

The return of transitions

Investment Outlook

Triodos  Investment Management



‘Future progress simply must be made in terms of the things that really count, rather than the things that are merely countable.’

- Herman E. Daly, *Steady-State Economics: Second Edition With New Essays* -

Contents

About this outlook	4
Summary	5
1. Our goal: a sustainable world	6
2. Business as usual	11
3. Sustainable transition paths	14
> Towards a carbon-neutral energy system	14
> Towards an inclusive society	18
4. Conclusion: invest in transitions	22

About this outlook

In this investment outlook, Triodos Investment Management presents its long-term expectations for the world economy and the financial markets. This investment outlook serves as a reference document for us as asset managers and for clients as investors in our impact equity and bond funds.

Our Strategic Asset Allocation (SAA) is based on these long-term expectations. The primary goal of SAA is to create an asset mix that provides an optimal balance between expected risk and return for a long-term investment horizon. SAA is often seen as a reference portfolio which is tactically adjusted, based on short-term market forecasts and following a process called Tactical Asset Allocation (TAA). SAA is the most important determinant of the total return and risk of a broadly diversified portfolio.

As an impact investor, we invest with the intention to generate social and environmental impact alongside a healthy financial return. We therefore also describe two possible transition paths towards a sustainable society. In the first transition path, we look at the investment implications of a transition towards a carbon-neutral economy. In the second transition path, we look at the implications of transition towards an inclusive economy.

In the short-term outlook, which is published as a separate document, we present our short-term expectations for the economy and for financial markets. Our tactical asset allocation (TAA) is based on these short-term expectations. Using our TAA we exploit short-term opportunities for generating excess financial return.

Summary

Our long-term investment outlook

Companies who position themselves for a transition towards a sustainable economy will outperform those who don't.

Business as usual

Financial asset returns are determined by the long-run fundamentals of the economy. It is widely accepted nowadays that these fundamentals are two-fold, namely output and inflation. Eventually, the influence of the business cycle will decline. Output should then converge to so-called potential output, while long-run inflation depends on the ability of central banks to control the inflation expectations of economic agents.

Based on this standard approach, we conclude that potential output will probably remain low over the next decade or so. Demographic factors are likely to act as a brake on growth in many advanced economies, as populations age and workers retire.

Therefore, potential employment growth and total factor productivity growth are expected to slow down. Inflation will likely settle around the targets set by central banks in most advanced economies, except in Japan, where inflation is likely to remain below target. These findings imply that living standards may improve, but more slowly, in the future.

Together with asset class valuation, this economic outlook determines our expected returns for equities and bonds. Expected returns are low from a historical perspective. Risk taking is only mildly rewarded. As a consequence of this, we adopt a neutral risk attitude for the long term.

Transition paths

The transition towards a sustainable economy requires the whole economic system to change. It is difficult to predict the exact consequences of these changes on economic growth and financial returns, but we know that companies who position themselves for such a transformation will outperform those who don't. The companies in our investment portfolios are well positioned to benefit from these changes as we only invest in companies that stimulate the transition to a sustainable society by way of their products, services and business practices. In our white paper 'Impact investing through listed equities and bonds' we explain how we do this.

1. Our goal: a sustainable world

Over time, GDP growth has evolved from an indicator of progress to a target for financial and economic policy.

The current economy, which is focused on growth and increasing material wealth, is not sustainable by any calculation. The negative consequences of our economic model are becoming increasingly clear, such as ongoing deterioration of our living environment and, in many countries, the disruption of society. To avoid irreparable damage, we have to redefine our current financial and economic system, as well as our notion of growth. From an investor perspective, this means that we need to assess risk and return of investments in a different manner.

GDP does not measure progress

It is human nature to strive for progress. But what progress are we talking about? For a long time, progress was defined in non-economic terms. To begin with, philosophers/economists would talk about happiness. Later, this was translated into utility. Later still, when mathematical models entered economics, this utility was monetised and replaced by an increase in Gross Domestic Product (GDP) as an indicator of material prosperity.

Over time, GDP growth has evolved from an indicator of progress to a target for financial and economic policy. However, defining progress as economic growth is very limited. GDP only measures how many goods and services are produced and consumed. The calculation does not consider the depletion

of economic, natural, human and social capital resources. GDP also says nothing about financial 'stocks'. As a result, debt financed growth is seen as positive (at least in the short term). The negative externalities of production and consumption, in the form of environmental pollution and waste for example, also remain invisible. Moreover, the nature of growth (consumption or investment) or the distribution of economic growth do not matter.

In short, our current economic system, with its one-sided focus on GDP growth, is short-sighted and selfish, because it does not consider the adverse effects of our production and consumption on others in the world or on future generations. Our current linear growth model, from raw material to product to waste (which is only partially reused), is unsustainable.

The doughnut economy

A transition to a sustainable growth model that does justice to the objections outlined above is urgent. We need to meet the needs of the present generation without compromising the ability of future generations to meet their own needs, as stated in the Brundtland report, published in 1987¹. This implies that production and consumption must not only be economically sustainable, but also ecologically and socially. These three elements of sustainable development contain many aspects that have a continual influence on each other. For example, natural resources are the input for economic production, while the residual products (pollution, waste, etc.) of this production are absorbed by nature. The goods and services produced have an impact on social welfare, which in turn - in the form of good health or education - has an impact on economic activity.

The British economist Kate Raworth² describes these relationships as a doughnut economy. The 'doughnut' shows the boundaries of the sustainable area; the space in which we can meet the needs of everyone, within the capabilities of the planet. Within this area, everyone can produce, consume and live without harming nature or the climate. The inner area is the basis; the social foundation, which ensures that all people have the rights and resources to lead a healthy, fulfilling life. Outside that area are poverty and severe unmet needs. The outer ring is the ecological ceiling. Outside this ring, the degradation of our planet begins, due to climate change, ocean acidification, biodiversity loss, etc.

The right balance

Instead of continuing to strive for growth, we need to find the right balance between a strong social foundation and the boundaries of the ecosystem. No country has succeeded in doing this yet. Countries with a solid social foundation, such as those in Europe, typically exceed the ecological ceiling³, while countries that are within the ecological limits often have a weak social foundation. This shows that if we want to remain within ecological boundaries and at the same time have a reliable social foundation, our current economic system needs to change drastically.

Investing in a sustainable world or continuing in a linear direction?

Finding the right balance between social foundation and ecological boundaries is one of the greatest challenges facing humanity in the coming years. Yet relatively little attention is being paid to this, including in the investment world. Many asset managers calculate long-term returns based on a 'business as usual' scenario, as if the world can continue undisturbed on its current path.

We want to stress that this approach leads to an underestimation of risks. Risks posed not only by climate change but also by the lack of social inclusiveness, will have longer-term effects on asset returns. Of course, it is impossible to say how big these are and when they will appear. But asset managers who look a little further than the day-to-day issues have an obligation to their clients to take these factors explicitly into account. We will also describe a 'business as usual' scenario and

present our expected returns for this scenario. However, we think that the returns presented are not representative for our equity and bond portfolios. We only invest in companies whose products, services and/or business models offer a solution to sustainability issues and contribute to the development of a sustainable society. That is, in the winners of tomorrow. In our recently published white paper 'Impact investing through listed equities and bonds', we explain how we do this.

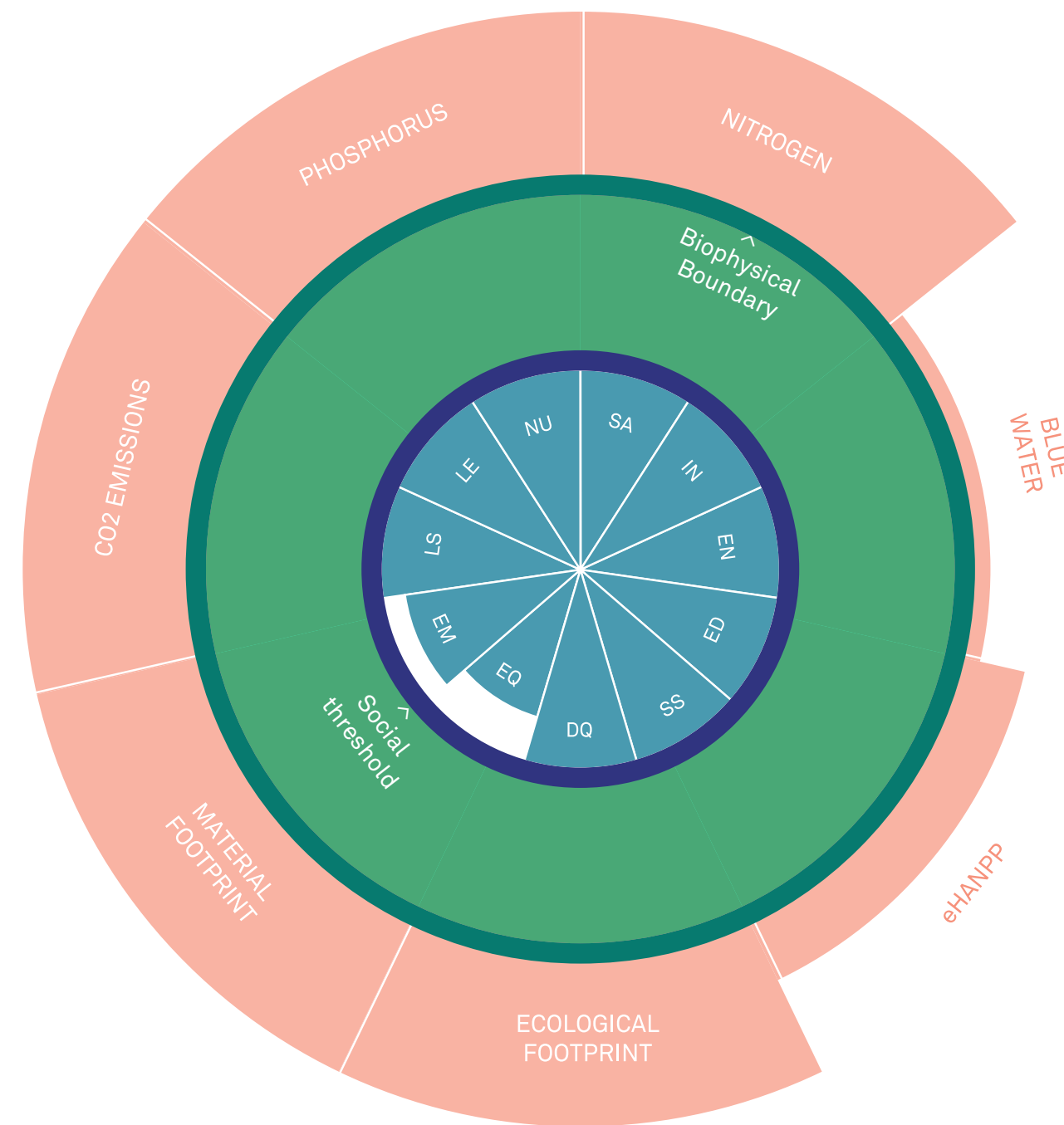
We also outline two transition paths. These are complex systemic changes in which determining the consequences for economic growth and inflation, and ultimately the expected returns, is very challenging. We have therefore chosen not to present concrete figures, but to describe the most crucial factors that influence asset returns.

The Doughnut

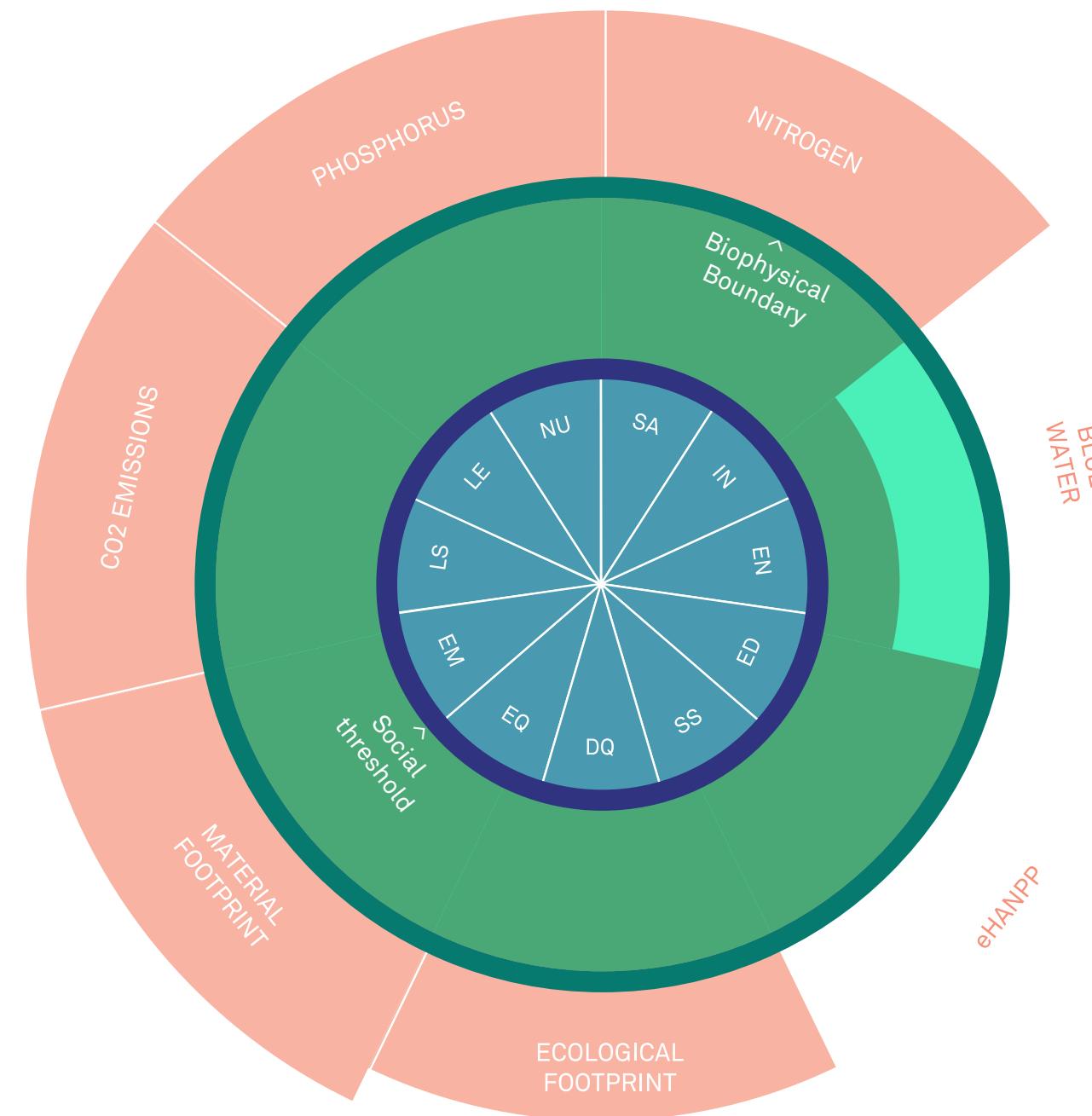
The 'doughnut' visualizes sustainability as a 'safe and just' space, in which the use of resources is high enough to meet people's basic needs (the social threshold), but not so high as to transgress the planetary boundaries (the biophysical boundary).

The blue wedges show social performance relative to a threshold associated with meeting basic needs (blue circle), the orange wedges show resource use relative to a biophysical boundary associated with sustainability, represented by the green circle, the safe and just space.

United States (US)



Netherlands

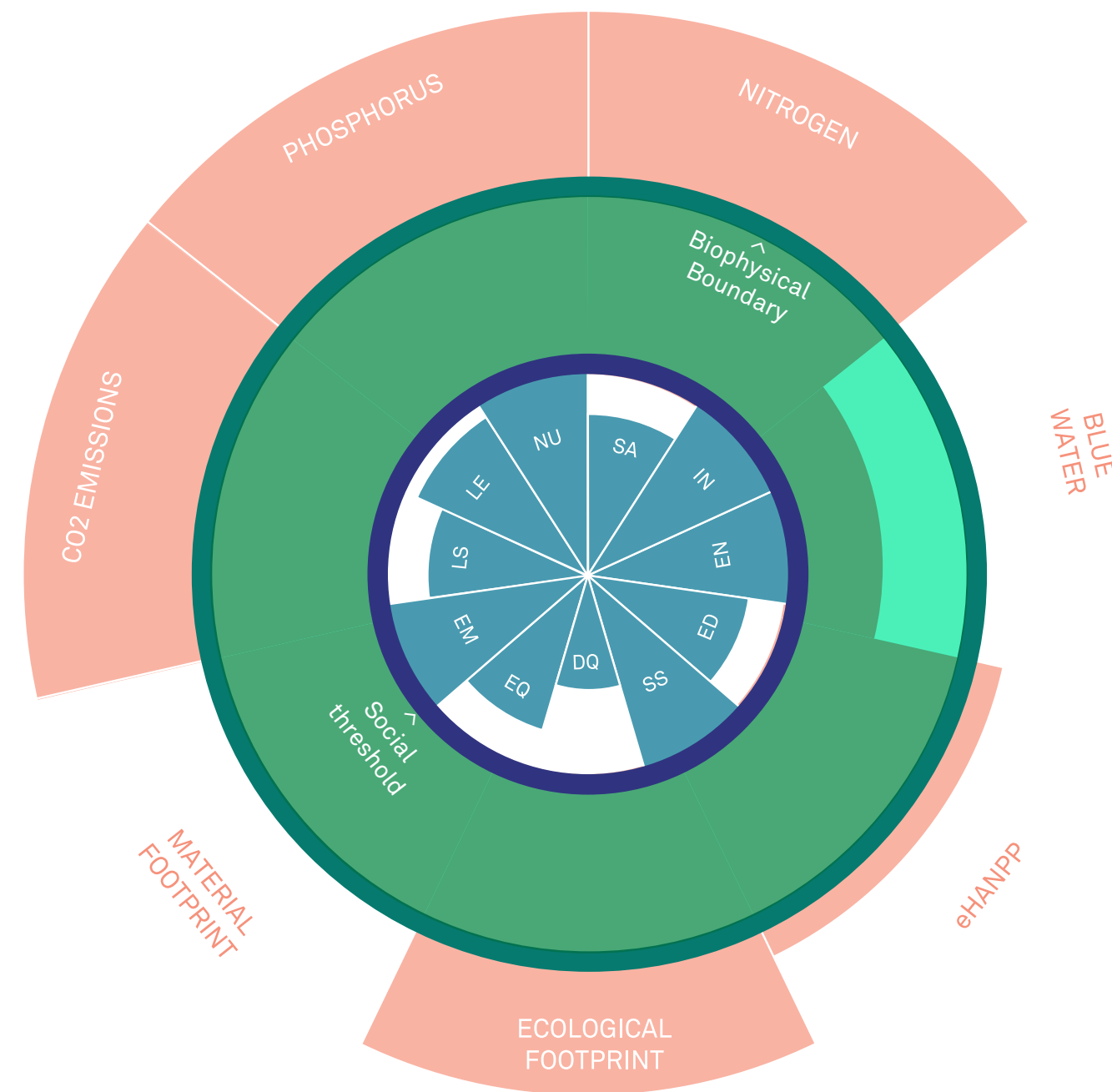


Biophysical indicator	Per capita boundary	Unit
CO ² emissions	1.6	tonnes CO ² per year
Phosphorus	0.9	kilograms P per year
Nitrogen	8.9	kilograms N per year
Blue water	574	cubic metres H ₂ O per year
eHANPP*	2.6	tonnes C per year
Ecological footprint	1.7	global hectares (gha) per year
Material footprint	7.2	tonnes per year

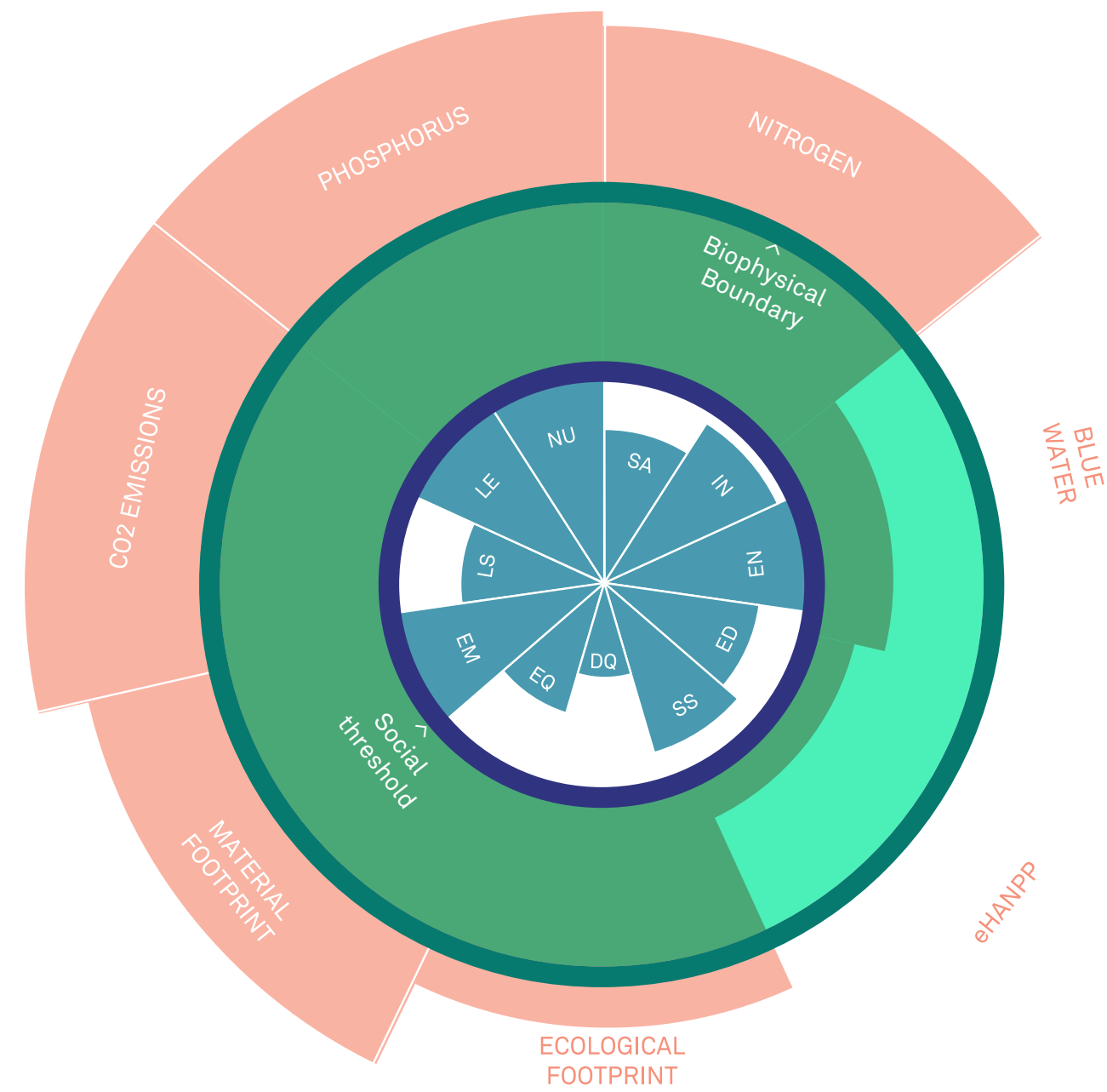
Social indicator	Threshold	Unit
Life satisfaction	6.5	[0-10] Cantril scale
Healthy life expect.	65	years of healthy life
Nutrition	2700	kilocalories per capita per day
Sanitation	95%	with access to improved sanitation
Income	95%	who earn above \$1.90 per day
Access to energy	95%	with access to electricity
Education	95%	enrolment in secondary school
Social support	90%	with friends/family they can depend on
Democratic quality	0.8	Democratic Quality Index
Equality	70	[0-100] Scale -> (1 - Gini Index) * 100
Employment	94%	of labour force employed

* embodied Human Appropriation of Net Primary Production (eHANPP) measures the amount of biomass harvested through agriculture and forestry, as well as biomass that is killed during harvest but not used, and biomass that is lost due to land use change.

Russia



China

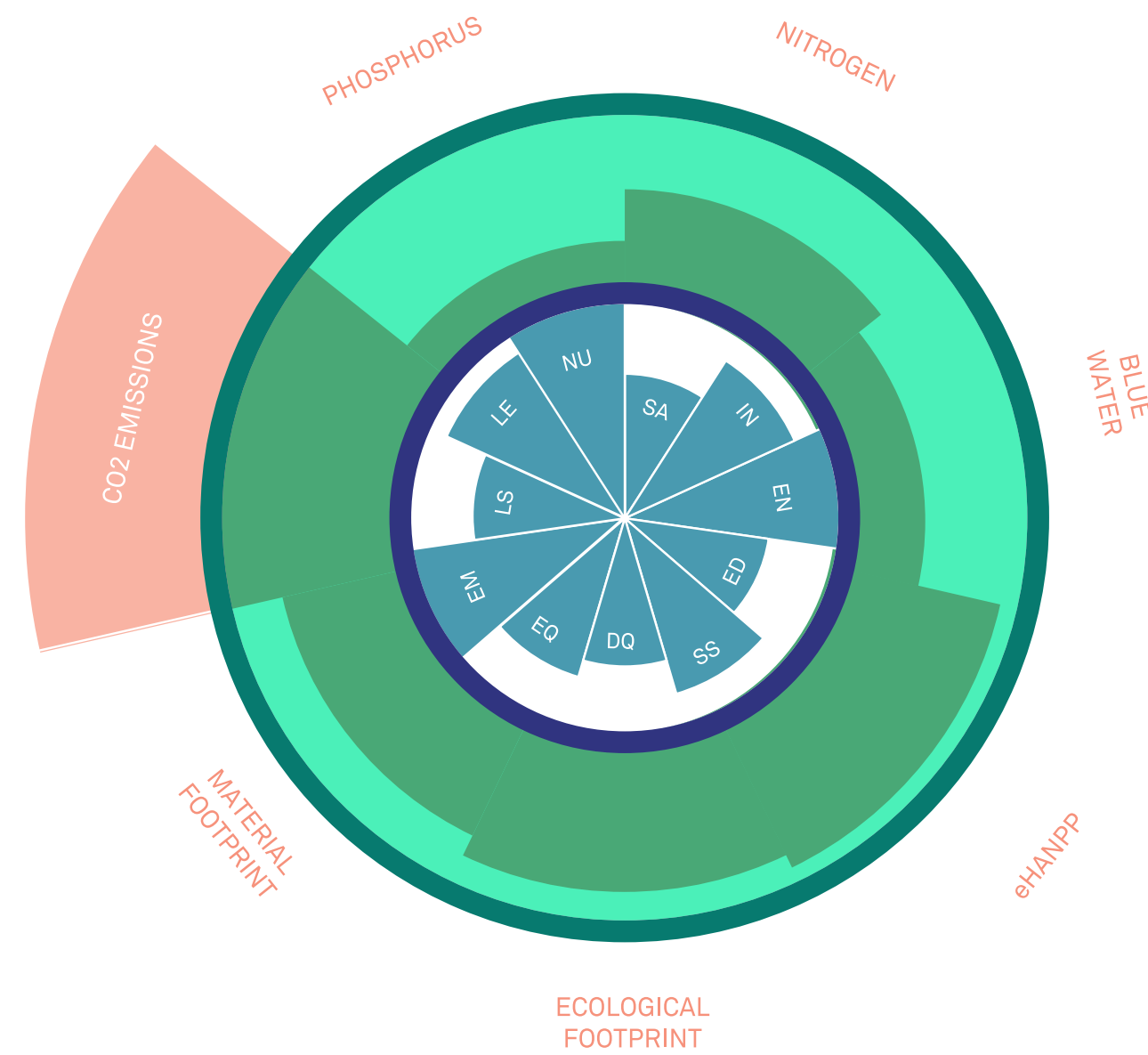


Biophysical indicator	Per capita boundary	Unit
CO ² emissions	1.6	tonnes CO ² per year
Phosphorus	0.9	kilograms P per year
Nitrogen	8.9	kilograms N per year
Blue water	574	cubic metres H ₂ O per year
eHANPP*	2.6	tonnes C per year
Ecological footprint	1.7	global hectares (gha) per year
Material footprint	7.2	tonnes per year

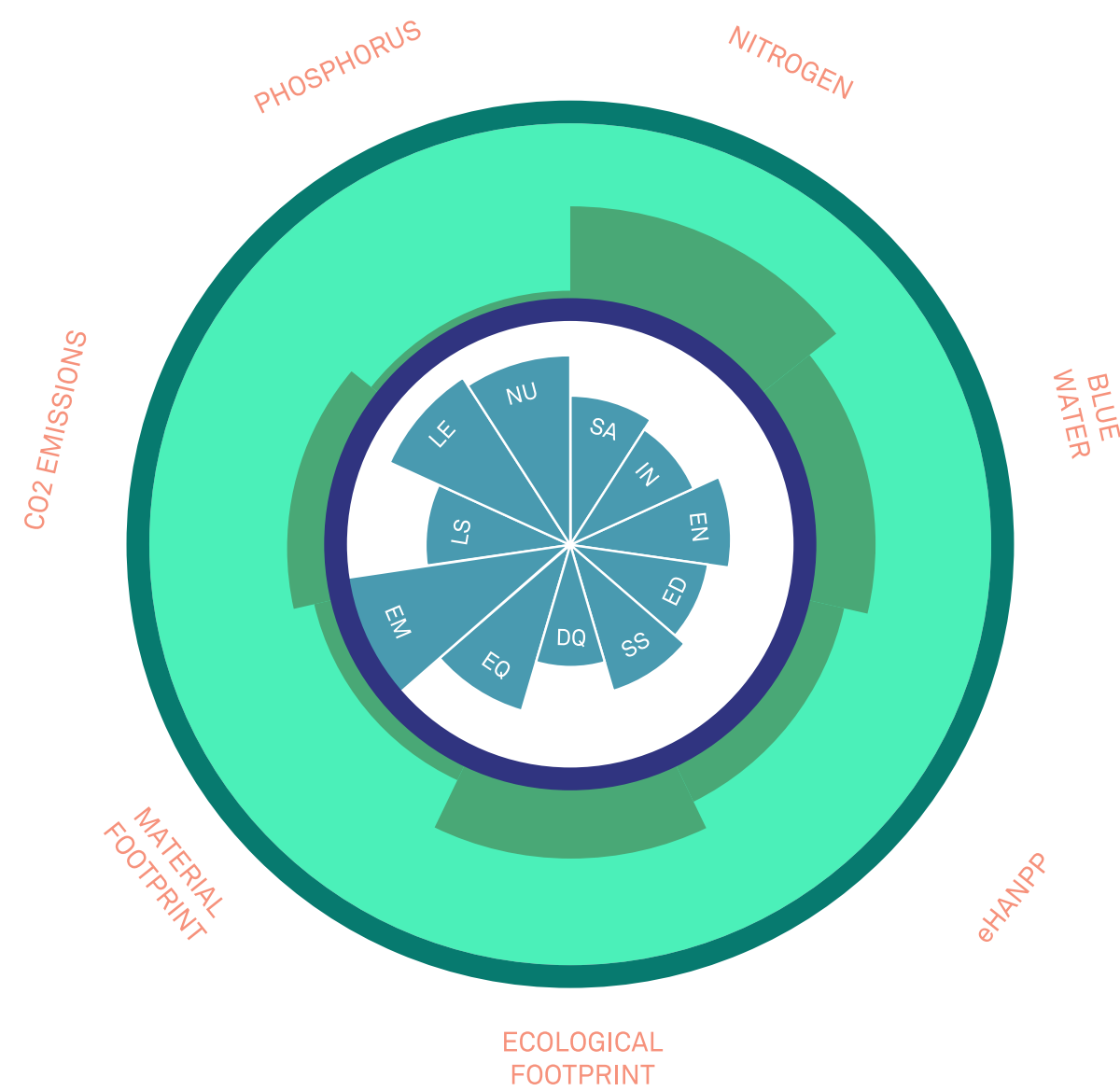
Social indicator	Threshold	Unit
Life satisfaction	6.5	[0-10] Cantril scale
Healthy life expect.	65	years of healthy life
Nutrition	2700	kilocalories per capita per day
Sanitation	95%	with access to improved sanitation
Income	95%	who earn above \$1.90 per day
Access to energy	95%	with access to electricity
Education	95%	enrolment in secondary school
Social support	90%	with friends/family they can depend on
Democratic quality	0.8	Democratic Quality Index
Equality	70	[0-100] Scale -> (1 - Gini Index) * 100
Employment	94%	of labour force employed

* embodied Human Appropriation of Net Primary Production (eHANPP) measures the amount of biomass harvested through agriculture and forestry, as well as biomass that is killed during harvest but not used, and biomass that is lost due to land use change.

Indonesia



Bangladesh



Biophysical indicator	Per capita boundary	Unit
CO ² emissions	1.6	tonnes CO ² per year
Phosphorus	0.9	kilograms P per year
Nitrogen	8.9	kilograms N per year
Blue water	574	cubic metres H ₂ O per year
eHANPP*	2.6	tonnes C per year
Ecological footprint	1.7	global hectares (gha) per year
Material footprint	7.2	tonnes per year

Social indicator	Threshold	Unit
Life satisfaction	6.5	[0-10] Cantril scale
Healthy life expect.	65	years of healthy life
Nutrition	2700	kilocalories per capita per day
Sanitation	95%	with access to improved sanitation
Income	95%	who earn above \$1.90 per day
Access to energy	95%	with access to electricity
Education	95%	enrolment in secondary school
Social support	90%	with friends/family they can depend on
Democratic quality	0.8	Democratic Quality Index
Equality	70	[0-100] Scale -> (1 - Gini Index) * 100
Employment	94%	of labour force employed

* embodied Human Appropriation of Net Primary Production (eHANPP) measures the amount of biomass harvested through agriculture and forestry, as well as biomass that is killed during harvest but not used, and biomass that is lost due to land use change.

2. Business as usual scenario

In outlining the ‘business as usual’ scenario, we draw on current market practices. This scenario does not consider the negative effects of our current economic growth model for people and the environment or the unsustainability of certain developments and is therefore synonymous with an ‘unsustainable world’. In this scenario, the growth potential of developed countries is expected to remain low. Average inflation is likely to be around the inflation targets of the large central banks. This macroeconomic environment translates into low returns. The average market return over the next 15 years is likely to be significantly lower than the market returns achieved in recent decades.

Growth potential remains low

According to traditional growth accounting, the growth of GDP per capita can be broken down into: the growth of the labour force, the amount of available capital and the growth of labour productivity per hour⁴. Based on our future expectations of these three elements, we can conclude that the growth potential of developed countries (e.g. US, UK, Japan and the eurozone) is likely to remain low.

The production factor labour will contribute less to economic growth in the next 15 years than in recent decades. Many developed countries are on the verge of, or are already undergoing, a radical demographic transition. Fewer children are being born, so the proportion of young people in the population is decreasing. At the same time, the proportion of the elderly population is increasing, because people are living longer. These two trends mean that the size of the labour force, i.e. the

number of 15 to 69-year olds, will not increase as rapidly as it did in the past. In some countries, such as Japan, the labour force will even decline. Although government policy, such as raising the retirement age, may delay the demographic transition, it cannot prevent it. In addition, we expect that the labour force participation rate will continue to decline on balance. All in all, we expect labour force growth to diminish in developed countries.

How economic growth is calculated

According to the neoclassical approach, economic growth consists of the availability of labour and capital factors of production, and the quality of these factors of production (such as level of expert training and the latest technology). This determines the production capacity in the long term. Since this approach also assumes that there is no underemployment, the growth of production capacity is equal to economic growth.

A standard way to calculate long-term economic growth is according to growth accounting. By forecasting the growth of labour supply in hours, capital growth and productivity, several assumptions can be made to develop a picture of long-term economic growth. A range of factors (labour, capital, technology) contribute to the expected growth to varying degrees.

The average market return over the next 15 years is likely to be significantly lower than in recent decades.

We do not foresee higher productivity growth for the next 15 years than in the past two decades. The contribution of capital per unit of labour will probably decrease. Following the sharp drop in investment volumes in the years after 2008, companies are expanding their capital stock again. However, we do not expect the investment volume to increase to the average level of the past decades. This is partly the result of wage trends. Wage growth will probably continue to be persistently lower than productivity growth. As a result, companies will not have enough financial incentives to invest in labour-saving technologies.

The contribution of human capital to growth, through a healthier and more educated labour force, is also likely to decrease. Key improvements in the field of health care and training mean that there is less to gain in this area. The increase in the quality of human capital seems to have (almost) reached its ceiling in many developed countries.

The contribution of total factor productivity (TFP) growth⁵ is likely to remain around the average level of the last two decades. The effects of globalisation, which in the past led to strong TFP growth, can only occur once. In addition, creative destruction has been greatly reduced, especially after the financial crisis. Low productive firms, sometimes called zombie-firms can survive partly as a consequence of the low interest rate environment. Incentives to make business processes more efficient in order to survive are lacking. In the next 15 years, productivity growth should mainly come from innovation. We do believe that ICT and other technological innovations in the next 15 years will ensure productivity growth, but do

not anticipate a technological or digital utopia. We assume productivity growth to equate the average level of the last fifteen years.

Techno-pessimists versus techno-optimists

According to techno-pessimists⁶, the strong productivity-enhancing innovations of the 150 years will not be replicated. The techno-optimists⁷, on the other hand, can see enough innovations that could increase productivity, although it may take some time before radical changes in the field of ICT (robotics, artificial intelligence, digitisation, etc.) lead to substantial productivity increases.

The discussion between optimists and pessimists shows that it is not only difficult to predict which are the promising technologies, but that it is also difficult to predict when an innovation will lead to productivity gains. It often turns out that the expectations in the first phase of a technology are too optimistic, optimistic, followed by strong disappointment. In ICT, this happened when the ‘internet bubble’ burst in 2001.

Inflation around inflation targets

Inflation has fallen sharply since the peak in the 1970s. Many factors have played a role in this. The negotiating power of workers has been greatly reduced by globalisation, ongoing automation, increasing flexibility of the labour markets and declining importance of trade unions. In addition,

inflation expectations have been anchored at a low level in developed countries, as central banks have introduced credible and explicit inflation targets. This has also led to long-term inflation becoming a monetary phenomenon. Central banks set their inflation target and then implement it through their monetary policy. The current monetary environment is still very loose, with policy rates in the eurozone and Japan close to zero. This raises doubts about the possibilities for normalisation and the effectiveness of future monetary policy. In most markets, however, inflation expectations are still anchored around central bank targets.

For this reason, our long-term inflation expectations are equal to the inflation targets of the major central banks. We foresee an average 2% inflation rate for the United States and the United Kingdom. For the eurozone, we expect an average of 1.75% inflation, although inflation in the core countries will be significantly higher than in the peripheral countries. These differences in inflation rates will persist as long as economic integration in the eurozone does not go beyond the current state. In our view, the Japanese central bank, the BoJ, is not going to meet its inflation target. An average inflation rate of 1.5% seems to us to be a more realistic starting point. It will not surprise us if the BoJ lowers or even abandons its current inflation target and replaces it with a nominal growth target.

A low-return environment

Our expected returns for all asset classes are low from a historical perspective. Over the last 40 years, returns have been driven by relatively high growth

potential and a steady decline in inflation. We think this ‘golden age’ has ended. For the next few years we foresee a low growth potential with stable inflation.

A structural fall in global interest rates has also boosted historical returns. Changing savings and investment preferences have played a key role in this. On the one hand, the propensity to save has increased (higher supply of money) due to the changing demographic structure of the world population, increasing inequality within countries and a savings glut in emerging economies. On the other hand, the propensity to invest has decreased (lower demand for money) due to a drop in the relative price of capital goods and a decreased level

Headline and core inflation

Monetary depreciation, inflation, is nothing more than the growth of the average price level for consumers in an economy. Whereas headline or total inflation is the change in costs of goods and services, core inflation excludes the change in the more volatile prices of food, energy and other raw materials.

A slight increase in the depreciation of money is ‘the norm’. That is also what central banks aim for. An important reason for this is that it makes economic adjustment processes easier. Nominal amounts, such as debt and wages, are difficult to adjust downwards. Inflation ensures that these can be adjusted in real terms.

of public investment. Due to these developments the cost of money, the interest, has fallen. Over the next 15 years, some of these developments will reverse. On balance, we think that the tendency to save will decrease slightly, while the willingness to invest will remain the same. This implies that global interest rates will rise, but not to the levels of a few decades ago.

Higher profit margins also enhanced historical returns. Globalisation allowed companies from developed countries to expand their sales and gained access to a cheaper workforce. Thanks to rapid innovation, these companies were able to increase productivity and reduce costs even further. In addition, effective corporate tax rates have declined. We do not foresee trends that will push up profit margins in the next 15 years. Through online platforms, competition is increasing. In addition, wages are rising in emerging countries, which means that multinationals will benefit less from relocating their production to low-wage countries. Finally, governments are looking for ways to increase corporation tax and tackle tax avoidance.

Reduced risk premium

Based on expected returns, we assess if investments are appropriately valued for inherent risk, as compared to government bonds. We find that higher interest rates have reduced the risk premium – meaning investors are not sufficiently rewarded for the risks they take. Equities have therefore become less attractive compared to government bonds, and US equities are the least attractively valued. Not only are returns expected

to be lower than in other regions, but the yield differential between US equities and government bonds is also limited. European equities are more attractive because interest rates on government bonds are still extremely low. However, the risk premium is limited. The most attractive are emerging market equities. However, in view of the risks for these regions, extra caution is required.

Long-term return expectations

Our long-term return expectations are driven by our long-term growth and inflation expectations and current valuations. We believe that valuations will return to the historical average. This implies that high valuations will suppress our return expectations.

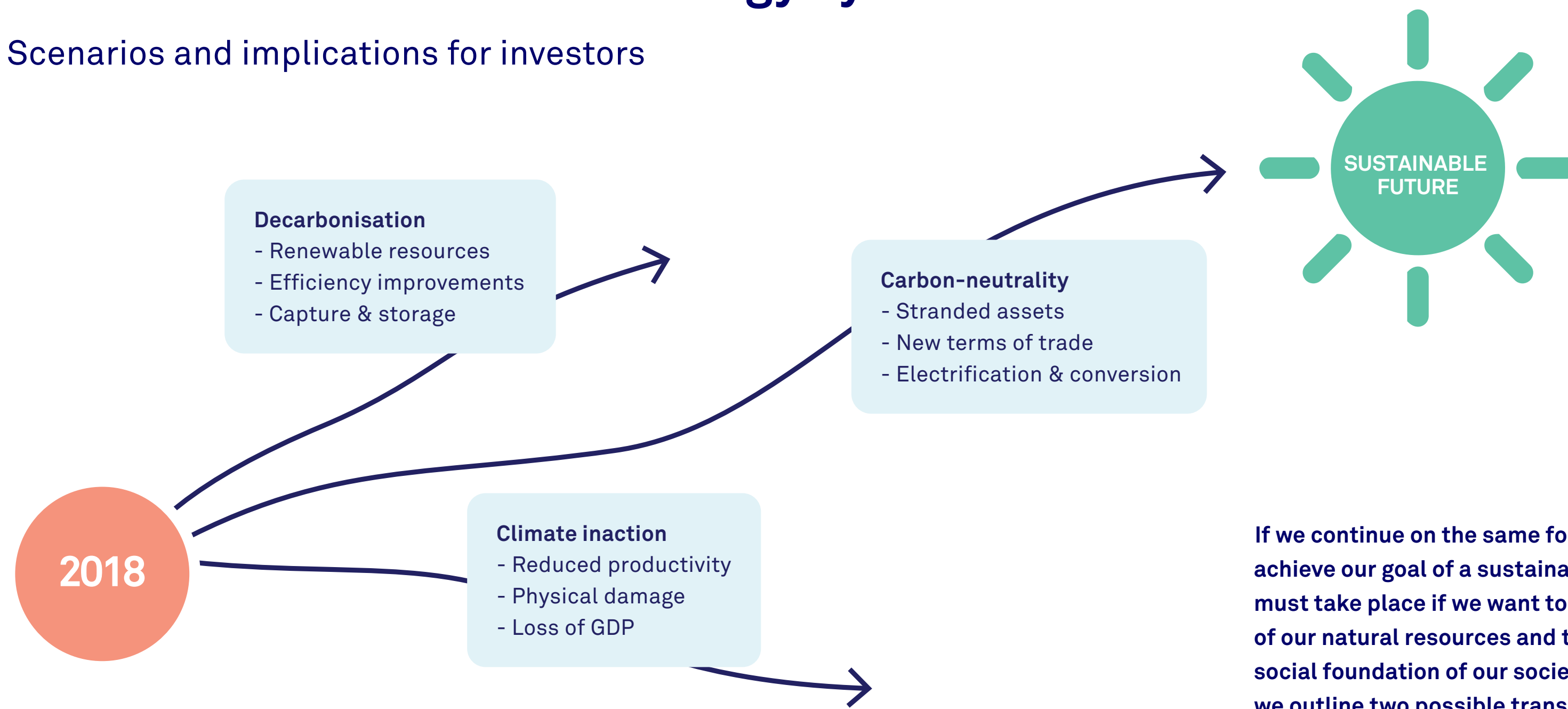
For example, if you invest in equities at an average valuation, future returns are expected to be roughly equal to the future profit growth plus the future dividend yield. If you invest at a high valuation, then the expected return is lower. Mean reversion of the valuation – a return to the lower historical average - will then take away some of the expected profit growth. The same applies to bond returns.



3. Sustainable transition paths

Towards a carbon-neutral energy system

Scenarios and implications for investors



If we continue on the same footing, we will not achieve our goal of a sustainable world. A transition must take place if we want to stop the depletion of our natural resources and the weakening of the social foundation of our societies. In this chapter we outline two possible transition paths. In the

first scenario, the emphasis is on the transition to carbon-neutral energy system. In the other scenario, we look at a transition to an inclusive society, in which people have equal opportunities and possibilities to shape their lives.

1. Climate inaction

In this climate scenario, the status quo prevails in the next 15 years. Because no further climate action is taken, our current economic system is maintained, including our heavy reliance on fossil fuels. Continued high carbon emissions will lead to further global warming beyond sustainable limits. The most recent estimates suggest that the temperature will rise by more than 3°C⁸.

The costs of inaction are high, both in economic and non-economic (welfare) terms. Climate change will impact economies and societies in several ways. Governments, businesses and consumers alike will face damage costs. Weather conditions

will become more extreme, leading to damage to land, infrastructure and buildings. At the same time, higher temperatures reduce productivity. Research⁹ shows that productivity peaks at an average annual temperature of 13°C and then decreases rapidly. As a result, countries in Asia, Africa and the Middle East will probably suffer the greatest damage to productivity, whereas in colder regions up north productivity could improve. In sum, however, climate inaction is likely to hurt growth. A temperature increase of 2.5°C is estimated to lead to an annual loss of 0.9 to 2.5% of global GDP¹⁰. With higher temperature rises, economic damage will be higher accordingly.

Should we be unable to keep global warming within 'safe' limits, then all that remains is climate adaptation, with all its consequences. This would require enormous amounts of capital, but at the same time also stimulate economic growth. As far as we are concerned, however, this is the most asocial option and therefore not a solution. Most of humanity simply does not have the means to adapt to the effects of climate change. The social consequences will be enormous, first for those who are weakest, but ultimately for everyone.

On an investment horizon of 15 years, however, we think that overall the impact on economic growth (and inflation) will probably be limited. The risk of catastrophic climate-related events will not increase linear over time. The probability of extreme weather events increases disproportionately with steady global warming. The macroeconomic impact will therefore become more pronounced beyond our investment horizon of 15 years.

Implications for markets

During the next 15 years, the fundamental factors that drive equity and bond returns will not be impacted that much. This is different for risk premiums, however, which could increase if equity and bond markets start to price in expected future degradation, especially for companies with long investment horizons.

Climate change involves indirect risks for financial markets, for example in the form of uninsured losses in the real economy. In extreme cases, natural disasters caused by climate change could lead to downgrading the creditworthiness of governments. Governments may have to issue debt to cover the damages¹¹. Not only do governments need to rebuild public assets, such as infrastructure and buildings, they may also have to cover part of the uninsured losses of the private sector. Climate change may also affect the creditworthiness of companies¹². First, the country-specific creditworthiness also affects the creditworthiness of companies. Second, natural catastrophes can also threaten the creditworthiness of companies directly through non-insured losses. While downgrades due to natural disasters have been very rare in the past, climate change will likely lead to more frequent and exacerbated occurrence of extreme weather events. Even if climate change does not affect the creditworthiness, it can lead to weaker balance sheets.

Emerging economies and developing economies may be more vulnerable than developed economies. They will probably face higher costs related to adaptation to climate change, while at the same time they have

fewer financial means. This may affect corporate earnings in those markets. Industries that are most directly vulnerable to climate change are those depending on weather conditions, such as agriculture and tourism.

Climate change will probably have a limited impact on market risk. We do not expect volatility to rise in the next 15 years. As the physical impact of climate change increases with the passing of time, however, so will market volatility. Risk aversion will increase, leading to lower returns on risky assets.

2. Decarbonisation

To limit the temperature increase to a maximum of 2°C, all IPCC policy scenarios require energy savings and higher energy efficiency to curb the emission of greenhouse gasses. Any emission reduction policy can be designed and implemented without changing the core of today's linear economy. Economies will continue to rely on fossil fuels, although the use of renewable energy sources increases. It is the easiest and cheapest way to reduce CO₂ emissions. Many countries are therefore following this decarbonisation approach. Greenhouse gas emissions per unit of economic output are already declining in many developed economies. Yet paradoxically, increasing energy efficiency may lead to higher energy consumption. More efficient energy use typically leads to lower energy costs (less energy is needed for the same use). This could well lead to increased demand. If, for example, cars need less petrol per kilometre, drivers may use their car more often and drive further. In addition, lower fuel costs free up



cash for other purposes and activities that might require energy. Such feedback loops hinder effective decarbonisation of our current economic system. Emission reductions may therefore in practice be much lower than in theory.

In addition to energy savings and higher energy efficiency, CO₂ in this scenario will also be captured and stored in underground storage facilities (Carbon Capture and Storage, CCS). The storage sites are usually in very deep layers in the ground that are naturally sealed, such as empty gas fields. So far, this technology has not been applied on a large scale and is not very cost-effective. The extent to which CCS can make a meaningful contribution in terms of reducing energy emissions is therefore uncertain. Moreover, it brings about several risks. The greatest environmental risk associated with CCS relates to the long-term storage of captured CO₂.^{13,14} Given that CO₂ is a highly poisonous gas, any leakage, due to technical failure, human error or catastrophic events, could negate the initial environmental benefits of CCS and also have harmful effects on human health. We therefore believe that CCS is not a solution.

Implications for markets

In this scenario economic actors are confronted with mitigation costs. These costs will not be evenly spread across economies and sectors. Carbon-intensive countries, such as the US, will face higher mitigation costs than countries with a lower carbon intensity. The same goes for carbon-intensive industries. Investments in techniques to reduce energy use and increase efficiency or CCS will initially have a negative impact on company cash

flows. Companies will have to invest in research and development or buy proven technologies from others. In the long run they will probably benefit, however, especially once emissions are properly priced. The winning sectors in this scenario would focus on energy efficiency and energy saving technologies, especially after policy measures are announced. The renewable energy sector is also likely to outperform.

Despite these mitigation efforts, the economic system does not fundamentally change. Although carbon emissions will be lower than in our climate inaction scenario, the world economy will continue to emit greenhouse gases. Therefore, global warming will continue. It will only take more time before we break the sustainable limit of 2°C. In a more distant future we would still have the same outcome as we would in the inaction scenario. The exact implications for the financial markets depend on how quickly we take action, the level of actual emissions and the cost of carbon.

3. Carbon-neutrality

If we are to achieve the objective of the Paris Climate Agreement, we need to radically change our current economic model. A radical transformation to a carbon-neutral energy system needs to take place in the coming decades if global warming is to be stopped.¹⁵ This transition requires a radical change in the energy mix in the next few decades, from fossil fuels to renewable energy sources.

This transition will have several macroeconomic consequences. First, economies with a large fossil

energy sector will be confronted with ‘stranded’ assets. Facilities in the fossil energy sector usually have a service life of 30 to 60 years. In a transition, many of these facilities would have to be written off before they have reached the end of their economic life. As a result, capital stocks will fall, and GDP volume will be reduced. At the same time, investments are needed to build a sustainable energy sector. It remains to be seen, however, whether this can fully compensate for any GDP losses. The same goes for employment. Although it will decline in the fossil energy sector, employment will increase in the renewable energy sector. Whether this effect

Carrot and stick

Transition does not take place by itself. To meet our energy needs we use the cheapest (at least at first sight), easiest and most conveniently available energy source: fossil fuel. To bring about a clean-energy transition, producers and consumers must be encouraged to move in a low-carbon direction and/or be penalised if they do not. This can be done by introducing legislation to enforce a switch. Economic instruments can also be used to encourage producers and consumers to make the switch. These include quotas, carbon taxes and tradable carbon allowances.

is positive or negative for a country depends on many factors, such as the choice of decentralised or centralised energy generation and international energy trade. All in all, it cannot be predicted whether a transition to a carbon neutral economy will boost economic growth or detract from it¹⁶.

Second, terms of trade may change. Europe and Japan, for example, currently depend heavily on other countries for their energy. They are net importers of fossil fuels, while the Middle East and some countries in North Africa are net exporters. These trade patterns will change as a result of an energy transition, because the current net importers may in the new situation be better able to meet their own energy needs. Consequently, the terms of trade of the net exporters of fossil fuels will deteriorate while those of the net importers will improve.

A transition to a carbon neutral economy will thus be a challenge for resource-rich countries, as they will have to cope with a decline in income due to lower oil and gas prices and volumes. If other sources of income cannot easily be found, government revenues will sharply fall. This, in turn, may lead to a forced reduction in government spending, for example on welfare. This process is already under way in a number of countries.

Renewable energy is almost exclusively available in the form of electricity. In our current system, electricity only accounts for a minor part of the total energy consumption. Increasing this share implies a far-reaching electrification of the demand side of the energy system, including the built environment, the transport system and industry. In addition,

technologies need to be developed which convert electricity into other energy sources or products. This also makes it possible to enhance sustainability in sectors that would otherwise be difficult - or expensive - to make more sustainable. This transition has similar macroeconomic implications as the supply-side transition.

Implications for investors

The exact economic consequences of a transition to a carbon neutral energy system are difficult to estimate. Several factors play a part. Firstly, it depends on the current structure of the energy supply in a country. Countries with high-emission industries will be hit the hardest. They will have to invest the most to reach carbon-neutrality. Secondly, the speed at which the transition takes place is important. The faster the energy transition is carried out, the better – and not only from a climate point of view. Countries lagging in terms of climate change policy or countries more vulnerable to the physical impact of climate change, may be confronted with higher country risk premia. Countries with an unclear climate policy will be worse off than countries with clearly defined policy, given that uncertainty is bad for financial markets, as it could lead to volatility.

Sector impact will also be significant. The industries that would be worse off include industries with fossil fuels for output and certain carbon-intensive primary industries and manufacturing industries. Some carbon-intensive industries will shrink or even disappear. Others will be confronted with stranded assets, high carbon adjustment costs and/or pollution penalties. Those pollution penalties may

also limit sales (due to higher prices), especially if low-carbon alternatives are readily available. The next generation of winners will be intrinsically linked with renewable energy. However, it is unclear which renewable energy sources will play a major role in our future energy mix. Sectors intrinsically linked with green infrastructure and low-carbon products and services will also perform well. Sustainable-themed listed equities will probably perform well compared to traditional listed equities. Financial markets may start to factor in differences between companies that are leading the energy transition and laggard

companies. However, when the economy becomes more and more carbon-neutral, this upside for sustainable-themed listed equities will disappear.

If carbon-neutrality is enforced through the introduction of carbon taxes, this might lead to higher inflation, especially if the carbon tax is not fully anticipated. In addition to that, carbon taxes may have income and redistribution effects, especially if tax revenues are not returned to the (end-) payers of those taxes. In this scenario, increased green bond issuance is likely to help finance public spending.

Last resort: Economic contraction

Maintaining the current economic structure is impossible if we want to reach the climate targets. The question is whether we can achieve the energy transition before we pass the 2°C limit. The energy transition is currently progressing far too slowly. In developed countries, it appears to be difficult to reach agreement about how to do it and who should pay the bill, while in emerging and developing countries there is a lack of money to pay for the energy transition. If we cannot achieve the energy transition before we pass the 2°C limit, there is one last resort: a drastic economic contraction. In this scenario we must accept less material wealth. Moreover, it seems reasonable that those who are best placed globally to do so

should take a step back first: the developed world. This is where the social foundation is the strongest and where ecological boundaries are crossed the most.

Implications for investors

The implications for investors are significant: lower economic growth means lower returns at the macro level. Careful bottom-up selection will then be key. In a transition, renewable energy, electrification and products made with low energy consumption remain the most attractive options. In this scenario, economic growth may be strongest in emerging markets. After all, the countries where prosperity is highest will have to make the biggest sacrifice in terms of material consumption.

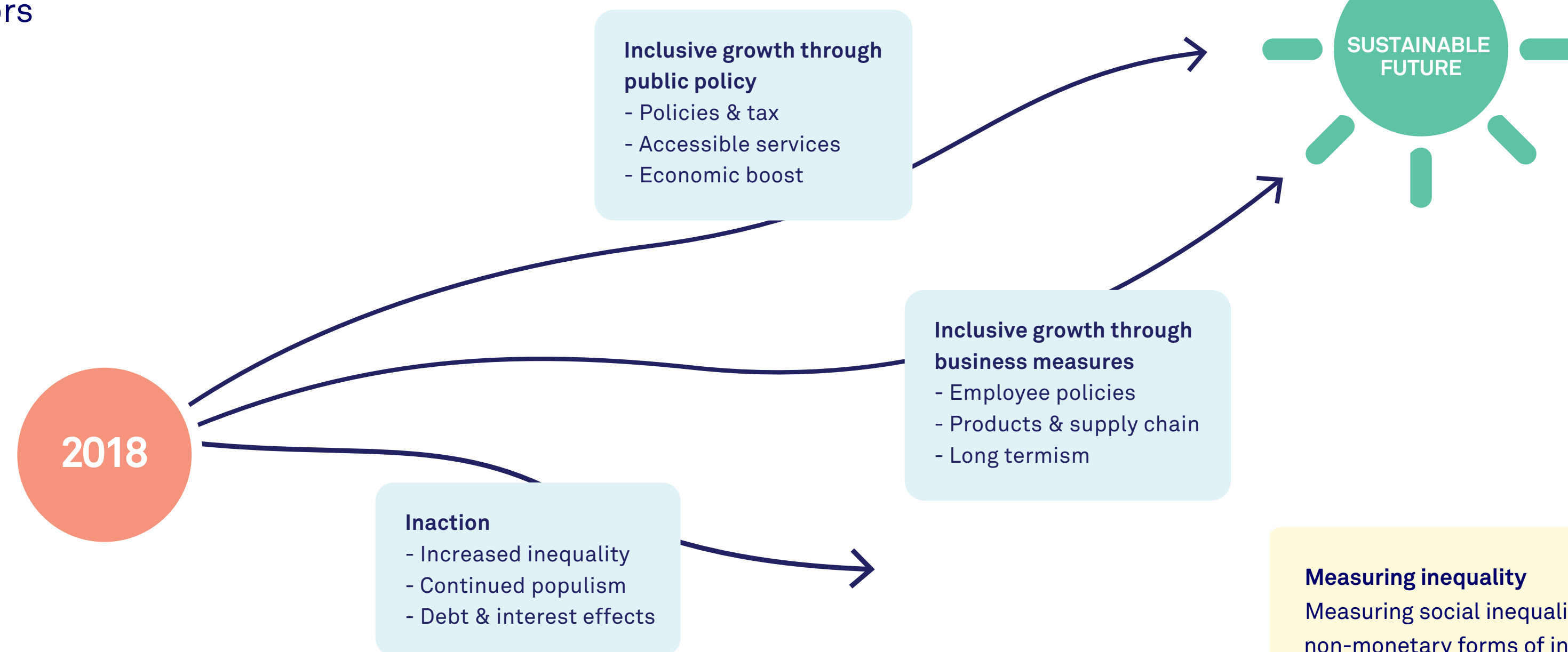


Towards an inclusive society

Scenarios and implications for investors

In many countries, especially those less developed, the social foundation is not very solid. Social inequality is generally high. Issues considered to be important in a society, such as education and health care, are unevenly distributed among the population. People and groups are unequally valued and/or treated based on social position, lifestyle, age or origin. People are confronted with all kinds of barriers that prevent them from fully participating in their societies' political, economic and social life.

The public inequality debate focuses largely on economic inequality. Economic inequality can either be the root of or an extension of social inequality. The difficulty in defining and measuring economic inequality explains why there is ambiguity in research on this topic. However, there is agreement on two things. First, the world has become wealthier and between-country income has converged somewhat. Second, economic inequality within many countries is increasing. According to the IMF¹⁷, income inequality has increased in 53% of all countries, mainly in



developed countries and in some of the major emerging economies. Rising economic inequality is associated with globalisation, technological change, institutional change and migration.

Having said that, social inequality is increasingly seen as a major problem. Tackling it makes up a large part of the 17 Sustainable Development Goals (SDGs) that must be achieved by 2030. Not only is reducing inequality a separate goal (SDG 10), but the SDGs together must ensure that nobody is left behind.

Here too, investors will have to ask themselves what impact social inequality has on financial-economic developments and therefore on financial returns. To put it very practically: the decreasing labour share in the economy has as a logical consequence an increasing capital share in many economies. To reverse that trend will inevitably have consequences for investors. They will have to consider the possible consequences of: 1) inaction, 2) inclusive growth through public policy and 3) inclusive growth through business measures.

Measuring inequality

Measuring social inequality is difficult. Many non-monetary forms of inequality cannot be measured easily or may be difficult to detect. That is why most measures typically focus on monetary forms of inequality. However, this does not mean that conclusions about income and wealth inequality are unambiguous. First, various definitions for the income unit (per capita, per household) are used. Second, it matters whether inequality is measured before or after taxes. Third, the timespan over which inequality is measured is also important. Multiple metrics are therefore used to measure inequality.

1. Inaction

In this scenario, we assume that all countries will continue to follow the inequality trajectory that they have followed since the early 1980s. This implies that inequality within countries will increase further.

The relationship between economic inequality and economic growth is not clear cut. According to traditional growth theory, a certain degree of inequality is inevitably associated with the early stages of economic development. In these stages, investment opportunities increase for those who have the financial means to invest and are willing to take risk and successfully innovate. At the same time labour shifts from less-attractive to more-attractive parts in the economy. These trends imply that inequality within society inevitably increases in the first phase of economic development. In the longer term, however, everyone will be drawn into the more modern economy and inequality will start to decrease. However, there is increasing evidence¹⁸ that these trickle-down effects of economic growth do not exist. Economic growth is simply not enough to take away these disadvantages if it is not inclusive and does not involve the three dimensions of sustainable development – economic, social and environmental. Many view this as an inherent failure of the current system, rather than as a temporary change in the relative gains of economic growth by capital and labour.¹⁹

When inequality becomes persistent, it can lead to poorer economic performance. Inequality impacts an

economy through various channels. The main channel is a reduction in investments, especially in human capital. Inequality prevents people from receiving sufficient education, both in quantitative and qualitative terms. This leads to a loss of productivity and, consequently, economic growth compared to more equal countries. Inequality can also lead to limited access to appropriate health care and, therefore, poor health. This may prevent some people from working altogether, while others may be less productive. The growth potential of an economy is directly related to investment returns. Lower growth rates will lead to slower corporate earnings growth. If companies cannot raise their profit margins, equity returns will subsequently be capped.

Populism

Persistent inequality may also result in a feeling of neglect and curtail hopes for a better life. Permanent social exclusion of groups and individuals can lead to violent conflicts, which is detrimental to economic development and thus will hurt financial markets as well. Even if this does not lead to violent conflict, inequality has serious impact, for example if it translates into the rise of populist parties. Such political parties generally focus their economic agenda on protectionism, anti-immigration, irresponsible fiscal policy and political influence on monetary policy. Even as a minority, they are able to influence the political agendas of the more mainstream parties. With the rise of populist parties, political uncertainty and risks have increased and this will go hand in hand with higher political risk premia. In addition, we would expect economic growth to be weaker in a ‘populist’ world economy, as barriers

curtail opportunities. Due to trade barriers the benefits from specialisation may no longer be reaped and productivity growth would slow. Moreover, it will become harder for companies to source labour and import inputs. Wage growth in developed markets will probably increase, reducing corporate profit margins. More risks and lower growth will ultimately result in lower returns. Regions depending on international trade, such as Asia, will probably be hit hardest.

Interest rates

Income inequality may also negatively impact real interest rates. Wealthier people save marginally more and borrow marginally less than the poor, so the net impact of an increase in income inequality would be an expansion of aggregate saving, together with a contraction of aggregate borrowing. This will hold back demand, reducing growth and inflation, and pushing down real interest rates. These lower real interest rates have two important implications for monetary policy. First, for a given inflation target, lower real interest rates reduce the amount of conventional monetary stimulus that can be provided in a downturn, and it makes it more likely that central banks will have to take unconventional measures. Second, a lower neutral rate suggests that when the policy rates normalise, they will likely converge at lower levels than those seen in the last couple of decades. This implies that government bond yields will also remain low. Since we believe in mean reversion, low starting yields almost inevitably result in low long-term bond returns. This may stimulate investors to take more risk in order to enhance returns. Such a search for yield may lead markets to turn a blind eye to risks.



Debt

In addition, economic inequality contributes to an increase in the debt mountain. It seems logical that a permanent increase in economic inequality will lead to a proportional increase in consumption inequality. It seems, however, that poorer households finance their consumption to a large extent by borrowing. High debts, consumer credit, mortgages, make an economy more vulnerable to economic shocks, especially if the most vulnerable people incur these debts. This debt is generally used for consumption and not to make productive investments. This will likely cause problems when the borrowed money eventually must be repaid.

2. Inclusive growth through public policy

Governments play a key role in curbing social inequality. They can create legal frameworks, develop policy frameworks and design tax systems in such a way that redistribution takes place, which can promote social inclusion. Governments can contribute to reducing economic inequality by increasing the tax burden on business and reducing the tax burden on workers. In recent decades, the opposite trend has occurred, however. To improve the business environment, many countries lowered corporate taxes, which resulted in higher after-tax profits to be distributed to shareholders. A reversal of this trend will have adverse effects for investors. Governments can tackle other forms of social inequality by ensuring that services (education, health, etc.) are accessible to all. In most cases this means that the role of the

government is increasing and that it will need more money to finance these services (if no cuts are made in other policy areas).

Implications for investors

An increase in corporate income tax rates (provided that this will happen globally) may have consequences for investors. On the surface, an increase in corporate income tax rates will result in an immediate decrease in business income that can be passed on to shareholders. However, this does not necessarily mean lower returns for stocks. Effective tax rates are often much lower than statutory tax rates, depending on the tax base. Although higher corporate income taxes may hold back equity prices in the short term, assessing the long-term impact is much more challenging. On the one hand, businesses may be tempted to make more costs, in order to minimise their income before taxes. They could, for example, invest more or increase wages. Yet on the other hand, firms may be tempted to reduce costs, in order to maintain a certain level of business income to be passed on to shareholders. In sum, it is hard to draw a general conclusion.

In the long run, government action to reduce social inequality will give economic growth a boost. The subsequent increase in business profitability is, of course, good news for investors. Shorter term, however, higher spending on education and health care implies that costs must be reduced in other areas and/or extra money must be raised. This may stimulate the issuance of (sovereign) impact bonds. Governments may also try to raise their tax income, thereby curbing private consumption and investments.

3. Inclusive growth through business measures

For decades, industry has assumed that limiting inequality equals forfeiting profits. Friedman²⁰ stated that the only responsibility of companies is to make profit. The focus of a company should be on the bottom line, everything else is just wasteful distraction. We believe that companies should have a positive social impact through their business models, products and services. This is not only in their own interest, but also a moral duty of entrepreneurs. Companies can contribute to inclusive growth in several ways.

The first way is through their human resources policies. A workforce on all levels throughout the company that reflects society not only contributes to inclusive growth. Research shows that companies with a diverse workforce also perform better.²¹ They are more innovative because their employees offer different perspectives, giving them a better understanding of what is going on within different customer groups. In addition, diversity will improve a company's image.

Remuneration policy also plays a vital role in inclusive growth. As we already mentioned, economic inequality has increased in recent decades. Companies can contribute to the redistribution in two ways. Firstly, companies should offer their employees at least a so-called living wage, a wage that enables them to support themselves and their families. In the short term, higher wages may hurt the bottom



line, but in the long term will be beneficial. Employee satisfaction will increase and so will employee involvement and productivity. And, beyond these more direct advantages, companies will also benefit from improved human capital, as sufficient income enables employees to send their children to school. Companies can also allow their employees to share in the profits. Although this strategy results in a smaller share of the profit for shareholders, the overall profit usually increases as a result of productivity effects²². In addition, profit sharing may result in greater flexibility in labour costs, making the bottom line less sensitive to economic fluctuations.

Another way for companies to contribute to inclusive growth is through their products and services. Companies should ensure that their products also reach disadvantaged groups within the population. This is not only good for the disadvantaged population, it also enables companies to expand and diversify their customer base.

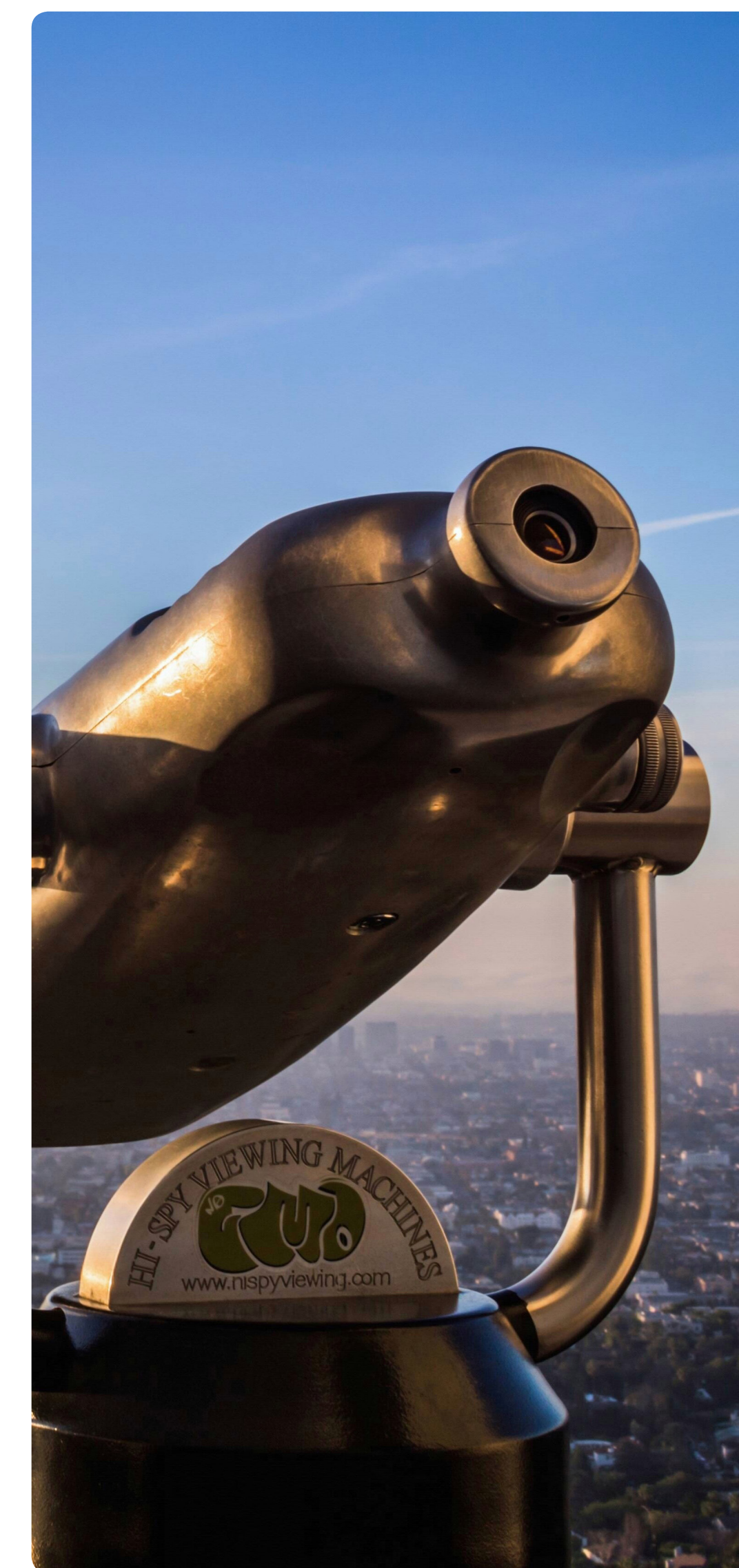
Companies can also contribute to inclusive growth through good value chain management. Globalisation has resulted in production processes becoming increasingly fragmented. As a result, companies at the end of the supply chain do not always have a clear view of issues at the beginning of the supply chain, such as the exploitation of workers. Better supply chain oversight leads to better working conditions for employees, but also to operational benefits for businesses, and revenue growth.²³ An additional advantage is the reduction of reputational risk. Furthermore, companies should ensure that their tax payments are in balance with their local economic

activities. Tax avoidance may seem profitable in the short term but will turn out to be costly in the long term. After all, tax income is used by governments to pay for facilities in a country, such as health care, education and security. Large-scale tax avoidance by the business community means that funding of these facilities is jeopardised, which may force governments to phase them out. One consequence of this could be a decrease in the quality of the labour production factor, which reduces productivity and, consequently, also long-term profits.

One last way companies can contribute to inclusive growth is by shifting their focus from the short term to the long term. Current market practice compels companies to maximise their short-term financial performance. However, this short-termism leads to the destruction of economic value, to the unequal distribution of wealth and to the undermining of trust in capitalism. Instead, companies need flexibility to create long-term holistic value. To facilitate this, investors need to change their investment approach. Moreover, it calls for a different remuneration system for company management.

Implications for investors

The points above highlight that generating positive impact may limit profit growth in the short term, but, rightly balanced, commitment to inclusive growth will benefit companies in the long run. This also requires a different attitude on the part of shareholders. Investors should expand their investment horizon and look for investments that offer long-term value, even if it takes a little longer before that value becomes visible.



5. Conclusion

Our response to the risks and consequences for investors outlined in the transition paths is clear: embrace the change and contribute to it.

Invest in transitions

In view of the challenges facing humanity, there is an urgent need to make our economic system more sustainable. Continuing with the current economic system, is not an option. Crossing the ecological and social boundaries ever further will, ultimately, lead to irrevocable damage. We need to change the way we live and how we invest.

Every investment has an impact on society, positive or negative. As investors, we have the power and the responsibility to invest in a way that adds value to both our portfolio and society. Investors need to move beyond conventional environmental, social and governance (ESG) and norms-based exclusion, to invest for positive change. The ESG and exclusion approaches might make our unsustainable economic system slightly more sustainable, but will not lead to a carbon-neutral or inclusive economic system. For this to happen, a more holistic approach is needed. Positive impact should be at the centre of stock and bond selection. Triodos Investment Management

invests only in companies that contribute to a sustainable society through their products, services and business practices. In our white paper 'Impact investing through listed equities and bonds' we present seven investable transition themes for a sustainable future.

Risk-return-impact perspective

The long-term returns that we present in the 'standard' approach are already lower than we are accustomed to in recent times. This is down to factors that have in the past contributed positively to higher financial returns and cannot be repeated, such as high growth in the number of people entering the labour market, a long-term decline in interest rates and a sharp increase in labour productivity.

There are risks once again, as outlined in the alternative transition scenarios. Investing without contributing to the necessary transition is not sensible from a risk and return perspective. The non-standard risks are too great and too manifest. At a

time when central banks, such as the Dutch Central Bank, are also pointing out climate risks, they can no longer be considered as tail risks.²⁴

This is partly why we have included the transition paths in this long-term outlook. There are risks for the baseline returns. But this would not do our analysis justice. Based on our investment philosophy, we also believe that we need these transitions to achieve a sustainable world. Hence the title: The return of transitions. We need transitions to achieve a sustainable world, just as the world economy has gone through transitions in the past.

Our response to the risks and consequences for investors outlined in the transition paths is clear: embrace the change and contribute to it. This is the way to limit the risks and, most importantly, to seize opportunities. And these opportunities are not only linked to risk and return. For us, the impact of investing is as important as financial return. It is also the way to achieve balanced returns as a long-term investor.

Endnotes

1. Brundtland, G.H. (1987). Our Common Future: Report of the World Commission on Environment and Development. New York: United Nations. Available at: <http://www.un-documents.net/our-common-future.pdf>.
2. Raworth, K. (2017). Doughnut Economics: 7 Ways to Think Like a 21st Century Economist. London: Random House UK
3. O'Neill, D.W., A.L. Fanning, F.L. Williams and J.K. Steinberger (2018). A Good Life for All within Planetary Boundaries. *Nature Sustainability*, 1(2), pp. 88–95. Available at: <http://www.nature.com/articles/s41893-018-0021-4>.
4. We assume that the number of hours people work remains the same on average.
5. Total factor productivity is the increase in labour productivity which is not attributed to the size or quality of capital and labour.
6. Gordon, R.J. (2016). The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War. Princeton: Princeton university press.
7. Brynjolfsson, E., D. Rock and C. Syverson (2017). Artificial Intelligence and the Modern Productivity Paradox: A Clash of expectations and Statistics. NBER Working Paper No. 24001
8. See: <https://climateactiontracker.org/global/temperatures/>
9. Burke, M.S., M. Hsiang and E. Miguel (2015). Global non-linear effect of temperature on economic production. *Nature*, 527, pp. 235–239. Available at: <https://doi.org/10.1038/nature15725>
10. Arent, D.J., R.S.J. Tol, E. Faust, J.P. Hella, S. Kumar, K.M. Strzepek, F.L. Tóth, and D. Yan (2014). Key economic sectors and services – supplementary material. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Available at: www.ipcc-wg2.gov/AR5 and www.ipcc.ch.
11. Standard & Poors. (2015). Storm Alert: Natural Disasters Can Damage Sovereign Creditworthiness. Standard & Poors. Standard & Poors. (2015). The heat is on: How Climate Change Can Impact Sovereign Ratings. Standard & Poors.
12. Standard & Poors. (2015). How Environmental And Climate Risks Factor Into Global Corporate Ratings. Standard & Poors. (2015). Climate Change Will Likely Test The Resilience Of Corporates, Creditworthiness To Natural Catastrophes. Standard & Poors.
13. OECD/IEA (2018). World Energy investment 2018. Available at: <https://webstore.iea.org/download/summary/1242?fileName=English-WEI-2018-ES.pdf>
14. In addition to CCS, the term Bio Economy Carbon Capture and Storage (BECCS) is now also used. Biomass is first grown on a large scale, after which it is burned, and the CO² is then captured. This is presented as a negative emissions strategy: the biomass extracts CO² from the air and no greenhouse gas is released by the capture during combustion.
15. Incidentally, an energy transition does not mean that the amount of energy waste must be reduced, and efficiency increased. By taking these steps, the impact of renewable energy sources will be increased. The same renewable energy capacity can therefore replace a larger part of the fossil capacity.
16. CPB (2018). The Productivity Effects of (Environmental) regulations. The Hague: CPB
17. IMF (2017). Fiscal Monitor: Tackling Inequality. Washington: IMF. Available at: <https://www.imf.org/en/Publications/FM/Issues/2017/10/05/fiscal-monitor-october-2017>
18. Ravallion (2005), Ostry et al (2014)
19. See for instance Piketty (2014). Capital in the Twenty-First Century. Harvard University Press
- Cambridge, MA. Or Milanovic, B. (2016). Global Inequality. A new approach for Globalization. Harvard University Press, Cambridge, MA.
20. Friedman, M. (1970). A Friedman Doctrine: The Social Responsibility of Business Is to Increase Its Profits. *The New York Times*, 13 September 1970.
21. Hunt, V., D. Layton and S. Price (2015). Why Diversity Matters. McKinsey & Company, January 2015.
22. Weitzman, M., D. Kruse (1990). Profit Sharing and Productivity. In: Blinder, A.S., Paying for Productivity: A Look at the Evidence. Washington, D.C: Brookings Institution.
23. Thornton, L., C.W. Autry, D.M. Gligor and A.B. Brik (2013). Does socially responsible supplier selection pay off for customer firms? A cross-cultural comparison. *Journal of Supply Chain Management* 49(3), pp. 66-89.
24. DNB (2018). An energy transition risk stress test for the financial system of the Netherlands. Amsterdam: DNB. Available at: https://www.dnb.nl/binaries/OS_Transition%20risk%20stress%20test%20versie_web_tcm46-379397.pdf

Disclaimer

- › This document has been carefully prepared and is presented by Triodos Investment Management.
- › It does not carry any right of publication or disclosure, in whole or in part, to any other party.
- › This document is for discussion purposes only.
- › The information and opinions in this document constitute the judgment of Triodos Investment Management at the time specified and may be subject to change without notice, they are not to be relied upon as authoritative or taken in substitution for the exercise of judgment by any recipient. Under no circumstances is it to be used or considered as an offer to sell, or solicitation of any offer to buy, nor shall it form the basis of or be relied upon in connection with any contract or commitment whatsoever or be taken as investment advice.
- › The content of this document is based upon sources of information believed to be reliable, but no warranty or declaration, either explicit or implicit, is given as to their accuracy or completeness.
- › This document is not intended for distribution to or use by any person or entity in any jurisdiction or country where such distribution or use would be contrary to local law or regulation.
- › All copyrights patents and other property in the information contained in this document is held by Triodos Investment Management and shall continue to belong to Triodos Investment Management. No rights whatsoever are licensed or assigned or shall otherwise pass.

About Triodos Investment Management

With over 25 years of experience as a globally active impact investor, and as a wholly-owned subsidiary of Triodos Bank, Triodos Investment Management has developed deep sector-specific insights across Energy & Climate, Inclusive Finance, Sustainable Food & Agriculture, Sustainable Real Estate, and Socially Responsible Investing in listed equities and bonds. Assets under management as per 30 June 2018 amounted to EUR 4.2 billion.

Investing in positive change

For more information about the Triodos Socially Responsible Investment Funds, and other impact investment opportunities, please contact our Investor Relations team at:

+31 (0)30 694 2400

TriodosIM@triodos.com

www.triodos-im.com/socially-responsible-investing