summary

Uneconomic economy

The global financial crisis of 2007-2008 did not lead to the necessary fundamental change, despite the shock and the broad consensus that change was needed afterwards. The core of our economic system remained unchallenged in every respect. After more than ten years since the devastating experience of the financial crisis, we are still stuck in our economic model governed by the ideas of the so-called Washington Consensus of free trade, free markets and deregulation. This model delivered growth right up until the financial crisis, but also caused its breakdown. In addition, it led to (increased) inequality, huge debt, and huge ecological damage in every respect.

The current recipe for economic growth does not work anymore given the by all means disappointing growth figures over the last decade. Developed markets are stuck in what we call a low-low nexus after the global financial crisis: low growth, low interest rates and few abilities to move the needle towards a more sustainable, inclusive society. Our economic model has become uneconomic and does more harm than it delivers prosperity.

Transition into transformation

We therefore must change our current economic model and transform it into a model that delivers wellbeing for all. This requires far more than a few cosmetic changes. We need to make our economy less growth-dependent, less financialised and less harmful. And this means that we must get rid of our traditional reductionist economic approach and start looking at the economy for what it is: a complex, interdependent system firmly rooted in and part of our biosphere.

At the turn of the decade, we must make radical choices if we want to realise the 'strategy of the world' as formulated by the Sustainable

Development Goals (SDGs) and to mitigate carbon emissions in the fastest way possible. These choices must be made on a macroeconomic level, where we must change the current economic model and replace GDP growth as the central point of reference for policymakers with broader defined goals and acknowledge that our fundamental assumption is wrong; economic growth is not the same as an increase in wellbeing. The consequence of taking our planetary boundaries seriously will be the end of growth as we measure it. But degrowth, defined as trying to create an economy within ecological boundaries, does not necessarily imply no economic growth at all. Its composition will be substantially different in a more sustainable economy. We should shift our economic system from efficient production of goods to an optimal use of products and extending their lifetime. This will result in lower consumption in terms of GDP. In addition, redistribution within and between countries is also necessary to create a global sustainable economy.

A radical agenda for economic transformation Gradually adapting the existing system is not enough. Radical change is required, yet in an evolutionary process. We do not pretend to have the ultimate solution, but in our view such a change encompasses:

A redefinition of progress

Redefining how we think about progress in a market economy is essential to broaden the policy and corporate agendas so that it encompasses all vital aspects of wellbeing. We suggest a combined alternative for GDP, based on:

1. the framework of ecological boundaries as the hard boundaries for economic activities.
2. achieving the SDGs as an indicator for wellbeing of a country.

On both country and company level, this combination of indicators will help policymakers to find the balance between ecological boundaries and social foundation.

A revaluation of our economy

Price-making markets are central in the mainstream belief that through pricing efficient solutions for every societal goal can be found.

There is no guarantee, however, that markets give the outcomes that agree with our collective values. Especially if there is a need for transition to meet long-term sustainability challenges, we need clear and strong public values. Public policies should be and must be more active and directed at the great transitions. Hence, markets should be directed through cooperation, public investment, and more activist industrial policies.

A redesign of our system

The outcome must be an innovative, circular economic system; a system in which material input and waste are minimised and all products and parts produced are used for as long as possible. We need a social inclusive system within biophysical boundaries.

A multi-fold transition is needed to develop such an economy:

- A shift from a fossil-based economy towards renewable energy.
- A switch from meat-based food consumption to plant-based foods
- A transition of our global food system from a system directed at efficiency, quantity and extraction, towards a sustainable, circular system aimed at sufficiency and regeneration.
- A shift from a transaction-based economy towards a use-based economy.

- A shift from an extractive, specialised economy to a regenerative, resilient economy.
- A shift in goals from steering at monetised values (such as GDP growth) in a reductionist way and the pursuit of individual affluence to sustaining ecosystems and improving human wellbeing by prioritising basic needs of communities in a values-based context using a holistic approach.
- A redistribution of material wealth, leading to more social inclusiveness.

These transformations require commitment on all levels, from policymakers to producers and consumers.

Finance change

The financial sector plays a crucial role. Allocating the capital for change is a powerful and necessary task to realise real change.

Financing changes comes with two big caveats. Values and purpose must be aligned with sustainable goals. That counts for policymakers and business, but also for investors. Investors should align their values with those of their investees. That will be a huge difference for a lot of investors: long-term value creation within biophysical boundaries really is different from short-term rent seeking. In addition, investors may need to prepare for lower financial returns and a different sector allocation than they are used to if they do not invest in the right transitions. A true belief in the need for sustainability is necessary and this means putting impact first.

Ultimately, we must create a circular, carbon neutral and inclusive economy that is more regenerative by design. We should change policies to restore capitalism and make it purposeful, in line with our world goals as articulated in the SDGs.



Looking back:
a broken model
with devastating
side-effects

Part 1

Looking back: a broken model with devastating side-effects

In the aftermath of the financial crisis, policy-makers around the world claimed that things ‘would be different’. The ground-breaking report ‘Beyond GDP Measuring’ by the Stiglitz-Sen-Fitoussi commission¹, published in 2009, seemed to offer an alternative for the paradigm of economic growth.

However, the economic recipe policymakers administered was mainstream textbook economics, just as always. Economic growth, driven by technological progress, has brought prosperity in the past. And as long as the marginal benefits outweigh the marginal costs, in terms of ecological and social damage, it is beneficial to pursue economic growth. If the (marginal) damage is larger than the benefits, however, growth should be defined as uneconomic².

Growth is at the core of our economic thinking and our standard economic system. It is therefore necessary to have a closer look at this concept. We will do this by exploring three questions in the next three chapters:

1. What is the (standard) economy?
2. Is growth still economic?
3. Are we at the end of growth as we know it?

“

If you define the goal of a society as GDP, that society will do its best to produce GDP. It will not produce welfare, equity, justice, or efficiency unless you define a goal and regularly measure and report the state of welfare, equity, justice, or efficiency

”

*Donella H. Meadows³,
Thinking in Systems: A Primer*

1 - What is the (standard) economy?

To make any judgements about the workings of our economic system – let alone advocate a radical transformation - a clear, generally accepted definition of what an economy is and what it should deliver, is required.

Over time, the notion of 'economy' has changed numerous times. The current more or less generally accepted definition of economics is along the lines of what the economist Lionel Robbins in 1932 said: economics 'is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses'⁴. Although this does not exactly describe subject or method of economists, it gave, together with the 'invention' of the System of National Accounts, reason to see economics as a rational science focusing on scarcity. Especially in macroeconomics the focus became on monetised aggregates as being the 'economy'. In addition to that, many economists claim that the 'ends' are not their territory. It is up to policymakers what the purpose of economic policy should be; it is the economists' job to advise on the best use of scarce means.

Now, 90 years later, there is a clear division between academic economists and economic policymakers. Academic economists can refrain from policy ends when studying the 'economy'. They study choices under scarcity to numerous subjects with different method and theories. Policymakers, and economic advisors especially in the field of macroeconomic policy are still framed by economic growth as 'end', where all means should lead to. This is their 'economy'. And hence, also our economy.

1.1 WHAT DOES ECONOMIC GROWTH ACTUALLY MEASURE?

We measure our economic success and base our economic policy on one single metric: Gross Domestic Product (GDP).

GDP was a great invention in the 1930s and some claim that it was the reason that the allied forces won WWII⁵. It would appear that better insight in production and the structure of the economy facilitated better planning of the war production. And because war production was so important at that time, statisticians decided that government production should also be a part of GDP. That was at odds with what Simon Kuznets envisioned as a useful indicator for wellbeing, where outlays for defence as well as for advertisement should be excluded⁶. This concept of GDP – which was regularly adjusted in the decades to follow – was spread all over the world by the United Nations and the definitions were laid down in the System of National Accounts (SNA) in 1953⁷. Since then, this is how we more or less define 'the economy'.

This little piece of history highlights one of our dilemmas. Once a very useful concept for purposes that were relevant at the time of invention, it has become our standard definition of ‘the economy’. And although economic growth has brought much prosperity, it is of limited use as a measure of wellbeing and it has several limitations that are described numerous times. Moreover, the most serious challenges of our time, such as climate change and inequality, are not captured by the concept. The most important limitations of GDP as standard measurement are:

1. It only measures monetised market transactions: everything that is valuable and not traded on the market (so not monetised) is valueless in terms of GDP. Household work or caring for children or (grand)parents are not measured in GDP terms, whereas paid childcare or a stay in a retirement home are. Monetised commodification (paying for previously free services) and financialisation are reflected in GDP growth without any clear link to a change in real activities. In addition, side-effects or externalities of production, such as pollution and carbon emissions, are not counted as long as they do not have a price. (Perversely enough, a carbon price would initially increase GDP).
2. Resources and assets are not measured: GDP consists only of flows. Natural resources, financial assets, human capital and social capital are not counted. Clean air, trees, water, glaciers, biodiversity, CO₂ concentrations, education, health, life expectancy, are not relevant for GDP. In the case of war, earthquake or hurricane, all that is counted is the rebuilding activities, not the destruction.
3. Quality: It is becoming increasingly difficult to distinguish between price and quality effects. This distinction is usually made through hedonic price adjustments, i.e. correcting prices for product or service improvements. This is important because central banks’ primary target is inflation. Underestimation of inflation goes hand in hand with overestimation of GDP and vice versa. However, quality improvements in electronics, for example, are difficult to price, and for software it is almost impossible. Mismeasurement of prices and quality also leads to biased productivity statistics.
4. Complexity: In the past, when GDP was mostly measured by production of goods, it was easy. Bread is bread and a table is a table and so it was very easy to measure by the price. And although we still produce and consume bread and tables, our consumption has shifted towards services and more complex products with longer (international) value chains. This implies that it becomes much harder to understand the added value of products and what is really paid for. This is also reflected in balance sheets, where ‘intangibles’ (goodwill, knowledge, etc.) play a more important role. In addition, the relationship between material consumption and utility is also becoming more and more complex. The strong mainstream, neoclassical assumption lying behind the idea that GDP can be a proxy of wellbeing is that the monetised value of a market transaction is a good proxy for wellbeing. In the age of data, this is a problematic assumption. A lot of services we enjoy – especially apps, payment services, etc. – are not paid for with money, but with data. This is not reflected in GDP.

5. Distribution: Lastly, GDP does not take income distribution into account. One person earning EUR 1 million has the same contribution to GDP as 200 people earning EUR 50,000. If we only look at GDP, and not at how it is distributed, we miss the fact that a greater share of GDP growth is attributed to capital than to labour. Given that GDP does not take assets into account, we thus totally ignore a second important challenge of our time: the increase in (income) inequality.

Nevertheless, GDP continues to be a useful measure. As material activity - production - remains an essential element of our economy, it makes sense to continue measuring it. Moreover, it will help us directing capital towards necessary transitions, for example in transportation, renewable energy, circular economy or social inclusion, which in turn will lead to new investments and production.

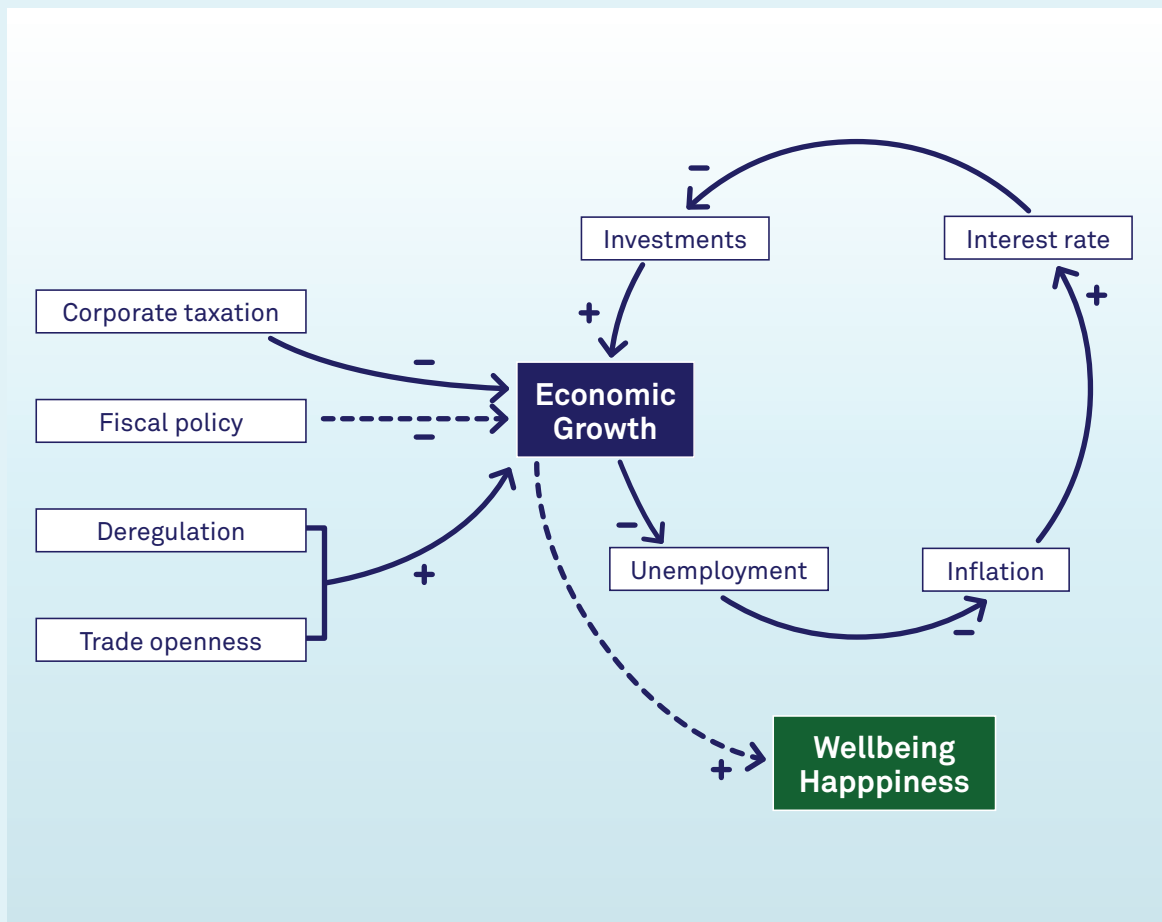


I am sometimes wondering whether, upon looking at some recent work by planners, I should not repeat the famous words by Goethe's Zauberlehrling "Die ich rief die Geister werd' ich nun nicht los" ("The ghosts I called I can't get rid of now"). Sometimes indeed some of our followers overdo model building



*Jan Tinbergen⁸
Dutch economist and
Nobel Prize Laureate*

FIGURE 1 - THE SIMPLE ECONOMIC MODEL OF THE WASHINGTON CONSENSUS



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Economic growth equates wellbeing. So, to maximize economic growth, markets must work 'free', minimizing government interference: deregulation, stimulation of international trade, low corporate taxation and a small government. Monetary policy is used to stabilize inflation towards 2%. Low interest rates make borrowing cheap, stimulates investments and leading to more economic growth and lower unemployment.

1.2 DOES POLICY DIRECTED AT ECONOMIC GROWTH WORK?

To kickstart the economy after the financial crisis, policymakers around the world applied the standard recipe of the Washington Consensus⁹: promoting world trade and globalisation, following strict fiscal policies and deregulating the financial and labour markets, to enhance the opportunities for financial activity and reduce restrictions on business. Banking activities were the only exception; regulations for the financial sector became (often only temporarily) stricter. At the same time, governments were very reluctant to increase their spending to stimulate the economy; this was left to central banks. This austerity policy in times of recession resulted in extremely loose monetary policies, and in structural social and economic damage.

In theory only

This policy, in classic theory, should have led to more investment, higher consumption and productivity growth, resulting in GDP growth and an increase in wellbeing (figure 1). This, in turn, would translate into higher employment, higher wages and create an upward cycle, leading to higher inflation. Completing the circle, higher inflation would then give monetary policymakers the room to normalise monetary policy, aiming for an inflation around 2%.

So much for theory. The actual result was rather disappointing. Economic growth did indeed return, but at a slower speed than before (graph 1).

This tepid economic growth was mainly caused by lower productivity growth than before the financial crisis. We do not exactly know why, but productivity growth has stalled in many countries. If productivity growth had followed its historical average, economies would have been 5-10% larger.

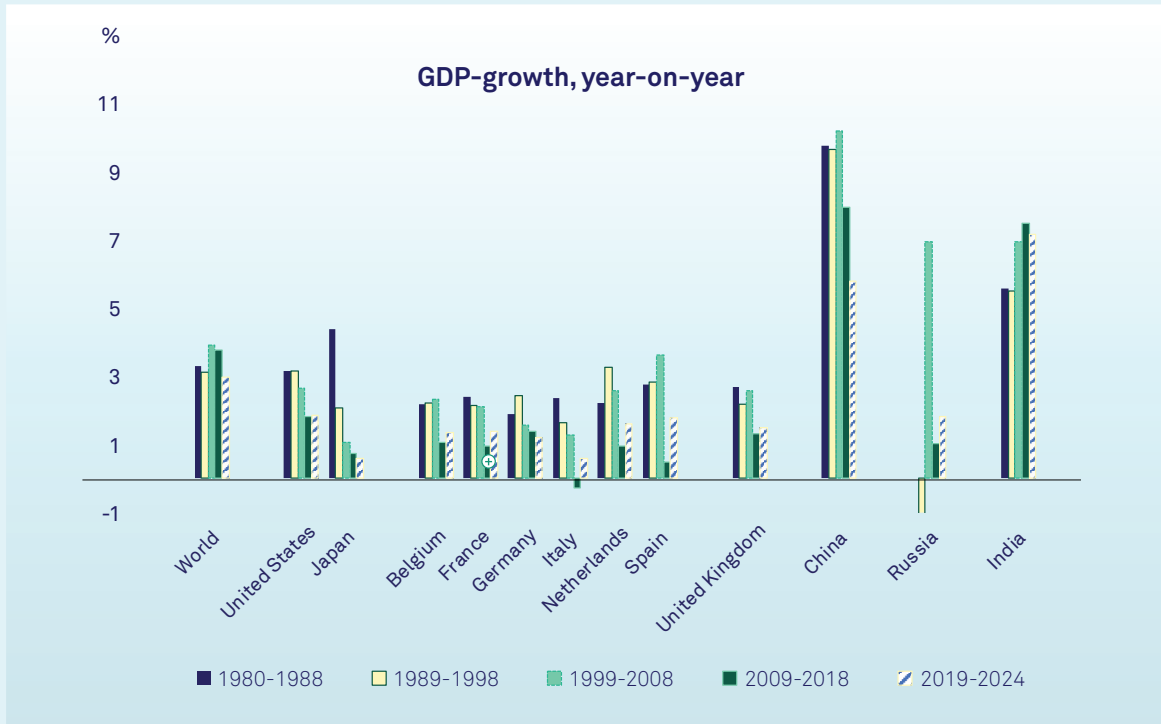
And although unemployment declined significantly after the financial crisis, even reaching historic lows in several countries, inflation remained subdued. It would seem that the Phillips curve, which reflects the relationship between labour market tensions, wage pressure and inflation and therefore plays an important role in central banks' policy deliberations, does not behave the way it used to. As a consequence, central banks could not normalise their monetary policy.

Different concepts

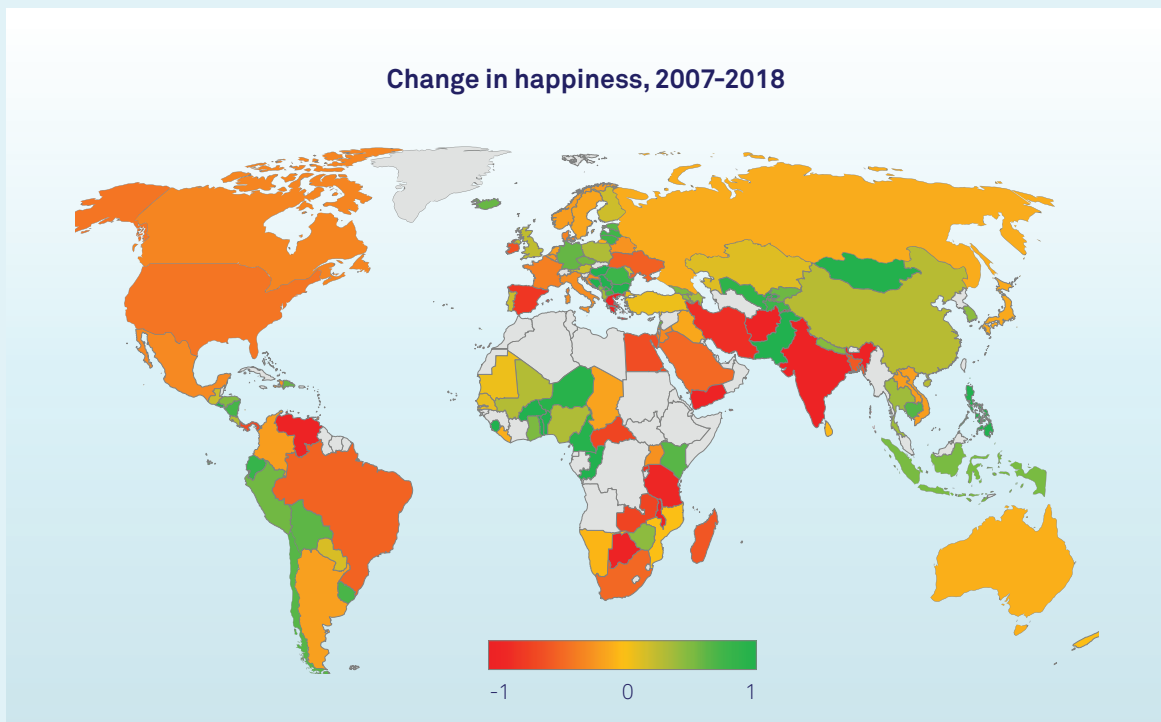
Apart from an economic theory that no longer fits the current practice and a recipe that does more harm than good, we can also conclude that our fundamental assumption is wrong; economic growth is not the same as an increase in wellbeing.

As a proxy for wellbeing, subjective indicators such as happiness can be used¹⁰. The evidence is mixed. (graph 2) In some countries, most notably in China and Indonesia, average subjective wellbeing rose, mostly driven by an increase in material wellbeing. This shows that increased material wellbeing is important at early stages of development. In other countries, however, happiness notably decreased. Especially richer countries did not experience an increase in happiness. Overall, the population-weighted average happiness in the world declined over the last ten years. So, while the world economy grew, even if only at a slow pace, happiness scores deteriorated.

GRAPH 1 - TEPID GROWTH



GRAPH 2 - CHANGE IN HAPPINESS: IS THE WORLD HAPPIER?



2 - Is growth still economic?

In this chapter, we address the question whether growth, as defined in our current, mainstream economic theory, is still economic, even by its own standards.

Whether economic growth is still economic, i.e. that the marginal benefits outweigh the marginal costs, can be judged from two different perspectives. The first perspective is from the standard economic framework: is it economic in terms of monetary prosperity for all? Does the narrowly defined economic model work? This is what we analyse in this chapter. We first look at the evidence of the last decade: what are the side-effects of our growth-based model?

We then address the failure of our economic model: the supposed policy agenda of monetary policy, deregulation and globalisation seems not to deliver what it is supposed to do. After this analysis, we come back to the question in this chapter's title: is growth (narrowly defined) still economic?

In chapter 3 we look at growth from the perspective of boundaries, both physical and social, including effects of economic activity on the biosphere and sustainability at large.

2.1 INEQUALITY

Inequality is one of the most prominent consequences of the standard policy concept as described above. The basic assumption is that the more of GDP is earned by capital, the more income inequality will increase. Income inequality is likely to rise as a consequence of wealth inequality - as higher net worth individuals have a higher income from their wealth than wage earners - but also

because of technological progress, globalisation and governments reconsidering their redistributive policies.

Where income inequality refers to the flows (how is the division between capital and labour within a certain period), wealth inequality refers to the stocks of capital. This reflects for a part also accumulated income inequality, but has also

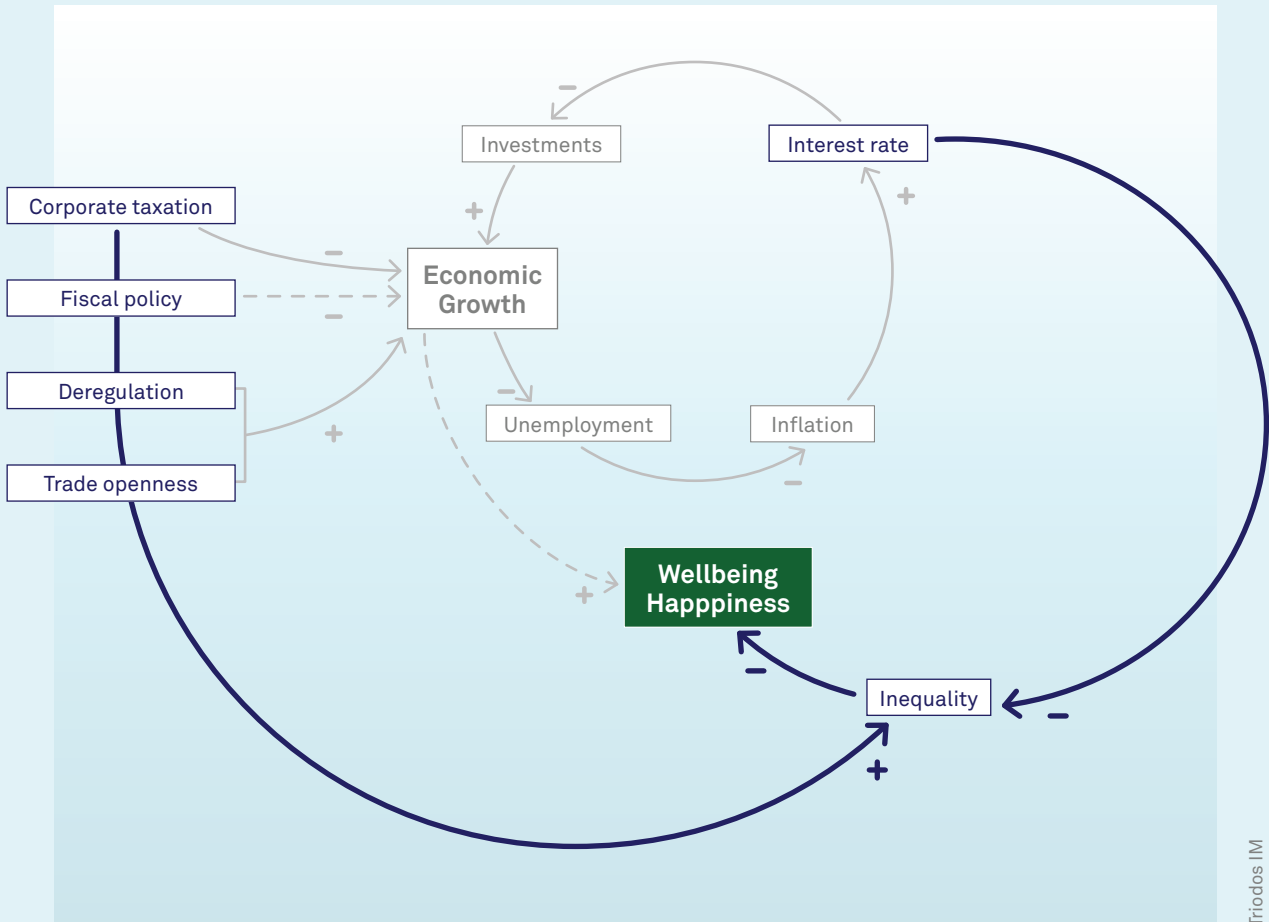
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Economic growth doesn't mean anything if it leaves people out

”

*Jack Kemp
Former US secretary
of Housing and Urban
Development*

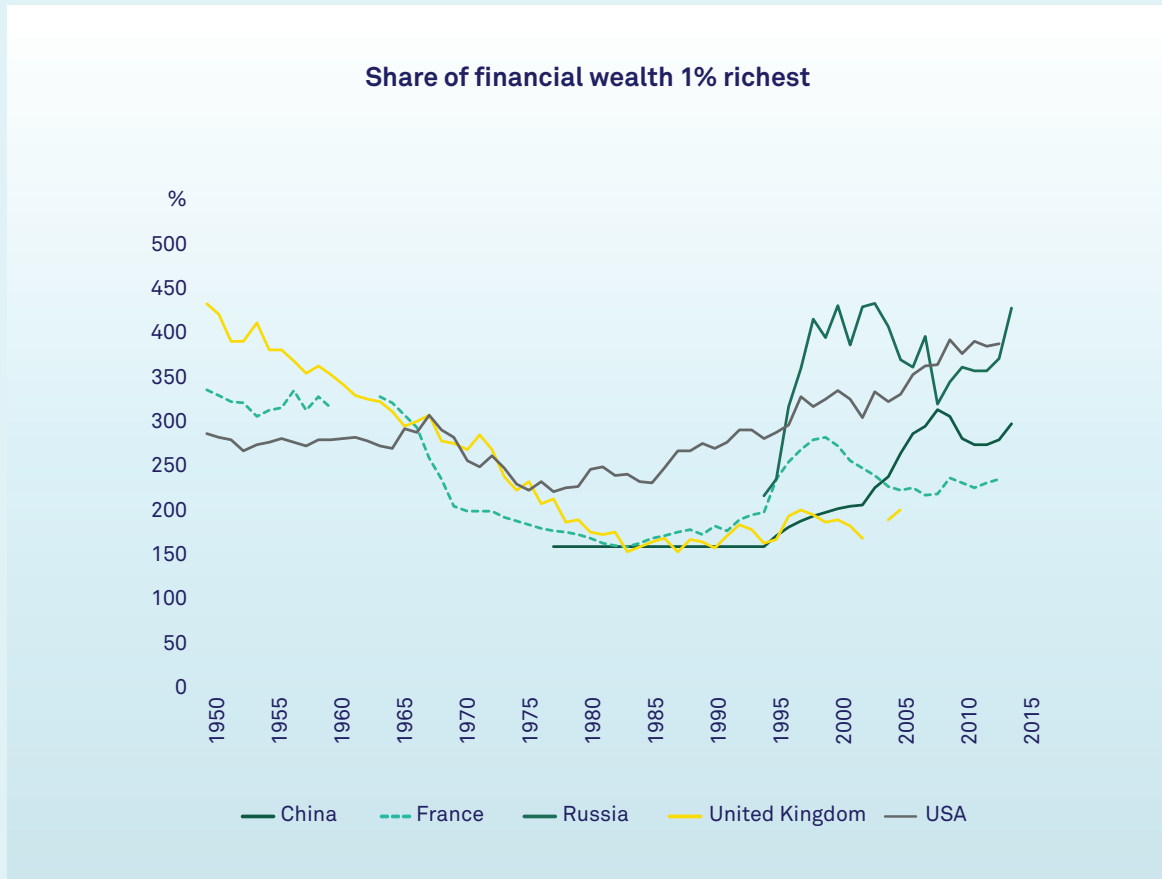
FIGURE 2 - UNECONOMIC ECONOMICS: INEQUALITY



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Lower taxation for companies benefits capital and has led to more inequality. More deregulation, for instance on the labor market, has the same effect. Also, trade openness has in countries weakened the labour market position of those with already the lowest incomes. This aggravates inequality. In addition to that low interest rates lead to inequality via inflated asset prices.

GRAPH 3 - WEALTH INEQUALITY INCREASED EVERYWHERE



Source: World Income Database

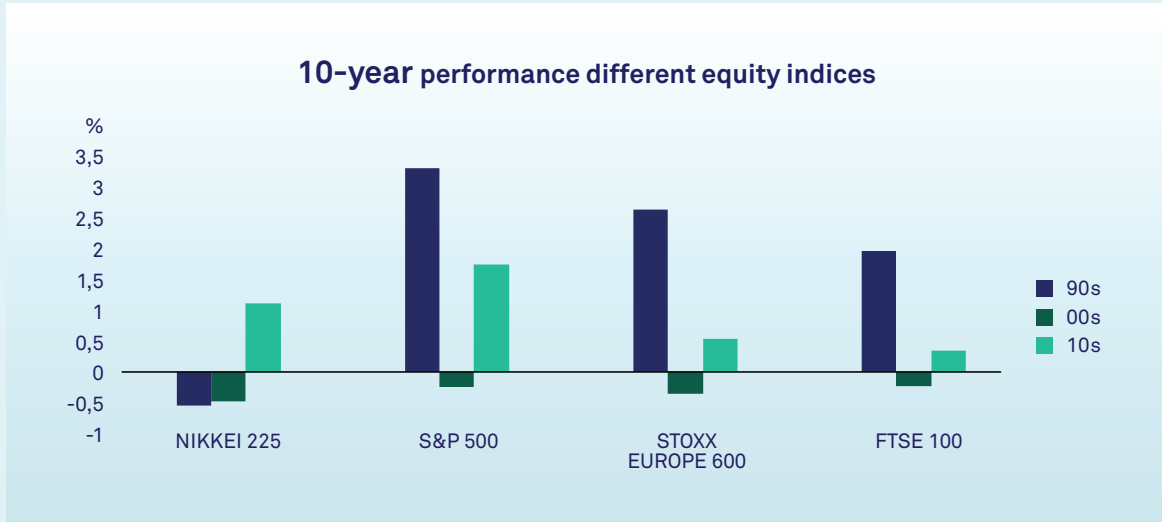
separate drivers, such as inherited wealth and wealth gains. By most standards, income and wealth inequality have increased worldwide over the past decades¹¹. Worldwide, wealth inequality has increased considerably since the 1970s, especially measured as the share of the top 1% (graph 3), and the same goes for income inequality.

There is no single explanation for rising inequality. Economic literature presents several reasons, which differ in importance over time and per country. What seems clear though, is that the combination of globalisation, deregulation and governments diminishing their distributive function has a very negative effect.

In addition, the lowering of corporate taxes in several countries led to a higher tax burden on households, which in turn had a negative influence on disposable incomes.

Deregulation, together with technological progress, opened the door for large (tech) companies to increase their monopolistic powers, which is one of the causes of increasing inequality. Market dominance in some sectors has increased dramatically over the last years¹². Large companies can suppress their workers' wages and squeeze out their suppliers thanks to their dominant market positions. The cost reductions thus gained are hardly ever passed on to clients.

GRAPH 4 - THE 2010S WERE BETTER EQUITY PERFORMANCE THAN THE 00S



Source: Refinitiv

Investors have good reason to ask: What is the problem? Equities and real estate, for example, performed a lot better globally than in the previous decade (graph 4).

GRAPH 5 - FINANCIAL ASSETS PERFORMED BEST IN THE 10S



Source: Refinitiv

This a limited perspective and investors should not forget that part of these returns could only be realised because of the financial crisis and its aftermath. In addition, the low interest rate environment inflated asset prices: taking more risk is the only way to get a decent return. This, ultimately, resulted in asset valuations becoming disconnected from real economic performance.

Low interest rates (because of failing policies) exacerbate inequality and inequality hampers both interest rates and growth. Accommodative monetary policies and low inflation inflate asset prices, as graph 5 shows. In the search for yield and over-liquidity, money goes where it can make more money and that is not in the real economy. Since asset owners are in general already the haves, asset price inflation leads to higher wealth inequality.

2.2 LOW INFLATION-LOW GROWTH – LOW INTEREST RATE

For many years already, we are stuck in an environment of low inflation, low growth, and low interest rates. Defying common economic theory by not creating growth (let alone greater wellbeing), the current environment gives capitalism a formidable reason to rethink itself.

In our view, there are several reasons why we are in this situation and why it is so difficult to get out of it:

1. Inequality
2. High debt
3. Adverse demographics
4. Sluggish productivity growth
5. Inflation dynamics
6. Monetary policy

1. Inequality

As already mentioned in the previous paragraph, inequality is one of the most prominent negative consequences of the standard policy concept. Persistent inequality leads to weaker economic performance. Inequality impacts an economy through various channels. The main channel is a reduction in investment, especially in human capital. Lower investment leads to a loss of productivity and lower economic growth compared to more equal countries. In the long run, the growth potential of an economy is directly related to investment returns.

Income inequality may also negatively impact real interest rates. Wealthier people save marginally more and borrow marginally less than the poor. The net impact of an increase in income inequality is the expansion of aggregate savings, simply because wealthier people have a higher propensity to save. These savings will hold back demand,



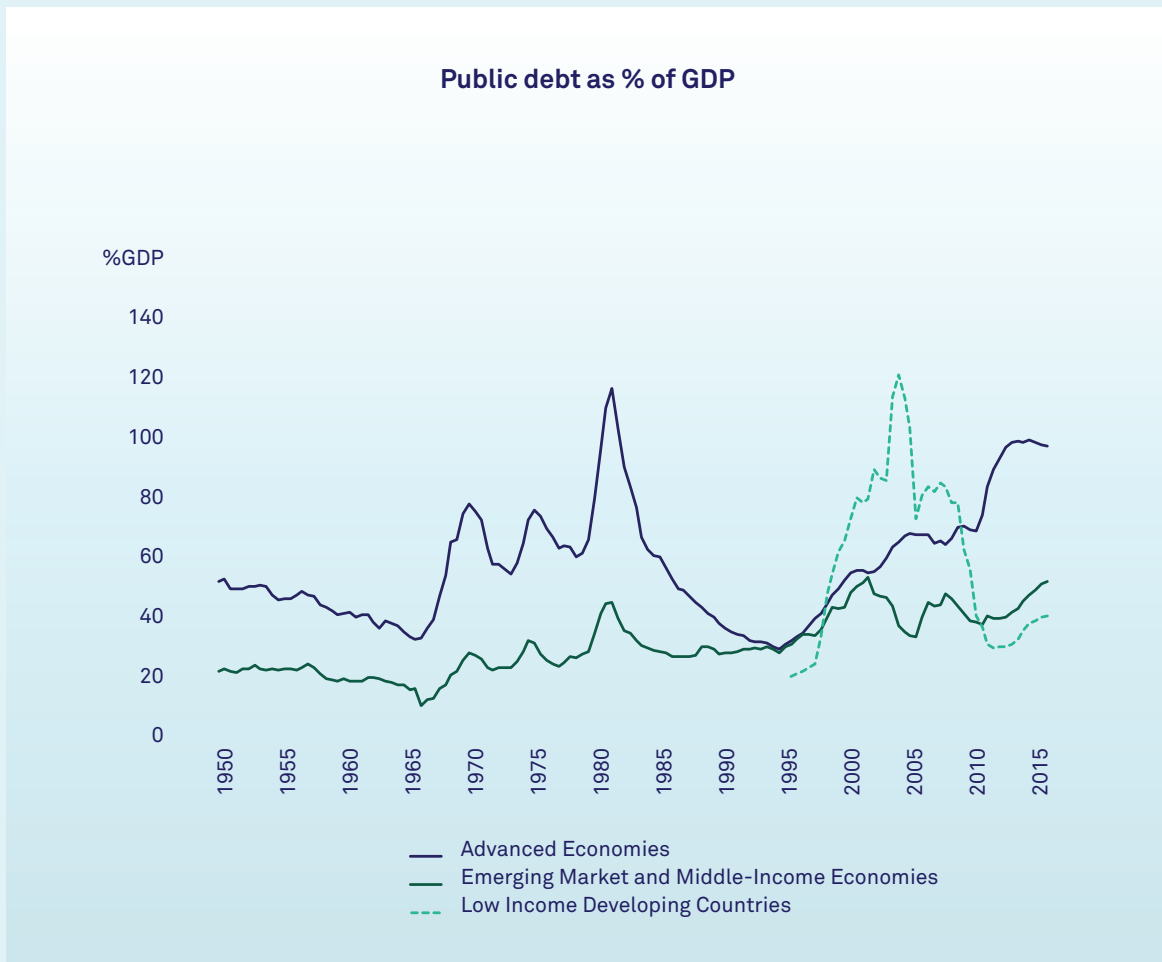
The idea of a non-growing economy may be an anathema to an economist. But the idea of a continually growing economy is an anathema to an ecologist



*Tim Jackson
British ecological economist*

reducing growth and inflation, and pushing down real interest rates. Lower real interest rates, in turn, have two important implications for monetary policy. First, they limit the conventional monetary stimulus option (lowering the interest rate) that can be provided in a downturn, making it more likely that central banks will have to take unconventional measures – as they were indeed forced to do in the past decade. Second, a lower neutral rate suggests that when policy rates normalise, they will likely converge at ever lower levels.

GRAPH 6 - WAR TIME LEVELS IN ADVANCED ECONOMIES AS WELL AS PUBLIC DEPT

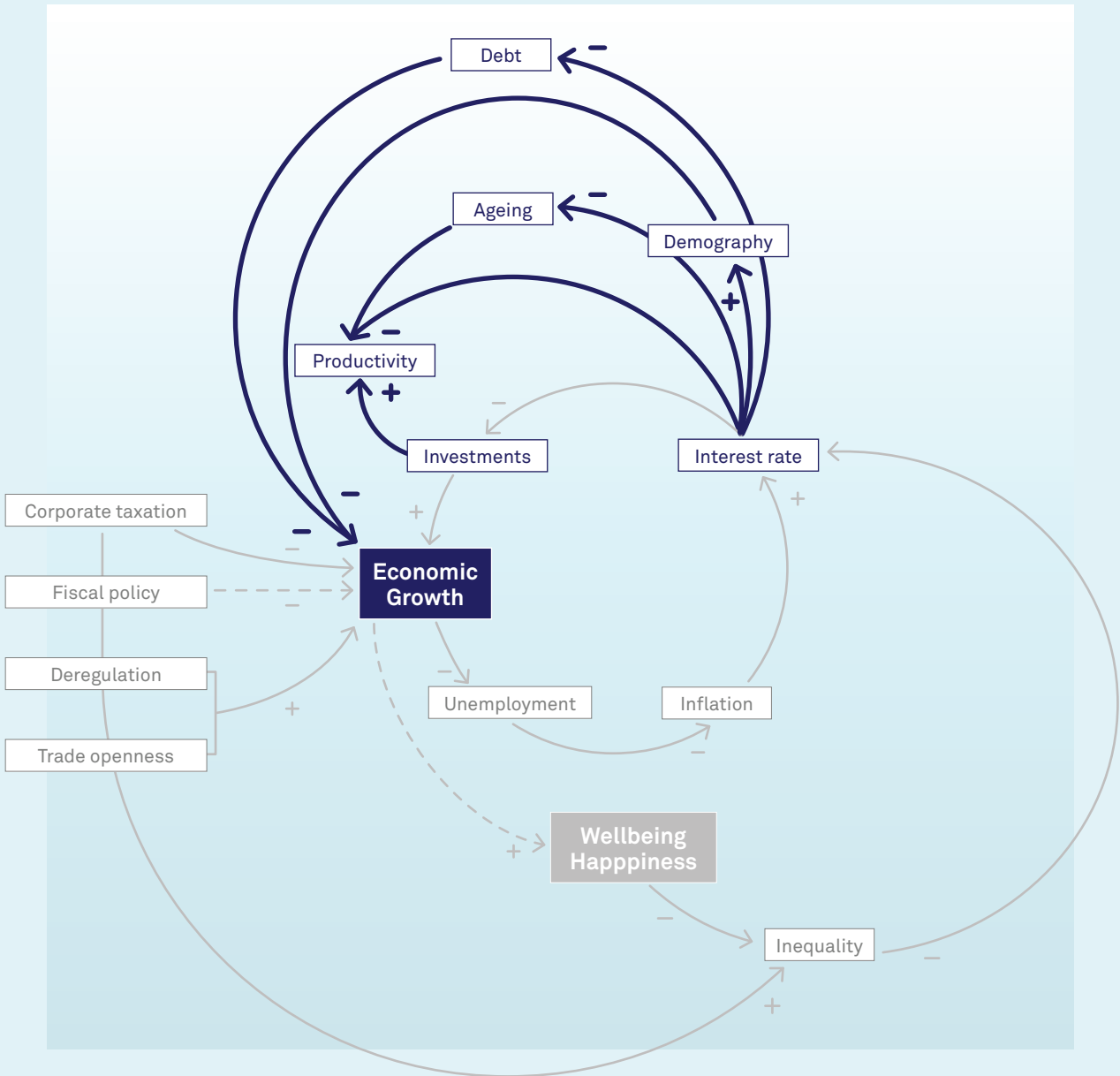


2. High debt

The world suffers from the highest debt level¹³ in modern history (graph 6). A major cause of this is the low interest rate; low interest rates have made debt more affordable. Debt has different forms and different effects on the economy. Sovereign debt does not have to be a problem, as governments are supposed to always be able to pay back their debt through the tax income stream of future generations. What matters is how debt is used for these future generations. If the debt level increases only to lower taxes or increase government

consumption for the benefit of current generations, at some point the effects will become negative. However, if higher public debt is used to invest in education, infrastructure or climate mitigation, future generations not only have the burden but also the benefits. It either saves money for future generations and/or increases their capabilities.

FIGURE 3 - LOW GROWTH - LOW INFLATION - LOW INTEREST RATES



One of the biggest mysteries in the current economic environment is the fact that productivity growth does not accelerate. This can be caused by aging, low interest rates or by lack of (productive investments). this, in turn, can also be caused by ample investment opportunities: low effective demand. In the mean time, low interest rates make debt financing ever more cheap. But if it does not lead to productive investments, it will be a drag on (future) growth.

Far more than government debt, corporate and household debt will limit growth if used to finance assets, rather than real economic activity¹⁴. High indebtedness with high asset valuation leads to a long balance sheet. When financial assets depreciate in value (and debt stays the same) a balance sheet recession occurs. This often happens in a financial crisis. Those with a negative balance sheet are not likely to borrow for expansion at any interest rate; they first must restore their balance sheet.

A lack of borrowers means that a significant portion of the newly saved and deleveraged funds that are entrusted to the financial sector will not re-enter the real economy and be used productively. This, in turn, means that those unborrowed savings become a leakage in the income stream and a deflationary gap in the economy. If left unattended, this deflationary gap will push the economy ever deeper into a (balance sheet) recession.

Low interest rates and high debt also negatively affect productivity. The number of zombie companies - a company unable to cover debt servicing costs from current profits over an extended period - increases in times with lower interest rates. These zombies weigh on economic performance because they are less productive, and their presence lowers investment in and employment at more productive companies¹⁵.

3. Adverse demographics

Population ageing leads to lower structural growth, especially in Japan and the eurozone. A slower-growing or even declining workforce contributed to lower growth during the last decade. This trend will continue in the coming years, leading to a further decline of structural growth rates.

In addition, population ageing usually leads to

higher saving rates, but also higher social and public health care spending, limiting productive investments. The higher savings rate is one of the most probable causes of the declining real interest rates¹⁶.

Worldwide demographic changes, in combination with globalisation and development of emerging economies, have led to a savings glut: an increasing number of people, especially in emerging markets, have enough income to allow them to save. Over the years, this has led to an abundance of savings, which in turn drove real interest rates down.

4. Sluggish productivity growth

The low productivity growth is one of the biggest mysteries of the past few years. Some reasons mentioned in the literature for this phenomenon, apart from the already mentioned effects of interest rates, are market power, inequality, skill mismatches because of technological progress, and measurement problems. On a microeconomic level, they may help explain a disappointing economic growth, but they fall short to explain the total productivity slowdown. Robert Gordon¹⁷ challenges the usefulness of new technologies and argues that these do not measure up to past industrial revolutions, implying that the reason for the productivity slowdown is declining technological progress. In this vision, lower productivity growth is a new reality that we simply must cope with. Several reasons can be found on the macro level for slowing productivity growth. Declining effective demand because of sluggish wage growth, inequality and financialisation may lead to reluctance of companies to invest. Tepid demand hinders creative destruction, the innovative process needed for productivity growth¹⁸. This argumentation comes close to the secular stagnation hypothesis that was reintroduced by Larry Summers in 2014¹⁹. He stressed the

possibility that advanced capitalism is facing long-term stagnation, echoing Alvin Hansen's worry in the aftermath of the Great Depression²⁰. The main tenet of this proposition is that after the financial crisis aggregate demand is simply too low. Because the interest rate has hit the zero lower bound, monetary policy is no longer effective. Fiscal policy might then help to assure full employment and financial stability, and thus deliver growth. There is still no consensus on this important topic, as different variables contribute to this low growth nexus. In terms of solutions there is less reason to worry. Social beneficial policies, ranging from investments in education, shaping markets for sustainable products and infrastructure and hence contributing to future social, human and physical capital is always useful, no matter if it beats the problem of sluggish productivity growth.

5.1 Inflation dynamics

Apart from low growth and low interest rates, there are other reasons why inflation is low. Accurate measuring of prices, primarily due to quality increases, is a classic but still relevant topic. Secondly, increased price transparency because of the internet has led to more competition and therefore to reduced ability to increase prices. Thirdly, international competition through increased trade and the splitting-up of value chains (sourcing products and product parts from all over the world) has led to lower prices for ordinary goods such as clothing and electronics. And lastly, 'free' online services (which are paid by giving your data) do not show up in the price statistics. All these elements may have led to structural lower inflation²¹.

6. Monetary policy

We are learning that, contrary to its objective, monetary policy can be detrimental to growth and stabilisation of the economy. Whereas too low interest rates are detrimental to growth, unconventional monetary policy, such as buying bonds in the secondary market, can disturb markets to extremes and risks are no longer priced in. Many markets are currently showing negative yields. If this accommodative monetary policy is not used to restructure and deleverage debts and to invest in productive assets, it will become a problem rather than solving one.

2.3 IS THIS ECONOMIC OR UNECONOMIC ECONOMIC POLICY?

According to standard economic theory ‘the economy’ is measured in terms of national accounts: economic growth, investments, consumption, unemployment. Yet, the National Accounts are fully unsuited to judge if an economic policy model works. It only measures, as explained in chapter 2, the flow in our economy.

During the last decade, economic policy was aimed single-mindedly at speeding up economic growth, as efficiently as possible, based on the assumption that economic growth equals greater prosperity and wellbeing for society.

We saw that it failed. It failed first and foremost, because economic growth was lower in the last decade than expected. It failed also because the realised growth can in no way be called efficient: accommodative monetary policy was abundant, credit growth also, but the resulting economic activity and especially underlying productivity growth, remained low.

It failed also because the side-effects in terms of inequality are getting bigger and bigger. The idea of ‘trickle-down economics’, the idea that increasing wealth of the rich eventually benefits the poor, has not become true.

Our economic model, also by its own standards, has become uneconomic.

“

We cannot solve problems by using the same kind of thinking we used when we created them.

”

*Albert Einstein,
Professor of Theoretical Physics
and Nobel Prize Laureate*

3 - The end of growth as we know it

The idea of limitless economic growth – whatever it takes – is deeply entrenched in mainstream economics. We expect the economy to grow.

If not, in a self-fulfilling prophecy, we run into trouble, as the GFC showed, with exploding public debt, contracting labour markets, and a growing number of bankruptcies. And although these are real problems that have to do with prosperity, these are also problems based on the institutional growth setup of our system: growth is necessary because that is how we define prosperity and, in turn, have built our system.

We cannot go on like this.

3.1 NEW GOALS AND REAL BOUNDARIES

It is widely recognised that our environment and social infrastructure are under enormous pressure, and that immediate action is required to meet these challenges. In 2015, the world community took two crucial steps. First, in September, the SDGs were adopted²². These 17 targets are the global policy strategy towards a more sustainable world. In December of the same year, world leaders gathered in Paris for the UN Climate Change Conference (COP21). The Paris Climate Agreements' central aim is to strengthen the global response to the threat of climate change. Limiting global warming this century to well below 2°C, and preferably to a maximum of 1.5°C above pre-industrial levels, is the main aim of the Agreement²³.

SDGs and climate agreement dominate many policy debates, also in the investment community. International bodies like the European Commission,

“

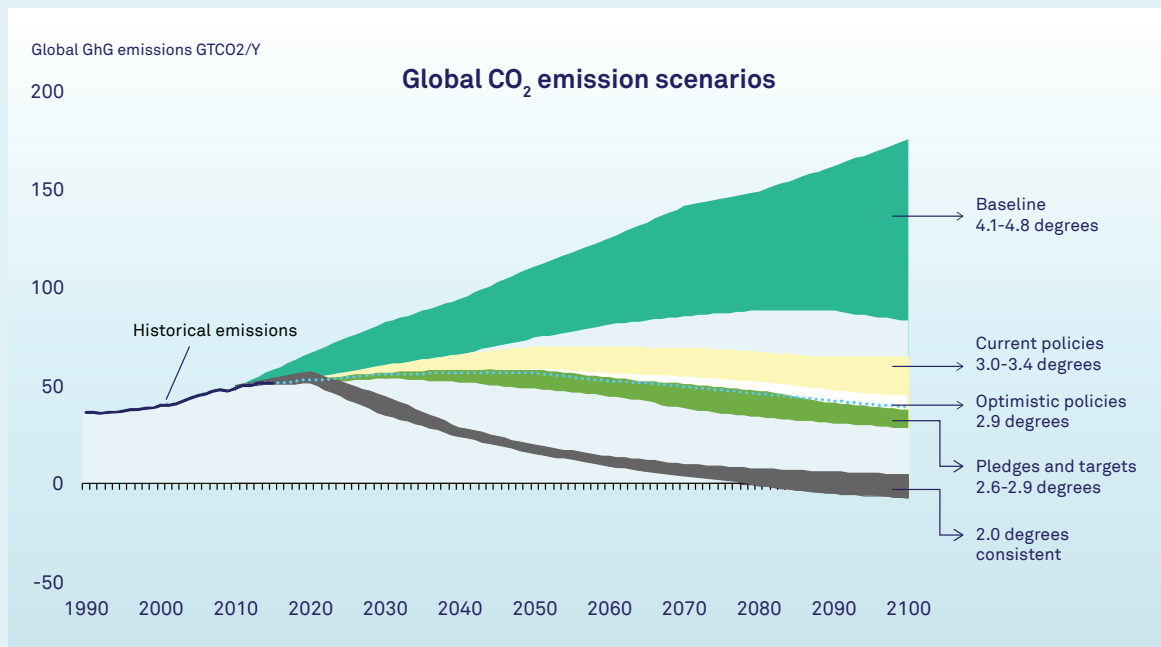
“Nature provides a free lunch, but only if we control our appetites“

”

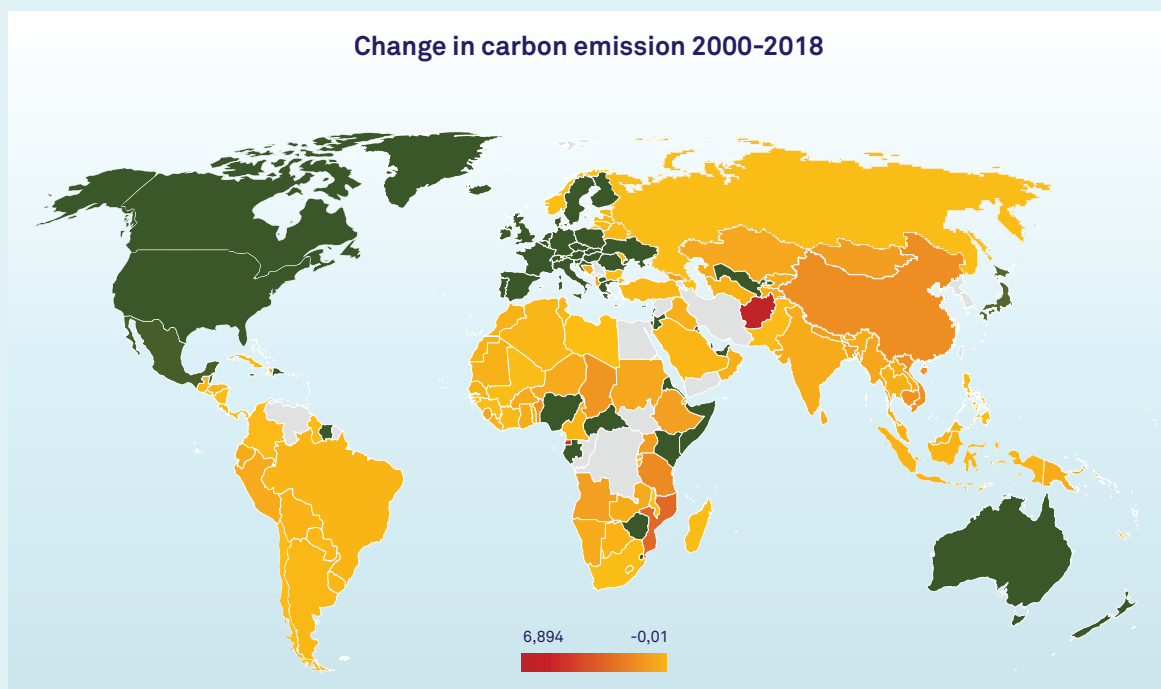
*William Ruckelshaus,
first head of the US
Environmental
Protection Agency*

but also different national governments, have made plans to decouple economic activity from resource use and limit the adverse effects on the economy. The concepts of ‘green growth’ and circular economy are among the suggested solutions. You would expect that this sustainability agenda would also be embedded in the economic agenda. However, these still seem to be separate worlds.

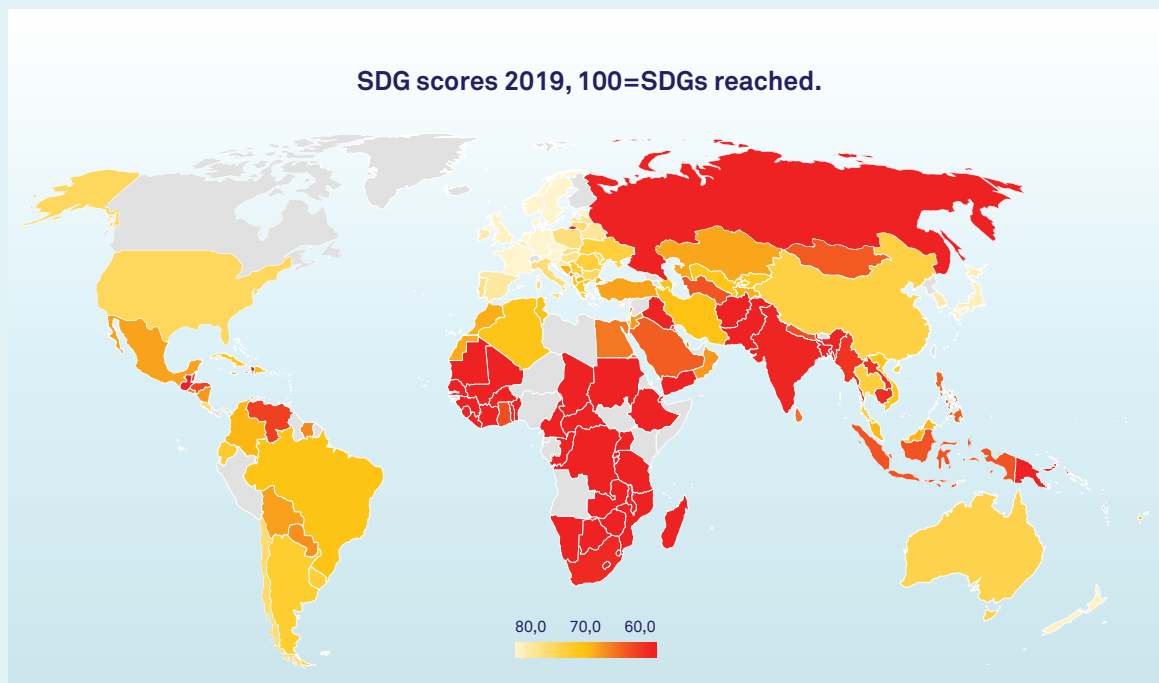
GRAPH 7 - WE ARE ON A TRAJECTORY TOWARDS MORE THAN 3 DEGREES GLOBAL WARMING



GRAPH 8 - CHANGE IN CARBON EMISSIONS



GRAPH 9 - HOW ARE WE DOING WITH THE SDGs?



This is why, despite our good intentions, we are not near the goals we set five years ago. There is growing evidence that we will not achieve them if we do not also transform our economic model.

Carbon emissions

An article²⁴ signed by 11,000 scientists states that the world is in a climate emergency in every respect. Although some countries have achieved a real decline in carbon emissions over the last 18 years (graph 7), the average world emissions are still rising (graph 8).

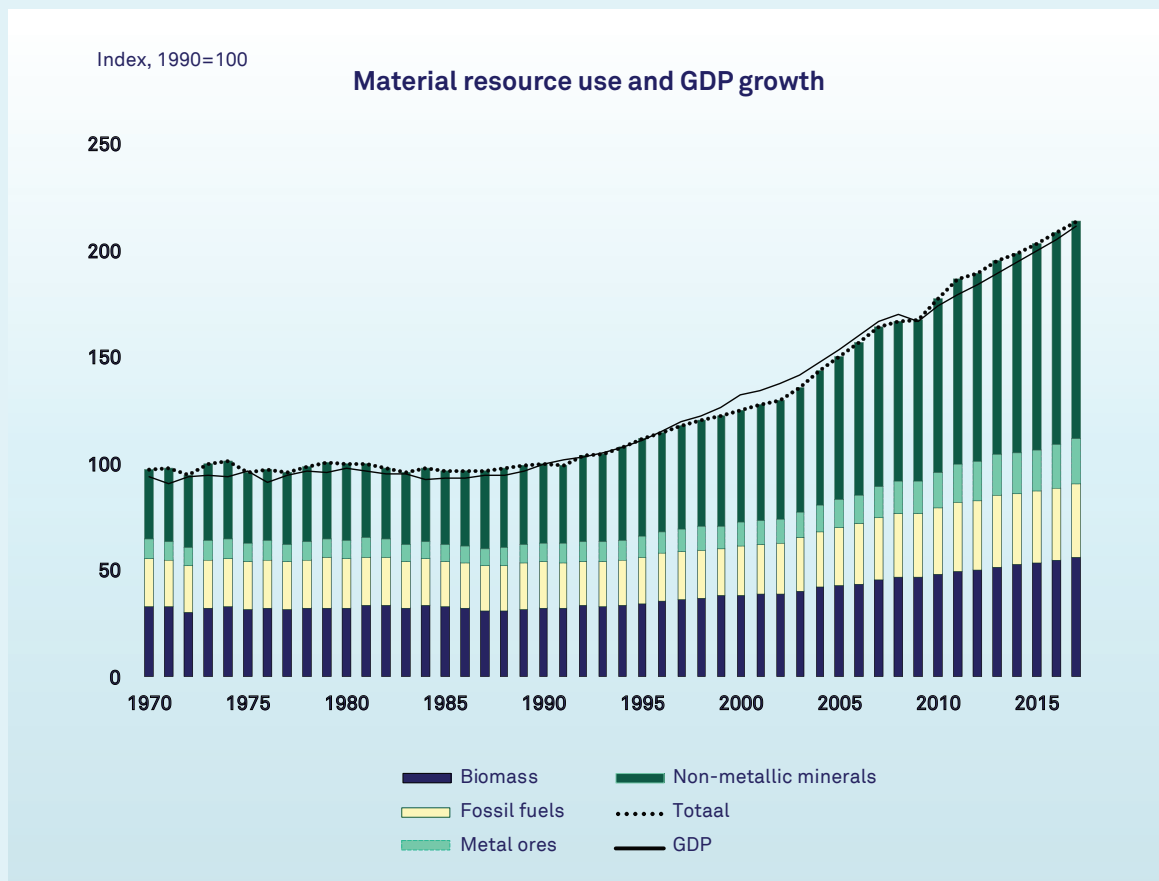
Current policies are projected to reduce baseline emissions and result in about 3.2°C warming above pre-industrial levels. The unconditional pledges and targets that governments have made would limit warming to about 2.9°C. The update of the IPCC report²⁵, published in 2018, shows that limiting warming to 1.5°C is possible within the

laws of chemistry and physics but that it would require an unprecedented transition of our society.

Social development

Fulfilment of the SDGs also proves to be very difficult. In a comprehensive evaluation of the progress to meet the SDGs²⁶, the authors conclude that no country is on track to achieve all 17 goals (graph 9). Even the top countries, mostly in Europe, have significant performance gaps on SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life below Water) and SDG 15 (Life on Land). Income and wealth inequalities are still a great challenge and the speed at which our climate is changing, and the world's biodiversity is diminishing, is alarming.

GRAPH 10 - CAN WE DECOUPLE RESOURCE CONSUMPTION FROM ECONOMIC GROWTH?

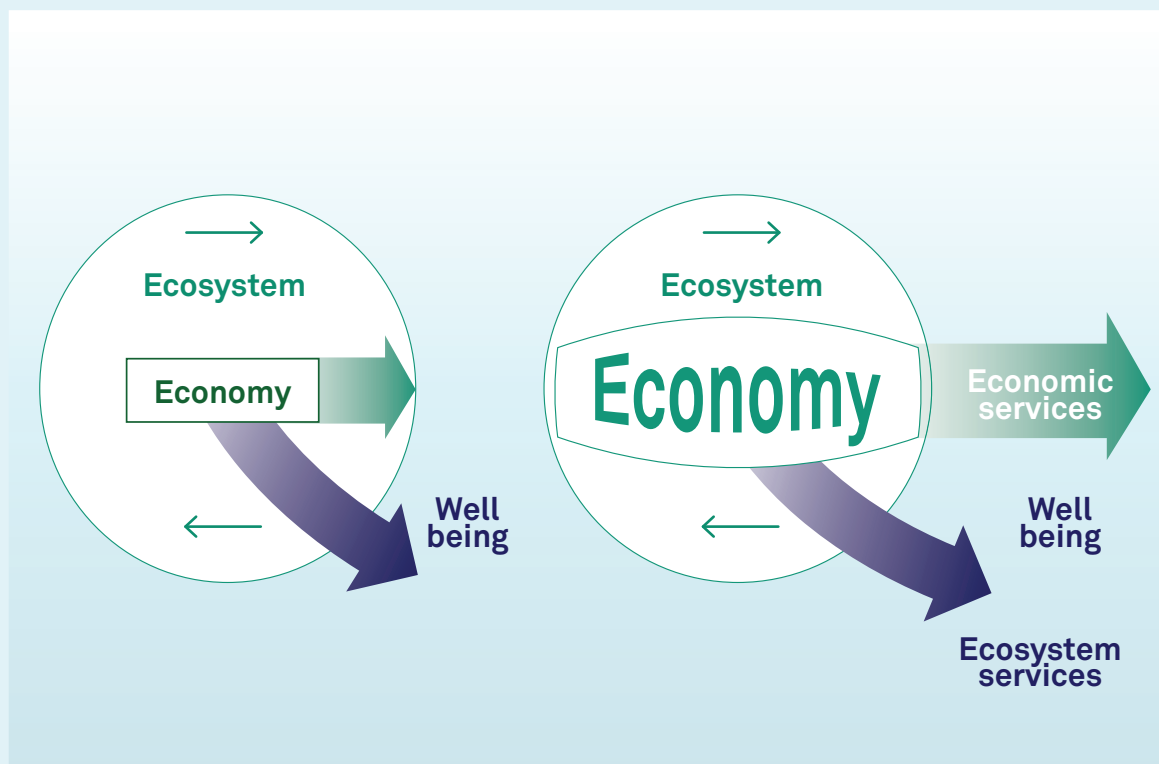


Circularity

In this century, economic growth has, on average, become more resource dependent. Our economy would become far more sustainable if economic growth could be decoupled from resource consumption. The concept of ‘green growth’ promotes this notion. This starts with more efficient use of resources and ends with trying to create a circular economy where the need for virgin resources is minimised. In the previous century, there was on average relative decoupling from resource use to GDP, but this has turned in the 21st century²⁷. It is not exactly clear why this

has changed, but it definitely highlights the fact that a transition towards a more services-oriented economy does not automatically imply that we use less resources. Economic growth has become more resource dependent (graph 10). Ever-increasing resource extraction is worrisome since resource use is the primary driver of CO₂ emissions, and both extraction and consumption have substantial effects on ecosystems. Also, the recent policies and practices in a circular economy have not yet led to more secondary use of resources, such as recycling. Currently, only 9% of the world economy is circular.

FIGURE 4 - EMPTY VS FULL WORLD VIEW



Based on Daily, 1996

3.2 ECONOMICS OF THE FULL WORLD

Within the scientific community, there are vast differences in opinion about the need for economic growth²⁸. Mainstream economists usually consider economic growth more important and are also more optimistic about the possibilities to reconcile this with climate goals (also known as green growth). In general, however, academics do not assume that continuous economic growth is possible while at the same time achieving the climate goals.

Even if green growth were possible, the whole world economy, and especially developed countries, will probably have to get used to lower economic growth than in the previous decades²⁹. Lower global population growth and structurally lower productivity growth³⁰ than before will lead, even without taking planetary boundaries into consideration, to lower growth expectations.

For ecological economists, these statements are nothing new. Herman Daly³¹, one of the founders of this economic school, introduced the concept of the empty and the full world (figure 4). The empty world view is the standard reductionist, mainstream economics approach. The ecosystem is, at best, a production factor, and there is no attention to the effects of economic activity on ecosystems. Technology plays a crucial role in this view. Not only has technological development facilitated the unprecedented growth of the world economy over the last two centuries, it will also solve the unintended consequences of our system.

But this is simply not the whole truth. What actually happened is that human energy, or labour, was substituted by fossil energy, or natural labour. A barrel of oil contains the equivalent of 10,000-25,000 hours of human labour. Hence, it was not technological change as autonomous factor, such as the invention of the steam machine and later combustion engine but substituting human power with power of nature by means of technology that drove economic growth.

For many years now, there has been debate between supporters of very different world views. The proponents of 'green growth' believe that technology can solve the problems without a radical change of a system committed to affluence and growth. These so-called eco-modernists claim the most outspoken position in this debate in their 2015 Ecomodernist Manifesto³⁴. The green growth theory asserts that ongoing economic growth is compatible with our planet's ecology. The hope is that technological change and substitution will allow us to fully decouple GDP growth from resource use and carbon emissions. This claim is also underlying the Sustainable Development Goals and the calculations by the Intergovernmental Panel on Climate Change.

The advocates of economic transformation, on the other hand, argue that only radical change to a very different, post-consumer, post-capitalist society can solve the big problems. This position is in line with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services and European Environment Agency statements, while most policymakers and investors advocate some form of the ecomodernist position.

The IPBES³² report on biodiversity, published in May 2019, clearly states that:

“

A key component of sustainable pathways is the evolution of global financial and economic systems to build a global sustainable economy, steering away from the current, limited paradigm of economic growth

”

The report of the European Environment Agency³³, published in December 2019, has almost the same message:

“

To be clear, Europe will not achieve its sustainability vision of 'living well, within the limits of our planet' simply by promoting economic growth and seeking to manage harmful side-effects with environmental and social policy tools.

”

3.3 THE END OF GROWTH

Yet, there is no evidence that growth can continue without harming the ecosystem even more³⁵. Although decoupling from carbon emissions is possible and already happening in Western economies, absolute decoupling of resource use has until now not been possible anywhere in the world. In addition to that, globally we have not reached absolute decoupling from carbon emissions. This would require unprecedented technological progress, the signs of which we have not seen so far.

In our view, we need to look at economic processes from a holistic perspective: what do they deliver in financial, ecological and social terms? Economic processes can only be economic if the results are 'net positive' within ecological boundaries and social thresholds.

But we should stop using it as a measure of wellbeing or as a central policy goal. We should also stop using GDP forecasts, based on mainstream economic theory to steer our economy. Models based only on the concept of 'the economy' as defined by national accounts will in no way help to solve the greatest challenges of our time.

It is certain that if we take our planetary boundaries seriously the end of growth as we measure it will be the consequence. But degrowth, defined as trying to create an economy within ecological boundaries, does not necessarily imply no economic growth (after a reset) at all.

The composition of economic growth will be substantially different in a more sustainable economy. In the Western countries, we would have to pay more for our food. We probably would also have to pay more for clothing and other

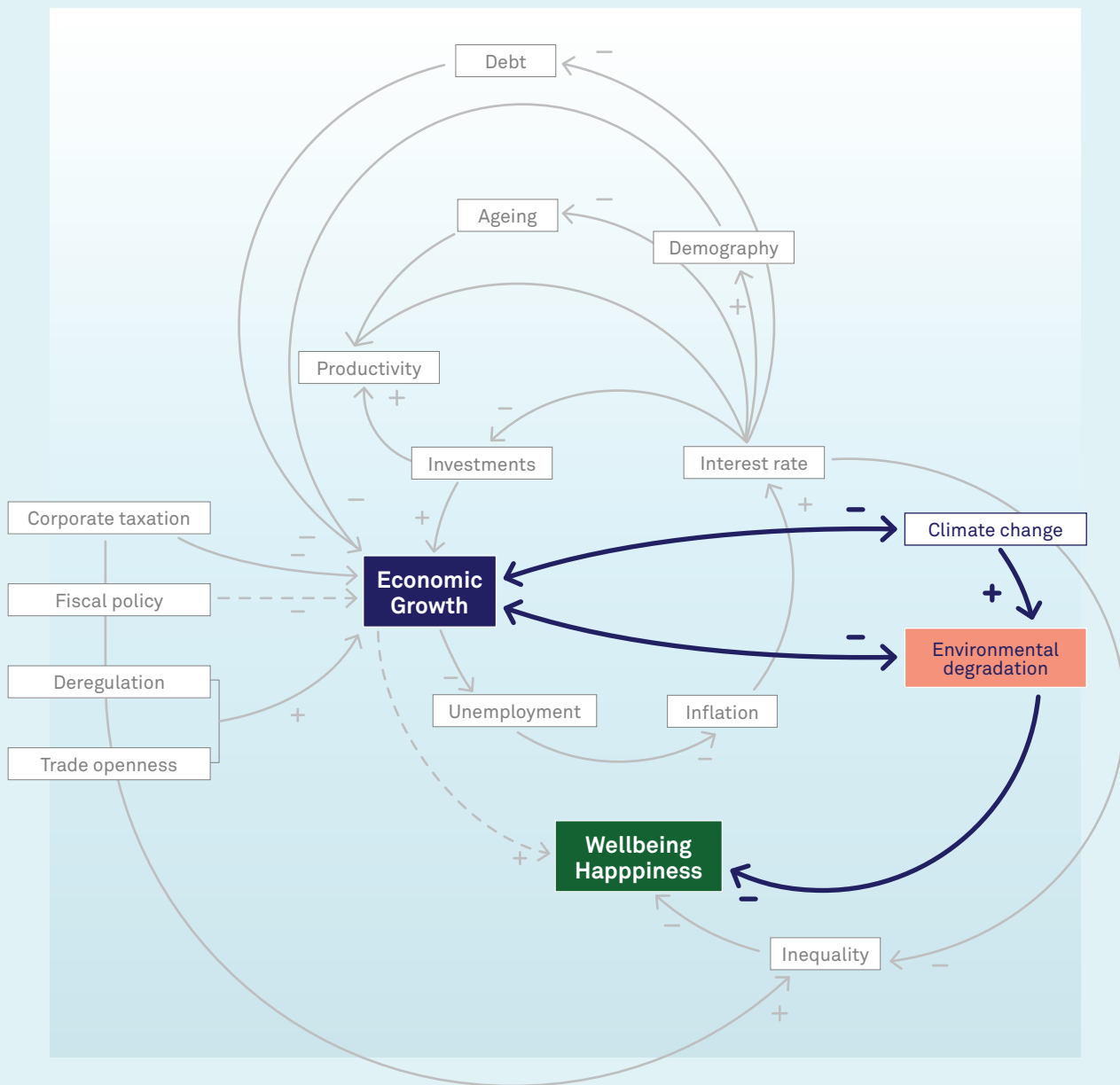
consumer goods that are now produced with significant unpriced externalities. And we need more investments in for instance sustainable infrastructure³⁷. Ultimately, we need to create a circular economy that leads to a lower use of primary resources. We should shift our economic system from efficient production of goods, towards optimal use of products and extending their lifetime. This will result in less consumption in terms of GDP (less goods will be sold on markets) without losing any wellbeing (because the utility retrieved from goods increases). And this is probably not all. Redistribution within and between countries is also necessary to create a global sustainable economy.

World society needs to find a balance between planetary boundaries³⁸ and social foundations. This balance has been accurately described by Kate Raworth in her book Doughnut Economics³⁹. No country is anywhere near this place: either the social foundation is too thin, or the planetary boundaries have already been crossed⁴⁰.

We have reached point of no return; passing this will lead to irreparable damage and grave consequences for life on earth⁴¹. Acknowledging that our imperfect economic system with its many damaging side-effects has brought us here, must lead to only one conclusion:

It's time to change direction.

FIGURE 5 - BIOPHYSICAL BOUNDARIES



Economic activity has serious negative effects on our ecosystem economic activity leads to environmental degradation through pollution, soil degradation, pesticides, land grabbing, et cetera. Climate change is one of the most visible and pressing issues. These 'side-effects' also feed back into our economic system by means of the effects of extreme weather on economic growth, a shift in investing towards climate mitigation and adaptation, without adressing the core of the problem.



Looking forward:
a radical agenda
for economic
transformation

Part 2

Looking forward: a radical agenda for economic transformation

From the previous chapters should be sufficiently clear that we urgently need to transform our economic system. This will not be an easy task. Gradually adapting the existing system by doing things less bad is not enough. Radical change is required.

In this chapter, we present three steps to bring about this change:

- > **Redefine progress**
- > **Revalue what is important in the economy**
- > **Redesign our economic system**

The transformation we envision, requires commitment on all levels. Policymakers will have to create the right institutional circumstances. Producers will have to change the way they do business, consumers will have to change their spending patterns. In our view, the financial sector plays a crucial role. Allocating the capital for change is a powerful and necessary task to realise real change.

“

Throughout the modern era, ceaseless change has been the law of economic life. Every period is in some sense a period of transition.

”

*Alvin Hansen⁴²
Professor of economics,
Harvard*

4 - Three proposals

From what we have written so far, it should be clear that a transformation of our economic system is necessary. The damage it does is currently larger than its benefits. Capitalism must reinvent itself, through evolution, rather than through revolution.

Reinventing is using common sense to address the main issues of our time, using old and new ideas that have already been written down numerous times and to have the right compass to achieve progress. A transition towards a common sense, regenerative economic model. We must redefine progress, revalue the way we live, cooperate and communicate and redesign our economy. Capitalism must reinvent itself through evolution, rather than through revolution.

4.1 REDEFINE PROGRESS

From the preceding pages it should be clear that the mainstream policy agenda according to the Washington Consensus, as described in chapter 1, is dead. As an explicit policy objective, undirected and uneconomic growth is outdated. Redefining progress in a market economy is essential to broaden the public and corporate agendas with vital aspects of wellbeing, such as health, social relations and balanced ecosystems. These are not mere by-products of economic growth but should be regarded as explicit purposes/targets. A lot of effort has already been made to try to replace GDP and many alternative indicators, dashboards and methods have been developed that go beyond GDP. Several countries, such as Bhutan and New Zealand⁴³, as well as think-tanks like the OECD are searching for and experimenting with alternatives⁴⁴. Despite the great number of alternatives, however, none appears powerful enough to replace GDP.

Dutch economist Rutger Hoekstra therefore suggests a strategy to replace GDP by 2030⁴⁵. Acknowledging the different approaches towards wellbeing with their different pros and cons, he proposes a coordinated strategy to develop an alternative approach to replace GDP. In fact, he proposes to extend the system of National Accounts with measuring everything else that matters, ranging from environment, society, to distribution and the quality of life. Looking at the history of GDP, this cannot be anything else than an evolutionary process.

We support this position, as we do not have the time to wait for a new unifying indicator. The urgency of global warming, the loss of biodiversity biodiversity, rising in inequality, and moreover, the fact that a transition towards a more sustainable economy is not going fast enough, requires temporary fixes to replace GDP.

Redefining how we think about progress in a market economy is essential to broaden the policy and corporate agendas so that it encompasses all vital aspects of wellbeing. We suggest the following combined alternative for GDP (see figure 6), based on:

1. the framework of ecological boundaries⁴⁶ as the hard, non-negotiable boundaries for economic activities. The easiest one to start with is the carbon footprint of countries and companies. We have the Paris Agreement and a clear carbon

budget for the global economy. The other eight planetary boundaries are also known⁴⁷ and can be made concrete for countries or companies and local or regional scale.

2. the achievements of SDGs as an indicator for wellbeing of a country. This is the global strategy for wellbeing in 2030. Try to optimise SDGs, keeping an eye on the inherent trade-offs, where, again, ecological boundaries must be respected.
3. As important indicator for production aligned with the other goals, GDP can still be used. In the same spirit, profits and financial accounting frameworks for companies will and should be used, supplemented with other frameworks.

On both country and company level, this combined set of indicators will help policymakers to find the balance between ecological boundaries and social foundation. A holistic view on wellbeing does more justice to the inherent complexity of the interaction between the ecological, social and economic dimension of sustainability.

4.2 REVALUE THE ECONOMY

Public policies should reflect the common shared values in each society. Institutions and policy goals should be designed to meet those shared values. We expect a lot from markets in terms of value-creation and measure much in society by costs, benefits and profit. Hence, we also (implicitly) believe that markets will deliver the optimal results in terms of social values. Price-making markets are central in the mainstream belief that through pricing efficient solutions for every societal goal can be found⁴⁸. Values such as trust, however, cannot be bought in the marketplace. As they have no market price, they are considered to be worthless. To us, however, trust is essential for economic development, as it determines the

accumulation and the efficient use of physical and human capital, the ability to invent and adopt new technologies, the efficiency of institutions and governmental performance, and size and specialisation of markets. But trust is also a value in itself. Trust helps to restore security, strengthens interpersonal relations and helps to build up societies without using markets. Working together on a shared purpose can only thrive with trust as underlying value.

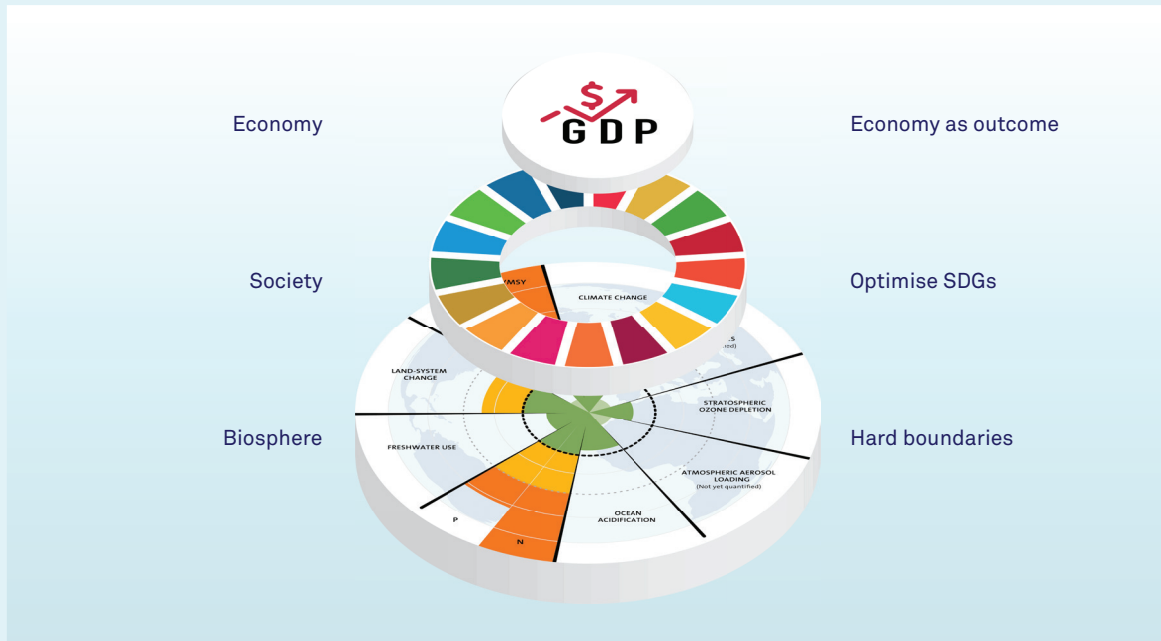
Values should be a more integral part of our society. All (inter) actions of economic agents such as producers, consumers, governments are always intended to achieve a normative goal. The strong claim from standard neoclassical economics is that prices in (perfectly working) markets reflect the normative choices (values) of all actors in society. Maximum social welfare (utility) is then achieved when everyone pursues their own self-interest (maximise personal utility). In theory, utility maximising agents rationally interact with each other to maximise the fulfilment of their needs over a certain timeframe. In practice, however, this is not how it goes. We do not always behave in our own self-interest. We do not always have or take the time to 'optimise', because we are busy with our day-to-day concerns. Sometimes we even think self-interest is unfair. And quite often we are just short-sighted and do not consider the long term. But in all cases, we want to live up to our implicit moral values.

Different methods, no unifying success⁴⁹

Several methods have been developed to capture wellbeing, all related to different schools of economic thought. They can be classified into six groups:

1. The ***monetary approach*** is the most closely linked to neoclassical economics and welfare economics. Based on adjusted GDP calculation of GDP, it takes factors such as the depletion of natural capital into account. An example is the Genuine Progress Indicator (GPI).
2. A more detailed version of GDP adjustments in terms of flows is the ***capital approach***, to which an intertemporal dimension is added: the value of all resource types of society is counted. Examples are the Inclusive Wealth Index (IWI) and the Index of Sustainable Economic Welfare (ISEW).
3. The ***capability approach*** is based on the work of Nobel Laureate Amartya Sen and puts personal capabilities, or options at the centre. This idea is (rather poorly) translated into the Human Development Index.
4. The ***subjective approach*** uses indices based on subjective data or questionnaires to measure happiness or life satisfaction. Examples are the Life Satisfaction index, the day reconstruction method, the Gallup Global Well-Being Index or the Happiness index. This methodology can be problematic, as outcomes can be interpreted differently across groups and time.
5. Many of the current indices do not have a clear theoretical underpinning. This can be called the ***hybrid approach***. They are based on a general idea or theory, but finding the right data or measurement is often hard. They use objective and subjective data together, sometimes as a dashboard and sometimes as a single indicator. Most publicly available measurements fall into this category, such as the Happy Planet Index (HPI), Better Life Index (BLI), Index of Economic Well-Being (IEWB), Legatum Prosperity Index (LPI), World Happiness Index (WHI), the Social Progress Index (SPI), and the Sustainable Society Index (SSI).
6. For some elements of wellbeing, especially on the ecological side, limits and benchmarks can be used. Examples are the ecological footprint, planetary boundaries and as benchmark the Mean Species abundance. Kate Raworth⁵⁰ has used such an approach as the outer side of her doughnut. These approaches are categorised under the denominator ***limit approach***.

**FIGURE 6 - POLICY GOALS FOR WELLBEING:
HARD BOUNDARIES AND SDG-OPTIMISATION**



Source Triodos

Strong public policies and responsible companies

Knowing all this, we simply cannot leave everything to markets. There is no guarantee that markets give the outcomes that agree with our collective values. Especially if there is a need for transition to meet long-term sustainability challenges, we need clear and strong public values. Public policies should be and must be more active and directed at the great transitions. This notion derives from the work of Italian-American economist Mariana Mazzucato⁵¹. A government is, in essence, not neutral. Public policies have societal and political objectives and are guided by politicians. But ultimately, in capitalist societies, (free) markets must deliver those objectives. If they do not, economists call it market failure. Mazzucato argues that there is no way to be sure that a (perfectly working) market will deliver values that are consistent with the political objectives. Hence, markets should be directed through cooperation, public investment, and more activist industrial policies. Such an approach helps

to steer economies in the right, more sustainable direction and to create effective demand. In the longer run, this could create market opportunities, also for investors, that are currently not yet exploitable. Think of public investments in public energy infrastructure, fundamental research on sustainable technologies, etc.

Also required are companies with a broader sense of responsibility. The leading idea has long been that the main – or only - purpose of business was to maximise shareholder value. Most explicit on that point was American economist Milton Friedman in 1970, stating that the social responsibility of business is to increase profits⁵². This is changing, for example with the American Business Roundtable redefining the purpose of a corporation to promote “...an economy that serves all Americans”⁵³. Also, a lot of businesses commit themselves to carbon emission reductions in line with the Paris Climate Agreement⁵⁴ and more and more companies report how they contribute towards the SDGs. In addition

to that, a growing number of companies (currently more than 3,000 globally) declare that they want to be accountable on how they balance purpose and profit⁵⁵.

4.3 REDESIGN THE SYSTEM

Having discussed purpose and values of a 'new' economy, it is now time to discuss how to redesign our system in such a way that we get out of the low-low nexus and make our economy more sustainable. We envision nothing less than a real sustainability transition: a systemic shift in our complex uneconomic system towards an economic, sustainable economy.

The outcome must be an innovative, circular economic system; a system in which material input and waste are minimised and all products and parts produced are used for as long as possible. We need a socially inclusive system within biophysical boundaries.

A multi-fold transition is therefore needed to develop such an economy. Read our white paper 'Impact investing through listed equities and bonds'⁵⁶ and our vision papers 'Towards a low carbon economy'⁵⁷ and 'Towards ecologically and socially resilient food and agriculture systems'⁵⁸ for additional information on the multi-fold aspects of this transition.

If we take one step back, the transitions that are needed on a systemic level are:

1. A shift from an economy based on fossil fuels to one based on renewable energy. This should not only include stepping up the production of renewable energy, but also electrification of transportation, energy saving and energy efficiency and new energy infrastructure, including energy storage.
2. A switch from meat-based food consumption to plant-based foods, reducing the global consumption of animal products.
3. This includes a transition of our global food system from a system directed at efficiency, quantity and extraction, towards a sustainable, circular food system aimed at **sufficiency and regeneration**.
4. A shift from a transaction-based economy towards a use-based economy: it is not the possession of products that gives value, but access to and use of them. One of the quickest ways to create a more sustainable economy is to use all the products that are made more efficiently. If we can make that shift by using circular principles, it will save enormous amounts of resources.
5. A shift from an extractive, specialised economy to a regenerative, resilient economy. Doing less

harm is not good enough. We must protect and restore the earth's ecosystems. The damage done to the earth's ecosystems requires business models that regenerate it, ranging from deforestation, purifying water towards increasing pollination. It also requires diversity in our economic system: different types of business models, different sizes in a complex and connected network. Economic resilience is, as in nature, helped by diversity.

6. Our goals need to shift from steering at monetised values (such as GDP growth) in a reductionist way and the pursuit of individual affluence to sustaining ecosystems and improving human wellbeing by prioritising basic needs of communities in a values-based context using a holistic approach.
7. The world is more prosperous than ever, but not everyone benefits. Our current economic system is unequal and hence not socially inclusive. Shared prosperity can be boosted by the **redistribution of material wealth** and leads to more social inclusiveness.
8. Behind these transitions lies a fundamental discussion: size and growth of the world population. This is a very difficult discussion, but one that cannot be ignored.

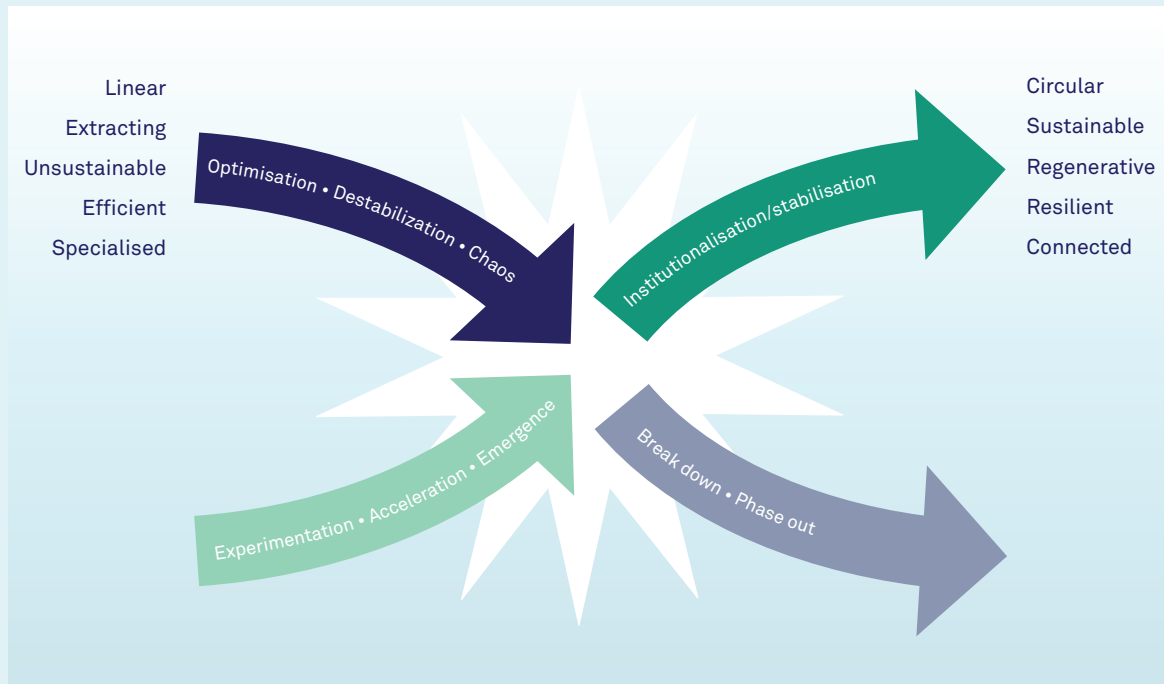
2010s

1. Fossil
2. Meat-based
3. Extracting
4. Transaction-based
5. Efficient markets
6. Specialised
7. Optimised
8. Monetised
9. Inequal
10. Reductionist

2020s

1. Renewable
2. Plant-based
3. Regenerative
4. Used-based
5. Sufficient markets
6. Connected
7. Resilient
8. Values-based
9. Inclusive
10. Holistic

FIGURE 7 - TRANSITIONS



Source: Loorbach et al. (2017).

TRANSITIONS

Transitions require systemic change in society. Systemic change is the result of an interplay of a variety of changes at different levels and in different domains in society that interact and reinforce each other to produce a fundamental qualitative change in a societal system. The notion of transition thus refers to a qualitative change in the state of a complex system.

Different phases and developments can be distinguished in a transition (figure 7).

Societal transitions are iterative processes of building up and breaking down over a period of decades. In a changing societal context, established regimes (dominant configuration) develop path-dependently through optimisation. This is what we call the mainstream global economy. At the same

time, change agents start to experiment with alternative ideas, technologies, and practices in so-called niches. Over time, pressures on regimes to transform increase, leading to destabilisation as alternatives start to accelerate and emerge. The actual transition is a chaotic and disruptive process and new combinations of emerging alternatives and transformative regime elements grow into a new regime. In this process, elements of an old regime that do not transform are broken down and phased out.

Most transitions do not develop in an evolutionary way, but have large, disruptive shifts which are nonlinear and often exponential. And although disruptive, path dependency and lock-ins in systems are very relevant.

5 - How to finance change

We have two challenges on our hands, which need to be accomplished together: we must make our economic system more sustainable and at the same time rethink and transform our current system. The first is not possible without the second. Our destination – only ten years from now - is the SDG 2030 agenda.

How do we get there? Given that our current policies and the way we finance are often uneconomic, undirected and sometimes unnecessary, we need radical change. Based on our diagnosis, as described in the previous chapters, we present four therapies in this chapter that may help cure the patient. Even though we cannot claim that they are the ultimate remedy, we should start the treatment immediately. There is no time to perform long trials.

The whole of society must contribute to this transformation. In this chapter, however, we focus on the public and financial sectors. The first because policymakers determine the institutional environment, the second because banks, insurers and asset managers determine for a large part where and how the enormous amount of capital needed for the transformation will be invested.

5.1 WITH A LITTLE HELP FROM POLITICS

As they can either obstruct or stimulate transitions, policymakers play a pivotal role in any transformation. Several straightforward, but politically sensitive measures can be taken to accommodate the transformation.

Carbon tax

To mitigate climate change, we must set a global carbon tax as soon as possible. All other measures to combat climate change are inferior, both in terms of efficiency and impact. The IMF recently calculated that a global tax of USD 75 per person would help to reach the 2°C target and help to create a mature and rapidly growing market for renewable energy⁵⁹. A carbon tax would be a clear signal for investors. Coherent, predictable and uniform policies on carbon pricing give investors the clarity that certain assets will indeed strand in the future. It will lead to a level playing field for renewable energy value chain and will provide excellent and profitable investment opportunities.

Rethinking monetary policy

Monetary policy must be rethought. Current inflation targets for central banks based on consumer prices should be reconsidered. As long as central banks hang on to the idea that price inflation must go up, there will always be an argument for further easing of monetary policies - with all the attendant consequences, as described before, except the intended goal: accelerating inflation. Price stability will always be a target of monetary policy but should never lead to asset price bubbles. A broader mandate for central banks on general price stability (including asset prices) would therefore be helpful.

As for unconventional monetary policy: it should never hinder any transition towards a more sustainable economy but preferably contribute to it. The ‘market-neutral’ approach of the ECB’s corporate asset purchase programme is an excellent example of a lack of vision in this regard. Through targeted purchasing of corporate bonds, the ECB could have fostered low-carbon production, thus stimulating and accelerating the transition to a low-carbon economy in the eurozone. But by proportionally buying a market portfolio of corporate bonds across all sectors, it also supports many fossil fuels companies, thus entirely neglecting its (indirect) impact on climate change. This was acknowledged by Christine Lagarde. In her first public appearance as president-elect of the ECB, she called for a ‘greening’ of EU monetary policy, stating that climate change is one of the most pressing global challenges facing society today⁶⁰. According to Lagarde, the environment and climate “must be at the core of the mission” of any institution. Central banks around the world urgently need to rethink their mission. Instead of being part of the problem, they should play an essential role in creating more sustainable economies.

Reducing inequality

As explained on page 17, inequality is a severe problem of the current capitalist system. Inequality begins with the ‘winners-take-all’ markets that have become more and more normal. Too much power of large companies will, in the end, disrupt our economic system. Countering inequality therefore begins by limiting market power. More stringent anti-trust regulations, more diversity in different sectors in terms of business models will lead to more competition and create markets that are better at delivering wellbeing for all. In addition, more active policies to limit differences in remuneration between capital

and labour and between wage earners should be considered. Number one on this list is some form of ‘predistribution’: letting workers share in the profits of the firm⁶¹. Other measures such as inheritance taxes, corporate taxes and limiting tax havens are logical candidates.

Be prepared

Policy makers must understand that it is impossible to manage business cycles completely. Lowering policy rates by central banks, expecting to thus be able to avoid the next recession has never worked and never will. It is better to prepare for the next economic downturn and do so with policies that are not based on the expectation that growth will go on forever. It is very clear that the world economy is cooling off⁶².

There are two obvious things that policymakers can do. The first is to pursue long-term policies that address the problems of our time - climate change, biodiversity loss, inequality - thus fulfilling the promises they made in Paris (on climate mitigation) and New York (on the SDGs). Long-term government commitment would also stimulate investors to contribute, because it reduces risks for investments. In addition to that, government investments and regulation can help to create new markets for sustainable products.

The second one is to help households and companies to become more resilient to economic downturns. We have seen during and after the 2008 financial crisis that implementing austerity measures when an economy is already in recession aggravates the social problems associated with financial crises.

How this can be done differs per country. One option is to broaden the tax base and/or shift taxes from labour to profits or resources. Another option is to set clear budgetary rules that do not lead to extreme austerity measures in severe economic downturns. Sometimes this means sobering tax schemes that encourage debt financing. Or it means broadening social welfare programs or increasing employment benefits or public schooling programmes.

5.2 FINANCE CHANGE

A sustainability transition requires policymakers to change the rules and set the right regime – the institutional context in which companies and finance operate. The enormous investment agenda makes the financial sector a crucial player. USD 5-7 trillion dollars annually is needed to fund the energy transition, and according to the UN, USD 2.5-3 trillion is needed to fund the SDG agenda. This implies 4-15% of GDP (depending on the country) and is by far the biggest investment opportunity in the years to come⁶³. And, in the energy transition a lot of capital should be allocated towards renewable energy, energy efficiency and energy innovation. According to the IPCC annual investments in low-carbon energy technologies and energy efficiency must be upscaled by roughly a factor of six (range of factor of 4 to 10) by 2050, compared to 2015⁶⁴.

Capital with a purpose

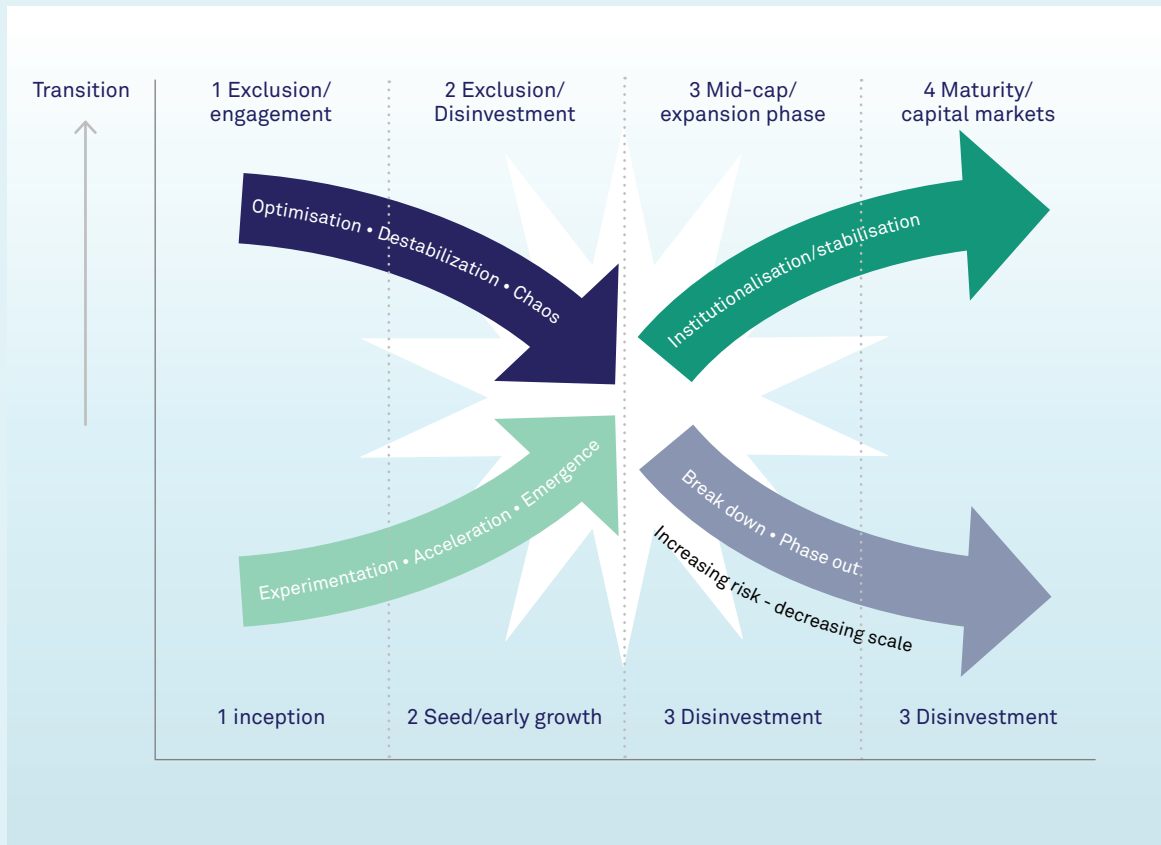
Capital is not neutral. Every investment has an impact. Figure 8 shows how you can look at markets from a transition perspective. Sustainability transitions can differ from a financial perspective per type of investment and markets. But in general, mechanisms are the same. Most of the capital goes towards the current system, the upper left. Optimised, established companies are the

dominant factors in our current non-sustainable economy. If we want to have a more sustainable world and a vision on where we want to go, finance can stimulate a transition by engaging with companies for change and/or exclude companies that make products or have processes that hinder that change. This is part of the current agenda for sustainable finance.

Where targets, needs and policies become clearer, we see finance retreating from the upper left. This is the disinvestment movement. This can either be from only a financial perspective (e.g. when risks associated with certain unsustainable business models increase for instance because of legislation – stranded asset risks) or from a reputational (e.g. society demands that pension funds do not invest in certain companies). Only (large/listed) companies that can transition from a non-sustainable business model towards a business that fits a sustainable world can go from the upper left to the upper right and escape total disinvestment and breakdown.

At the same time, there is a need for finance at the lower left. These companies are often smaller, less often stock listed, more innovative in terms of their business models and product innovation. What is needed from an investor perspective is a clear vision what is needed in such a transition (figure 8). Consequently, investor risks are connected to innovation and the unpredictability of their markets. The first stage typically requires seed/venture capital to finance such a transition. Scaling up is quite challenging in many cases, because the regime (the institutional setting) favours the existing companies. In some (not all!) cases, transitions can only be started or scaled up with

FIGURE 8 - TRANSITIONS



Source: Loorbach et al. (2017).

government interventions, sometimes in terms of subsidies or regulations or by co-financing certain projects.

In later stages, listed instruments (debt/equity) can be used. However, in less mature capital markets, companies typically enter that stage later in a transition than in developed markets.

Although difficult, there are many examples of companies that are capable of scaling up, challenging the mainstream firms and destabilising the system. This process normally follows an exponential curve. As the first grassroots sustainable businesses emerge, it will not take long

before many of these mature and catch the eye of mainstream finance.

Conviction

Financing change comes with two big caveats. As already highlighted, values and purpose must be aligned with sustainable goals. That counts for policymakers and businesses, but also for investors. Investors should align their values with those of their investees. That will be a huge difference for a lot of investors: long-term value creation within biophysical boundaries really is different than short-term rent seeking. A true belief in the need for sustainability is necessary and this means putting impact first.

Secondly, production and consumption patterns will likely shift in a sustainable economy. Instead of transaction-based business models directed at obsolescence of products, business models change towards use-models and sustainable products that last longer. As this will reduce turnover, lower growth or even decline in demand, especially for durable consumer goods, will be the result. In addition, both the SDG investment agenda and the climate investment agenda require large investments in infrastructure and electrification. A shift in investment sectors therefore seems likely. Investors may therefore need to prepare for lower financial returns and a different sector allocation than they are used to if they do not invest in the right transitions.

In addition, investment requirements are much larger in developing economies than in developed markets⁶⁵. The investments needed amount to 5%-10% of GDP, depending on policy choices and the quality and quantity of infrastructure services. Key priorities include increasing access to reliable and affordable electricity, improving transport services, leveraging digital technologies, and improving business climates. Raising agricultural productivity could substantially boost development opportunities in countries with large rural populations, as well as increase the resilience of the rural sector to extreme weather events.

We have ten years to fulfill the SDGs. We must move past the inadequate economic model and start the paradigm shift now. Transition starts with the first step. Let's take that step together. Now.

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