

GREEN RECOVERY

The world economy is on track for recovery. Investment in green growth will provide vital support.

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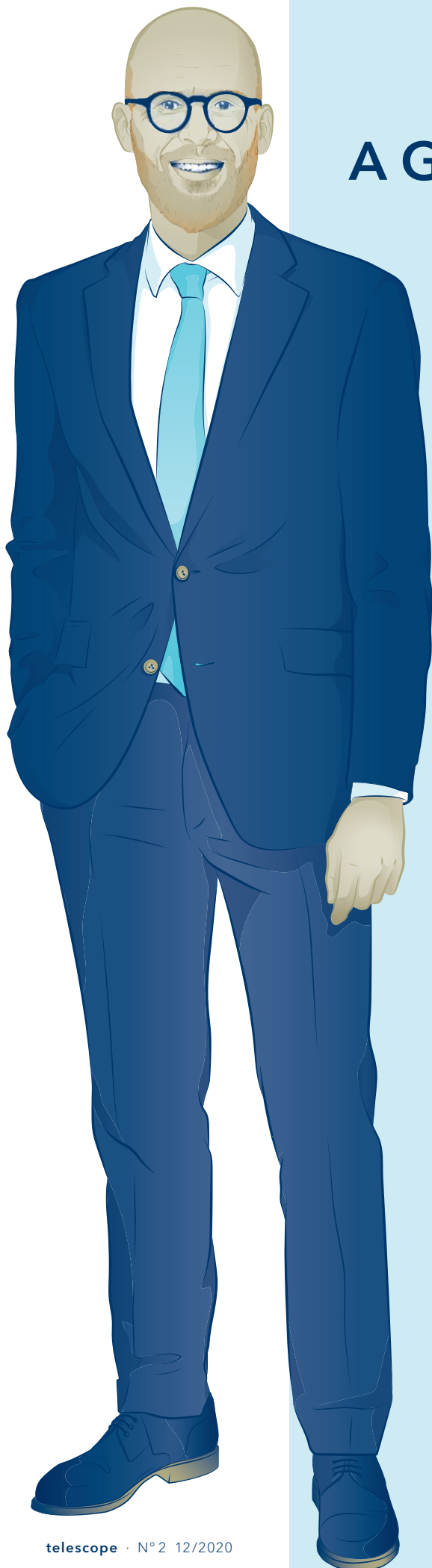
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THUMBS UP FOR A GREEN RECOVERY



Dear Reader

Where do you stand on emissions? It's a question we all have to ask ourselves. The Paris Climate Agreement has mapped out the path ahead. The European Union, Switzerland and Liechtenstein have all committed themselves to bringing emissions down to net zero by 2050.

That's a huge undertaking. Governments can set the wheels in motion and provide an appropriate framework. But net zero cannot be achieved without a determined effort by businesses and individuals.

Meanwhile, it now looks as if the world economy is heading for recovery. That is not to downplay the economic devastation unleashed by the coronavirus pandemic. The world has experienced its worst recession since the Great Depression. Nor, of course, should we ignore the human tragedy that the pandemic has caused. But there are now signs that confidence is returning and that the worst is behind us.

So it's thumbs up on two fronts: a recovery is in the offing, and the green economy will provide impetus.

In Telescope we aim to combine foresight with insight. In this issue Martin Risch, CEO of the Dr Risch Laboratory Medicine Centre, tells us about his best and worst investments. And we introduce you to the inventor of GDP and explain why the Himalayan Kingdom of Bhutan rejected it as a key metric.

We wish you an enjoyable read.

A stylized, handwritten signature in dark blue ink, appearing to read 'Felix Brill'.

Dr Felix Brill
Chief Investment Officer



GREEN RECOVERY

The coronavirus pandemic has plunged the world economy into the worst recession since the Great Depression of the 1930s. The fallout will be long-lasting, but the indications are that the years ahead will see a recovery. Investment in the green economy will provide important impetus.

Felix Brill

Collaboration: Dominik Pross



Every boom and every crisis has its own character. But what sets the last thirty years apart from the general course of economic history is the frequency of serious crises and the length of the subsequent recoveries. In the 1990s and 2000s it looked as if economic policy had a fairly good grip on events. Inflation had been tamed, the global economy was humming and Europe successfully launched the euro. Even major setbacks like the Asian crisis in 1997 and the bursting of the dot.com bubble in 2001 were overcome fairly quickly thanks to incisive monetary policies.

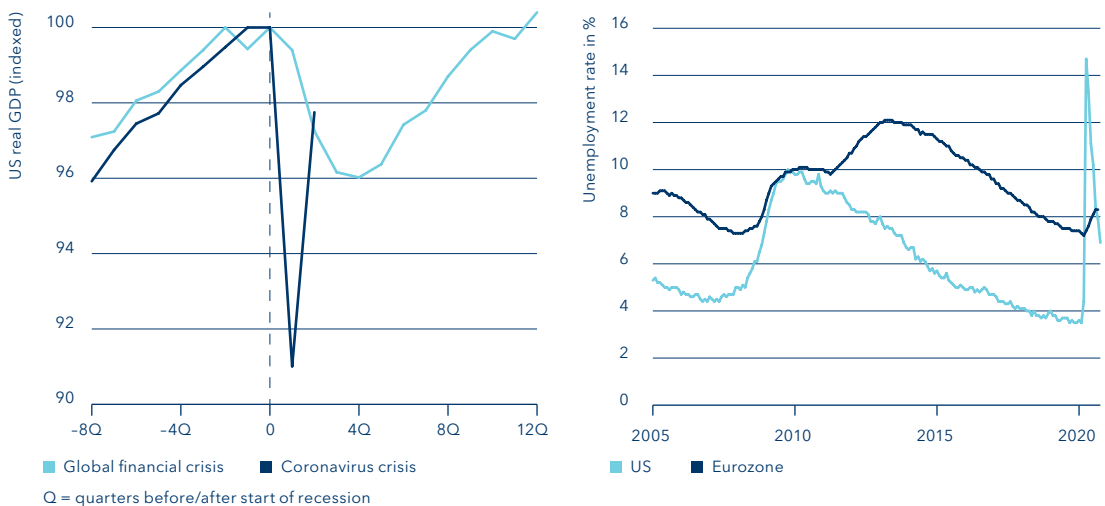
The start of the 21st century saw one of the strongest periods of expansion that the world economy has ever experienced. China chalked up double-digit growth rates, globalisation was on the march, and the US real estate market was booming. Then came the Global Financial Crisis of 2007/08. The world economy was brought to its knees, and for a while world trade was paralysed. Global economic activity shrank by 4%. It was the worst crisis since the Great Depression of the 1930s.

But confidence returned, again thanks to ultra-expansionary monetary policies and

// The first wave of the coronavirus pandemic sent the world economy into a tailspin. //

financial stimulus by governments. Companies invested again, and consumers unbuttoned their wallets. In the United States this marked the start of the longest economic expansion in the country's history. The boom was finally terminated by the coronavirus pandemic in 2020.

Chart 1: Coronavirus shock compared with the global financial crisis



The first wave of the coronavirus pandemic sent the world economy into a tailspin (→ see chart 1). The real GDP of the US crumbled by over 8% in the second quarter of 2020, the biggest quarterly fall since World War II (even bigger than in the global financial crisis). The impact on the US labour market was dramatic. Millions of people lost their jobs, and the unemployment rate soared from just under 4% to a dismal record of over 14%. The picture in Europe was not much better, though here traditional stabilisers had an effect, notably government pay-outs to compensate for unemployment or short-time working. Thus Europe's overall unemployment rate has risen "only" from 7.2% to 8.3%.

Double stimulus

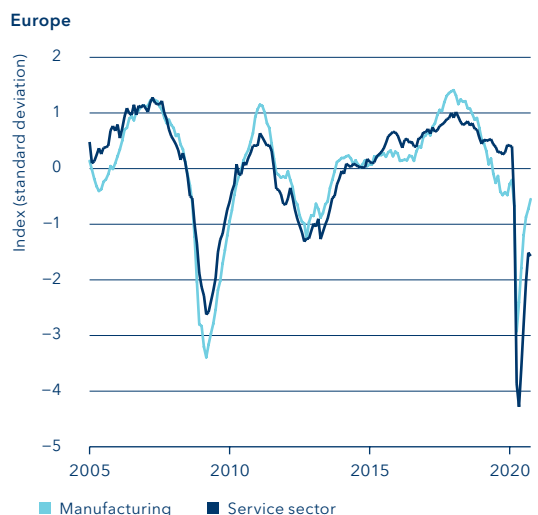
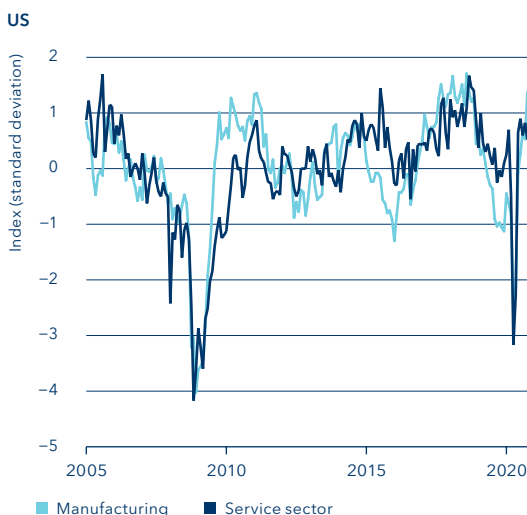
Politicians quickly realised that the usual relief measures would be woefully inadequate for stabilising the economy. Throughout the world, governments implemented emergency relief packages for the business sector. The European Union's massive outlays to tackle the crisis were

linked to its previously launched Green Deal. Once again monetary and fiscal policy are working in tandem.

This energetic political response is boosting confidence and paving the way for a rapid recovery, despite the ongoing pandemic. Economic activity posted vigorous growth worldwide in the third quarter. But coronavirus infection rates have been rising again during the autumn, and in many countries the second wave is more ferocious than the first. Does this mean that economic activity is going to collapse again, causing jobless rates to soar? This risk exists. But we believe there are ample reasons why it will not happen. Our opinion is based not only on monetary and fiscal policy but on other factors as well.

We now know more about the virus than at the start of the year. Mitigation and containment measures have become more systematic and effectively targeted than they were during the first wave. Wearing face masks is now the norm, and companies have learnt to cope with restrictions. Working from home and digital interac-

Chart 2: Business sentiment in the US and Europe



// As confidence spreads, the recovery will strengthen. //

tion enable them to carry on despite curbs on movement. And the battle to produce vaccines is proceeding apace. True, even in the best case scenario it will take months to achieve herd immunity. But justified hopes of a vaccine have a psychological effect and are already conditioning the behaviour of politicians, businesses and consumers.

Surveys of companies and consumers show that sentiment has improved greatly since spring. Indeed, manufacturing businesses in the US and Europe are now more confident than they were a year ago. Their present confidence level is actually higher than the average for the last 15 years (→ see chart 2). Business confidence in the service sector is more subdued, but here too the mood has improved since the spring.

The role of investment

Improved confidence is an important precondition for reactivating shelved investment plans or launching new ones. As confidence spreads, the recovery will strengthen. Investment is a much smaller component of total demand than private consumption, but it tends to show bigger rises and falls. In critical phases these fluctuations make it a more important factor

than private consumption in determining the economy's direction. In the US, business investment and construction made up only 18% of total demand in 2019, compared with 69% for private consumption. In Europe the share of private consumption is typically somewhat smaller, though it is still easily the largest component. The average contributions in the 27 member countries of the EU in 2019 were 23% for investment and 53% for private consumption. The figures for Switzerland were 25% and 63% respectively. But if we measure the impact on changes in economic performance over the last 30 years, investment has been just as influential as private consumption. And if we look simply at the turning points, i.e. when the economy started heading towards recession or towards a post-recession recovery, investment was the key variable.



1902-1907 boom

Cheap broker's loans

US trust companies were largely unregulated and willing to lend without collateral. This meant that banks and private investors could buy shares and commodities with cheap borrowed money. A major trust company got into difficulties and was forced to close, sparking a panic and bank runs. This experience ultimately led to the creation of the Federal Reserve System.

Expansion	1902-1907*
Recession	1907-1908 (13 months)
Top to trough real GDP	-10%

* Figures refer to the US

Public spending, too, plays an important role at these turning points in the business cycle. While business investment is typically procyclical, i.e. in line with the current direction of the economy, public spending and public investment tend to be deliberately countercyclical and therefore have a stabilising effect at difficult times. In response to the coronavirus crisis, governments are deploying an expanded countercyclical armoury. Alongside social insurance pay-outs, short-term economic stimulus packages are now at the top of the agenda. Such measures were important during the Global Financial Crisis. But this time there is a critical difference. More than in 2008/09, politicians are now focussing not simply on growth per se but on low-emission growth. For

example, the bailout loans for Lufthansa and its subsidiary Austrian Airlines were tied to CO₂ reduction targets. Every euro and franc of public money that is invested must be viewed through the prism of climate neutrality by 2050.

Europe is moving forward with its Green Deal. Climate is also high on the agenda in China, the world's biggest emitter of CO₂. In America President-elect Joe Biden is planning major investments in a greener economy and has promised to get the US back into the Paris Climate Agreement.

Governments' leverage is not limited to direct investments (→ see page 12). A clear example is the EU's Action Plan for Sustainable Finance, which contains strong regulatory incentives for



Roaring twenties

World War I and the Spanish flu were followed by a period of powerful economic expansion in many parts of the world. Technological progress, mass production and exuberant consumer demand fuelled the boom of the Roaring Twenties. Generous lending was also a key factor, with stock market investors making huge use of margin loans. Brief economic setbacks occurred repeatedly in the 1920s, but the boom did not end until the Black Friday stock market crash that ushered in the Great Depression.

Expansion	1921-1929*
Recession	1929-1933 (43 months)
Top to trough real GDP	-18.4%

* Figures refer to the US



Postwar boom

European reconstruction, in combination with technological progress and new products, paved the way for the economic miracle of the 1950s, which carried on until the first oil crisis in 1973. A feature of this period was low unemployment, partly due to the decimation of the population in World War II. This led to a steady rise in wages. Another key factor was the low price of oil. The oil embargo that followed the Yom Kippur Arab-Israel war laid bare the world economy's heavy dependence on cheap oil.

Expansion	1945-1973*
Recession	1973-1975 (16 months)
Top to trough real GDP	-2.7%

* Including setbacks; figures refer to the US

the financial services industry. Added to this are long-term trends like the switch to electric vehicles. All in all, the next recovery is already taking shape – and it will definitely be coloured green.

Green, but ...

Yes, there are risks. The pandemic has highlighted the unpredictability of external shocks. A third wave of the pandemic, as happened during the Spanish flu over 100 years ago, cannot be ruled out. An eye must also be kept on rising public sector debt, as we saw after the global financial crisis. In the longer term, inadequate action on climate change would likewise create risks, though these are hard to quantify.

An economic upturn does not make everyone a winner. Structural changes create awesome challenges for companies, sectors and regional economies. But such changes are easier to cope with if the overall economic environment is improving. The chances of an expansion are good at present, as the probit model shows (→ see page 10). The model is forecasting an economic expansion during the coming two years with a probability of over 99% (at the time of writing in November 2020). This opens up interesting investment opportunities.



Tiger expansion

Asia, notably the tiger economies of Singapore, South Korea and Taiwan, achieved meteoric economic growth in the 1990s. Their economic vibrancy attracted huge amounts of foreign money, and they made great strides towards catching up with the developed economies. But, as happens so often, rapid growth led to a credit explosion and excessive debt, resulting in a crisis on the financial markets in 1997. But Europe and the US were spared a recession

Expansion	1990-1997
Top to trough real GDP 1998	ranging from -7% (Thailand) to -14% (Indonesia)



US real estate boom

Globalisation and strong growth in Asia were key features of the recovery that occurred after the bursting of the dot.com bubble. Deregulation of the financial services sector starting in the 1980s, coupled with the policies of the Federal Reserve under Alan Greenspan, encouraged many banks to lend over-generously. Outstanding mortgage loans were increasingly bundled together and sold in the form of structured products. Many banks kept such securities on their own books. This situation ended in the Great Financial Crisis.

Expansion	2001-2007*
Recession	2007-2009 (18 months)
Top to trough real GDP	-4%

* Figures refer to the US

HOW DOES THE PROBIT MODEL WORK?

Probabilistic forecasting is not foolproof. But if used correctly, probit models can help us make meaningful predictions. That applies to economic forecasts too.

Felix Brill

The day before the US presidential election the widely watched data journalism and news website FiveThirtyEight published its final prediction: an 89% probability of a Joe Biden win. Four years before, Hillary Clinton had been given a 71% chance of winning. Biden won, Clinton lost. Did FiveThirtyEight's forecasting model do better this time round?

Thousands of elections

The question cannot be answered with a simple yes or no. Probabilistic forecasting intrinsically involves a degree of uncertainty. What the model says is: "If American voters went to the polls repeatedly, Joe Biden would win 89% of the time." In FiveThirtyEight's model,

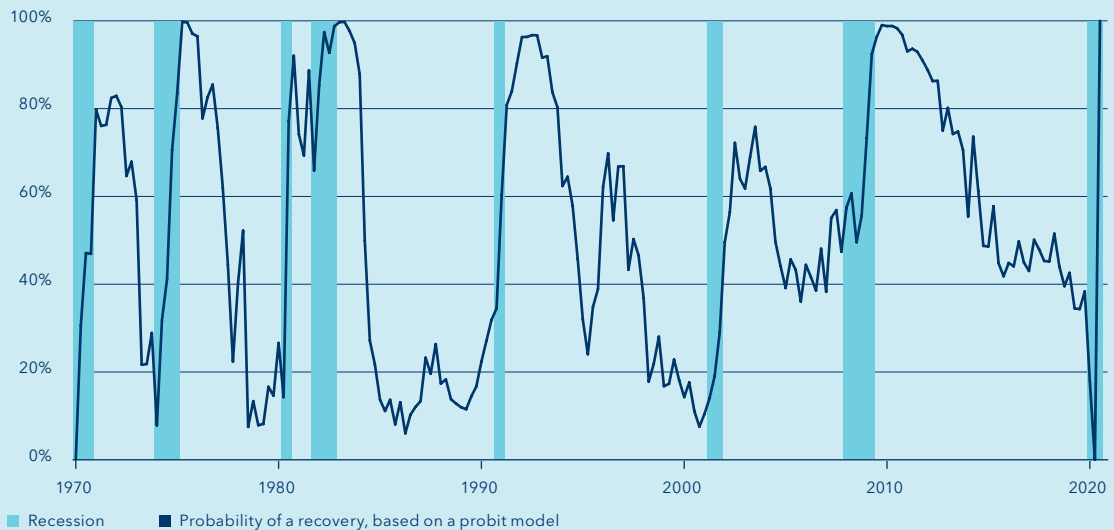
repeatedly means 40,000 times. But the election happens only once. And in this single election the favoured candidate can lose, as happened with Hillary Clinton in 2016.

That does not mean that such models should be disregarded. On the contrary, they are more honest than other types of forecasting model. If a forecast says, "The US economy will grow by 3.5% in 2021", it seems to be claiming total accuracy, but as soon as the word "probably" is inserted we know that the forecast contains a degree of uncertainty. On the day before the election Joe Biden was the "probable" winner, not the "certain" winner.

Economists frequently use such models to estimate the

// How probable is it that the coming two years will see an economic upturn? //

Probability model for a recovery of the US economy



probability of a particular event. In this context we speak of “probit models”. A typical example is the use of a probit model to try to calculate the likelihood of an imminent recession.

Following the economic crisis triggered by the coronavirus pandemic, we can now put the calculation the other way round: How probable is it that the coming two years will see an economic upturn? The key input here is the output gap, i.e. the difference between actual output at present and

the economy’s potential output in normal times.

Probable economic recovery

The calculation is simple: If the output gap is very large but starting to contract, the chances of a recovery are good. Conversely, the smaller the output gap, the less likely it is that the expansion can last much longer, because a small output gap indicates that the economy is already operating close to capacity.

The probit model works extremely well for the US econ-

omy. Looking at results since 1970, we see that at the end of every recession the model has forecast an expansion with a probability of almost 100%. But the longer the boom lasts, the smaller becomes the probability of its continuation. At present (November 2020) the model is estimating the probability of a recovery at over 99%, the first time it has produced such a reading since 2009. So there is an excellent chance that the coming two years will be a good time for the economy. But, as explained, there is no guarantee.

CLIMATE CHANGE STIMULUS

First the EU, then China, and perhaps soon the US – all aiming to become climate neutral within decades. This will require enormous investment spending, both public and private. The time is ripe. And it's time for investors to get on board.

Bernd Hartmann

The European Union is leading the way. It has committed itself to becoming climate neutral by 2050 and intends to mobilise investments totalling 1 trillion euros during the current decade for its Green Deal. China, today the biggest emitter of CO₂, will have to invest similar amounts to achieve its objective of climate neutrality by 2060. If President-elect Joe Biden keeps his word and rejoins the Paris Climate Agreement, the US too will be a massive spender on green investment.

It is impossible to say with precision how much money will be needed. The International Energy Agency, acting in cooperation with the International Monetary Fund, has calculated that it will take 1 trillion dollars a year over a period of

three years just to reconstruct global energy supplies. This equals 0.7% of global GDP.

Climate change is already making itself felt. We are noticing in our daily lives how temperatures are on the up. Forest fires and other extreme weather events have become more frequent, with resultant economic damage. At the same time the Covid-19 pandemic has plunged the world economy into crisis. Countries that act countercyclically can provide stimulus by investing in green growth.

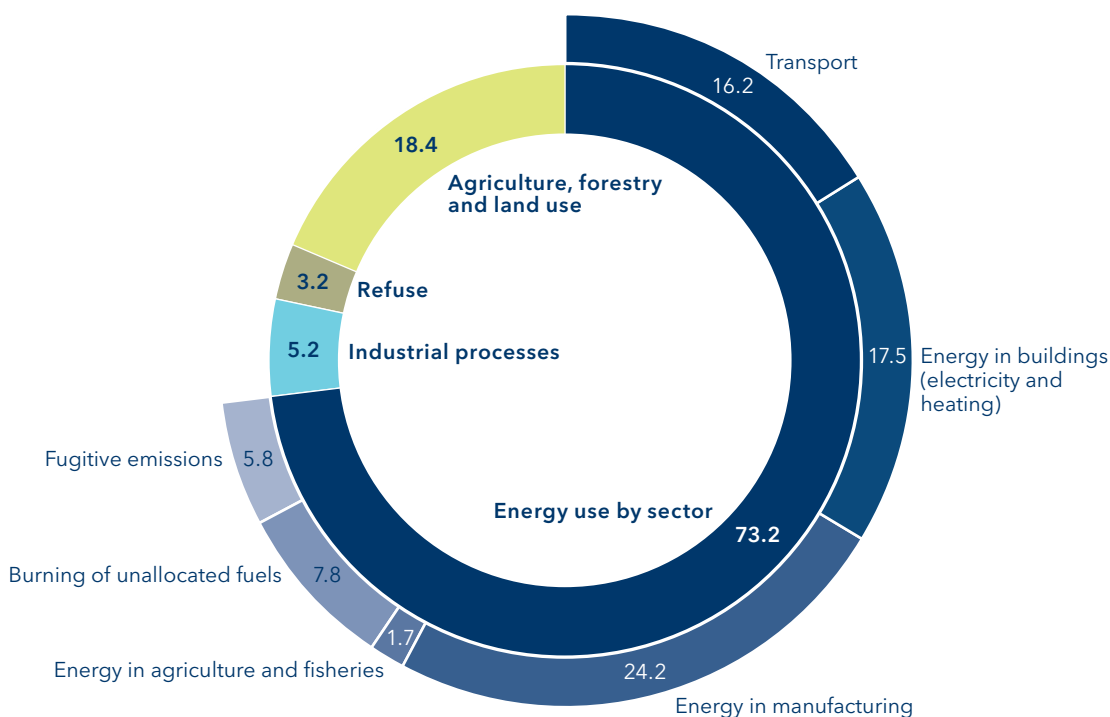
Creating the right incentives

Governments need to push ahead with investment in green growth, but they should not bear the burden alone. By building the right technological base (e.g. propagating the use of hydrogen fuels) and creating incentives, the public sector can animate citizens and businesses and thereby multiply the effects achieved. At the same time, environmentally harmful subsidies and other ungreen incentives must be discarded.

More than 20 countries have already introduced carbon pricing mechanisms, though usually only for selected industries. The aim is to discourage environmentally harmful behaviour by assigning costs on the "causer pays" principle. There are good examples of

// Climate change
is already making
itself felt. //

Chart 1: The biggest sources of CO₂ (in %, 2016)



how this can work in practice (→ see page 19). But many countries shy away from carbon pricing for fear of impairing their competitiveness. A look to Sweden proves them wrong. Sweden introduced a carbon tax in 1991 and has shown that economic growth is compatible with fighting climate change. Sweden's real GDP grew by 78% between 1990 and 2017, while CO₂ emissions fell by 26%. Thus the country had a higher growth rate than the EU (61%) but was more effective in reducing emissions (-23%). If more countries introduced carbon taxes, they could be extended to sectors that are currently exempt. These include aviation and shipping, which together are responsible for about a fifth of the CO₂ emissions by the transport sector (→ see chart 1) but hardly taxed.

Good policies do not always find acceptance. In France, many people took to the streets when President Emmanuel Macron announced a fossil fuels tax to finance the switch to low-carbon energies. The yellow vest protests in 2018 highlighted the distribution aspect of measures to restructure the economy. Advocates of a carbon tax are numerous. A year ago, 3,500 economists, 27 Nobel laureates and the IMF issued a call for carbon taxation but stressed that it must be accompanied by a climate dividend. Everyone should get a share of the resultant tax revenue. Switzerland, for example, distributes part of the revenues from its CO₂ steering tax in the form of lower health insurance premiums.

Financial system is key

Governments' legislative muscle enables them to create other incentives as well. Particularly important in this context is the regulation of the financial services industry, especially in Europe. The majority of European companies still raise finance by bank loans rather than in the bond market. If the capital ratio requirement for loans to finance ecologically positive measures were relaxed, greener companies would benefit from lower financing costs. Central banks could create similar incentives in their bond purchase programmes by taking account of companies' climate impact or the purpose for which bonds were issued. Bank regulation and monetary policy must find the right balance. Climate-related risks are bound to have financial consequences and should be evaluated accordingly, but this should not be done at the expense of the financial markets' stability.

Less controversial is the creation of new markets that provide a liquid environment for the issue and trading of appropriate financial instruments. That includes markets in green and social bonds. Bonds issued by governments and companies to finance ecological investments are well established, but the market in social bonds only took off after the outbreak of the coronavirus pandemic. The European Commission's first bond for financing national short-time working programmes was 14 times oversubscribed. To discourage free-loaders, transparency and clear rules in this sector are a must. For small and medium-sized enterprises, however, tapping the bond market is not an option. Crowd funding platforms and specialised investment funds that act as intermediaries between lenders and borrowers can play a useful role here.

Thus the job of the public sector is less concerned with raising capital directly than with providing the right incentives. This includes creating a suitable framework for a market in which prospective green solutions compete for investors' money. One thing is clear: the transition from fossil fuels to climate neutrality and a

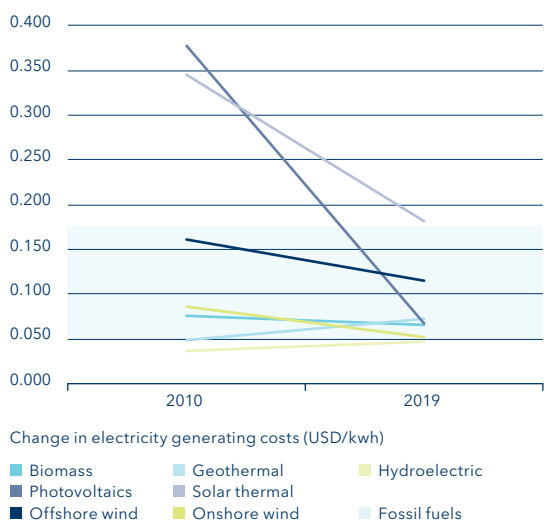
more environmentally friendly use of resources requires a fundamentally revamped economic model. This will necessitate an enormous input of private capital.

Importance of investment returns

But will the private sector be willing to cough up? Central banks' policy of low and negative interest rates has produced a "yield famine", which particularly affects pension funds and other institutional investors that have only limited scope for switching to higher-yielding but more volatile asset classes. Such investors will therefore be very interested in investments that offer attractive and stable cash flow. Raising sufficient finance is therefore first and foremost a question of attractive investment returns. In a low interest rate environment this should not be too much of a challenge.

Technological progress has made green electricity increasingly attractive (→ see chart 2). Electricity can now be generated more cheaply with alternative energies like wind and water power than with fossil fuels. Biomass, geothermal energy and solar power are also

Chart 2: Competitive alternative energies



price-competitive in many countries. If the harm caused by emissions is factored into energy costs, renewables have a clear cost advantage.

The success of solar power shows what technological progress and economies of scale can achieve. The cost of a kilowatt-hour of solar electricity using photovoltaic technology has fallen by over 80% since 2010, making it cheaper than atomic energy.

Thus many green technologies are already economically preferable to traditional processes. Promising developments in some areas have not yet become sufficiently competitive to achieve an economic breakthrough, and here more investment is needed. Financing is chiefly in the form of venture capital. But risk-tolerant investors will not be ready to put up money until they see the potential that ecological restructuring offers.

Opportunity for investors

The greening of the economy under the aegis of the 2015 Paris Climate Agreement has only just begun. This is a boat that investors should not miss. The challenges of green growth present enormous opportunities. The European Green Deal sets out the actions required:

- energy- and resource-efficient building and renovation;

// Solar power is now
cheaper than atomic
energy. //

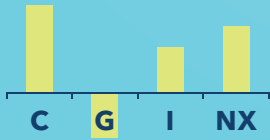
- clean and recycling-oriented industrial processes;
- clean and affordable energy;
- sustainable and intelligent mobility;
- sustainable food supplies.

Achieving all this will require new technologies, and that means pumping money into research and innovation. Many of the companies that cater to the public or private sector in these fields are not (yet) equity market heavyweights. In order to tap this potential, investors should put at least a part of their equity allocation into theme-based investments.

The green upheaval will inevitably also produce losers. Traditional technologies will be elbowed aside by new and more sustainable processes. Changes in customer behaviour will threaten existing fields of business activity. In some sectors the business environment will be revolutionised. According to the Carbon Tracker Initiative, companies and governments are sitting on fossil fuel reserves equivalent to 2,795 gigatons of CO₂. But under the Paris Climate Agreement's commitments to reduce global warming, only about 20% of that can be burned. 80% will therefore have to be written off. The ball has been set rolling by oil giants Royal Dutch Shell and BP, which have recently slashed the value of their assets by 22 billion and 17.5 billion dollars respectively.

Besides these direct economic impacts, equity and bond prices will also be affected by the restructuring of investment portfolios in the years ahead. Investors are adjusting their allocations to give greater weight to sustainability. Enormous sums are therefore flowing into sustainability-oriented investments. Governments, companies and private individuals are all pulling in the same direction. This increases the chances that climate neutrality will be achieved and that an investment exposure to the greening of the economy will pay off.

THE BUSINESS CYCLE



Boom

As confidence returns, investment in the future increases. Businesses need more labour to satisfy growing demand, and they use their increased profits to expand capacity. Job security and rising wages encourage private households to make big-ticket purchases.



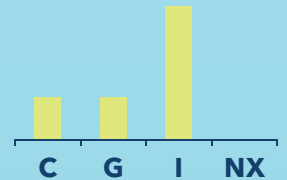
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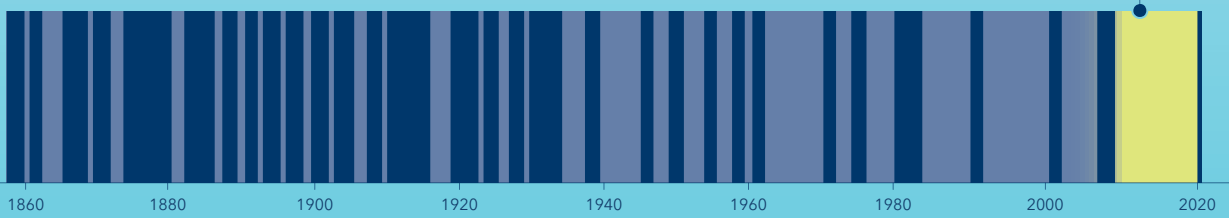
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Upturn

Recessions breed caution. Despite low interest rates, investment is subdued. Private households concentrate on meeting their day-to-day needs. The only area where spending increases is the public sector, with governments pursuing countercyclical policies. After a while sentiment improves. Confidence grows, and businesses start to invest again. The upturn begins.



Upturns and downturns in the US economy since 1850



■ Upturn ■ Downturn ■ Longest expansion

Downturn

The boom leads to rising prices and interest rates. This pushes up business costs, and profits decline. Investment becomes hardly worthwhile, so projects start to be shelved. As these developments spread to large parts of the economy, the economic growth rate falls.

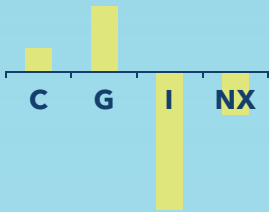


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4

Recession

Economic momentum collapses and gross domestic product contracts. Symptoms of a recession are rising unemployment and increased bankruptcies. Investment projects are postponed or abandoned. Consumers tighten their belts and concentrate on essentials.



$$\text{GDP} = \text{C} + \text{G} + \text{I} + \text{NX}$$

GDP = Gross domestic product is the value of all finished goods and services made within a country during a specific time period. It is a key measure of a country's prosperity. GDP can be calculated in various ways. Here we explain the expenditure approach, which calculates GDP by adding together private consumption, government spending, investment and net exports (exports minus imports).

C = Consumption by private households
In developed economies this is by far the most important component of GDP. It comprises all purchases of goods and services by consumers - from toilet paper to a new kitchen, from gym membership to a new car.

G = Government spending
This component consists of all public sector spending at every level, from the national government to local authorities. In the US, for example, it consists of all spending by the federal government, states and local governments.

I = Investment
In most developed countries, investment is a much smaller demand component than private consumption. But it is the component that fluctuates most and therefore tilts the balance at turning points in the business cycle.

NX = Net exports
Every country produces goods and services that are sold abroad. At the same time companies and consumers buy goods and services from other countries. When GDP is calculated, imports are subtracted from exports. Germany and Switzerland are typical net exporters, whereas the US imports more than it exports.

The longest upturn lasted

128 months

The average upturn since World War II lasted

64 months, average recession **11** months

SIMON KUZNETS: INVENTOR OF GROSS DOMESTIC PRODUCT

Clifford Padevit

It's the best-known metric in economics: gross domestic product (GDP) or national income. Simon Kuznets was the first to calculate the total value added by government, businesses and individuals in a year and express it in a single number. His findings were published in 1934 and earned him the Nobel Prize in Economics in 1971.

Kuznets was born in 1901 in the town of Pinsk in Czarist Russia, now Belarus. He went to school and college in Kharkiv in present-day Ukraine. In

1922 his family emigrated to the USA, and within four years he graduated from Columbia University in New York with a master's degree and doctorate.

At Columbia University he studied under Wesley Mitchell, who had become the first director of research at the National Bureau of Economic Research (NBER), a private independent organisation founded in 1920. The encounter with Mitchell had a decisive influence on Kuznets' career.

The NBER, with its commitment to unbiased factual analysis, enjoys a high reputation to this day. It was the perfect place for Kuznets. He joined it in 1927 and worked there for over thirty years. It was also there that he met his wife Edith, with whom he had two children.

"Year in, year out ...", wrote Kuznets at the start of his report to the US Senate entitled National Income, 1929-1932, "...the people of this country, assisted by the stock of goods in their possession, render a vast volume of work toward the satisfaction of their wants." In this groundbreaking report Kuznets developed the concept of national income and calculated all its components.

The trigger for his research was the Great Depression that began in 1929. Politicians had become painfully aware that they had no reliable way of measuring economic activity. Kuznets provided them with a single metric for measuring the nation's income. His estimate for 1929 was 81 billion US dollars (around USD 1,233 billion in today's money), falling by 40% by 1932.

Kuznets may have guessed that his concept would be misinterpreted. He wrote that his calculation of national income was based on an amalgam of assumptions and was by no means a precise number. And he also stressed that a nation's welfare could scarcely be inferred from this one metric.

Thus the inventor of GDP was already anticipating the biggest criticism that would be levelled against it. Later he developed a model that bears his name: the Kuznets curve, which states that, as an economy develops, market forces initially cause an increase in economic inequality and later a decrease. A subsequent refinement, the "environmental Kuznets curve", traces the relationship between GDP and environmental degradation. In his key achievements, Simon Kuznets was ahead of his time. He died at the age of 84.



“GOVERNMENTS NEED TO GET THE PRIVATE SECTOR ON BOARD”

Carbon pricing is an important instrument for achieving climate targets, says environmental economist Regina Betz. Experience shows that it facilitates the decoupling of emissions from economic growth.

Interview: Clifford Padevit

Professor Betz, the EU and China have set themselves the target of cutting net CO₂ emissions to zero by 2050 and 2060 respectively. Does this mark the beginning of a new era in the fight against climate change?

Yes, though the move really started with the Paris Climate Agreement in 2015. The nations signing the agreement committed themselves to achieving a balance between greenhouse gas emissions and what are known as carbon sinks – environments such as forests which absorb CO₂ from the atmosphere. The balance is to be achieved in the second half of the 21st century. This commitment was the start of the paradigm shift.

Previously the political aim was reduction, but now it's net zero. How can that be achieved?

Net zero can't be achieved by simply making technological production processes a bit more efficient. We need to consider how to switch to electricity and how electricity

can be generated from renewables. Electric cars are an example. Things get more difficult where industrial processes depend not on electricity but on heat at very high temperatures.

What has already been achieved on the road towards climate objectives?

Solar energy and wind power, for example, are now competitive in many countries and locations. Costs have fallen steeply. Partly thanks to China, we have achieved economies of scale that make renewable energy able to compete. That enables other high-emission processes to be electrified so that they produce less CO₂. Electric cars only make sense if the electricity market operates on a low or zero carbon basis.

Progress is being made in the industrial sector. In the EU the financial services industry is also being asked to contribute. What role can it play?

The financial services sector has multiple roles. First there is the question of properly evaluating climate risks when

an investment portfolio is put together. Investments in oil and coal companies, for example, can be riskier than they seem if the transition risks created by stricter climate policies are not correctly quantified. A high carbon price could force producers to leave fossil fuels in the ground. It is up to financial service providers to identify these risks. If they do, more money will flow from the fossil fuel sector into green energy. Added to that are the physical risks associated with climate change, notably through extreme weather events. When banks lend money, they must consider where a company's production is located and if it is exposed to extreme weather. For example, are the crops on which a coffee or chocolate producer depends vulnerable?

You've mentioned the price of carbon. Today, economic growth is still associated with rising CO₂ emissions. How high must the carbon price be in order to achieve a

decoupling of growth and emissions?

A good example is the United Kingdom, where conventional electricity generation was coal- and gas-fired. The government decided to set a carbon price that was higher than the price used in the EU's emissions trading system. This minimum price was introduced for the electricity sector in 2013. If the emissions trading price is lower than this minimum, electricity producers must pay the difference to the government. Looking at a comparison of GDP growth and CO₂ emissions, we see that a degree of decoupling has occurred. The carbon price has been driving coal out of the electricity market, and lower-carbon gas has become more important.

Is a carbon tax indispensable for achieving climate neutrality?

Carbon taxes are a good instrument, but they should not be the only one. A carbon price is effective, because it is passed on. Users of carbon-intensive products such as insulating materials react sensitively to a higher price by using less. As a consumer I can change my behaviour and switch to other materials. Insulation makers can lower their emissions by recycling. Researchers for the National Research Programme 73 in Switzerland have calculated that raising the recycling rate from the usual 10% to 62% would reduce CO₂ emissions by up to 30%.

So a carbon tax is a good way to increase demand for alternative energies?

Yes, but not the only way. My research in the field of emissions trading shows that many small businesses pay the price without knowing what their abatement costs for reducing

greenhouse gas emissions are. What is needed is transparency and a stick and carrot approach. The carrot is the provision of subsidies to encourage positive behaviour such as using renewable energy. The stick is action to make negative behaviour more expensive. A mix is important, because there are also practical problems, as in the case of rental apartment blocks, for example, where an owner who installs a heat pump does not benefit from the resultant lower heating costs. In such cases price is ineffective – another approach must be found.

Governments can set the framework and make direct investments. But how can the private sector be persuaded to put up large sums of money?

This is decisive. Governments need to get the private sector on board. It's similar to the situation regarding Covid-19:

if the authorities communicate well and explain why certain things have to be done, people will accept new policies. And it is important to ensure that everyone is affected roughly equally, because unfairness leads to frustration and resistance. Climate policy must take account of the distribution effect. In Germany, for example, house owners profit from being able to sell solar power to the grid. The beneficiaries of this system are mainly well-off owner occupiers. But the cost falls on everyone in the form of higher electricity charges. Indeed, people with a below-average income bear a heavier burden than the average. That is seen as unfair and can lead to a negative reaction. When environmental policies are put into practice, it is therefore important to ensure that burdens and benefits are distributed fairly.

PROFILE

Regina Betz is Professor of Energy and Environmental Economics and head of the Centre for Energy and the Environment (CEE) at the Zurich University of Applied Sciences (ZHAW) in Winterthur. She specialises in the design and evaluation of policy instruments and markets in the field of energy (e.g. the electricity market) and climate protection (e.g. emissions trading) and teaches relevant courses for bachelor's and master's degrees and the ZHAW certificate of advanced studies in climate strategies. She is Co-President of the National Research Programme 73 "Sustainable Economy" in Switzerland and President of the Swiss Association of Energy Economics (SAEE).



Note: The opinions expressed in this interview may differ from those of VP Bank.

WHAT DOES GREEN GROWTH MEAN FOR INVESTORS?

Bernd Hartmann

01

Invest in beneficiaries of change

The greening of the economy presents opportunities for innovative and flexible companies. The chief winners will not necessarily be the big names that dominate the equity indices.

Investors should consider the new trends that are being unleashed. They should look beyond specific sectors and countries and invest in companies that have a large exposure to green growth.

03

Make the portfolio sustainable

As well as focussing on return potential, risk and liquidity, investors should also take account of sustainability criteria when making their investment decisions.

A comprehensive sustainability assessment will identify investment opportunities and indicate their quality and risk. Investors should not focus simply on individual products but should keep a close eye on the overall shape of the portfolio.

02

Do not be tempted by speciously low valuations

Portfolio shifts into sustainable investments can push down the prices of newly unfashionable shares and make them look relatively attractive in purely financial terms, as in the case of oil companies. But investors should avoid temptation.

The move from traditional into sustainable investments is only just starting. Selling pressure is therefore likely to persist. Moreover, the future earnings of non-green companies could ultimately be hit by forced amortisations, financial penalties or changes in the law.

04

Strategic positioning for an economic recovery

Recessions generate a high degree of uncertainty, making many investors reluctant to take risks (→ see page 26). Risk premiums have not widened as they usually do, but equity prices can be expected to rise when economic activity picks up again and confidence returns. In such a situation volatility typically declines.

It therefore pays to invest in cyclically sensitive assets right at the start of the recovery. That does not necessarily mean only equities. Emerging market bonds can also be attractive.

MARTIN RISCH

Since the start of the pandemic the CEO of the Dr Risch Laboratory Medicine Centre has faced unprecedented challenges.

Clifford Padevit



// The best investment
for me is investing in
my own firm. //

Martin Risch

The coronavirus pandemic is a challenging time for all of us. But Martin Risch's experience is exceptional. "We process up to 4,000 coronavirus tests a day," says the 49-year-old CEO of the Dr Risch Laboratory Medicine Centre, which provides state-of-the-art laboratory medical services in Liechtenstein and Switzerland. The centre has carried out over 220,000 SARS-CoV-2 analyses since the start of the pandemic.

"So far we have been able to meet every test request," says Risch proudly. That has been no easy matter. Heavy demand for substances need-

ed for the analyses has led to serious shortages.

Risch's task is not an easy one: "Since March our planning has been on a rolling basis, with every day bringing new challenges throughout the firm."

Martin Risch is the son of the company's founder Gert Risch and since 2011 has led the Dr Risch Group alongside his brother Lorenz, who chairs the Board of Directors. He stresses that interaction within the family is an important source of impetus for the company's business. "But systematic consultation with managers and specialist staff is a vital input

for decision-making and successful implementation."

Risch's wish to assume a leadership role in the family firm matured during his medical studies. He believes that scientific interest and entrepreneurship make a good combination.

The company is now 50 years old, but the planned jubilee celebration had to be put on ice because of the pandemic. Risch is hopeful that the celebration can be held in 2021. "If we continue to master the situation as well as we have so far, there will be even greater reason to celebrate."



My best investment

"Deciding against a career in competitive sport."

How it happened

"I was already keen on sport as a child. Skiing was a particular interest. I was ambitious and felt good about myself. I was tempted to put all my eggs in one basket and plump for a career in skiing. But I decided against it. I was not prepared to sacrifice all my other activities and interests for the sake of a single sport, especially such a risky one as skiing."

Did it pay off?

"The decision enabled me to focus fully on my professional training. Today I'm grateful that I can still enjoy a wide range of sports, music and cultural activities. Along with my family, it is this varied range of interests that gives me the strength to meet the exceptional challenges that the coronavirus pandemic poses."



My worst investment

"In my youth, having made money on stock market flotations by Liechtenstein banks and a major manufacturing company. I believed that further successes lay ahead."

How it happened

"My income as a young man was modest, so the prospect of padding it out was attractive. I made two more investments, and they were dismal failures. One was an alleged dead certainty recommended by a financial expert. The other was a promising move into the Nasdaq. Both went up in smoke. There would have been a good moment to sell, but I let it pass, again on the advice of others."

Was there a good side to it?

"This experience taught me early on that big profit opportunities also involve big risks. Since then I have focussed on areas in which I'm knowledgeable and feel comfortable. For me the best investment is investing in my own firm."

THE PROBLEM OF MEASURING THE GREEN ECONOMY

We still lack a good way of measuring economic growth in terms of its environmental and social impact. But ideas and data abound.

Clifford Padevit

A nation's economic well-being is measured by gross domestic product (GDP). When GDP grows, people are better off; when it falls, they have to tighten their belts. That is obviously an oversimplification, but in politics it's convenient to have a single number to shout about. The inventor of GDP, Simon Kuznets (→ see page 18), saw the danger. In his paper on US national income 1929-1932 he wrote that the welfare of a nation could scarcely be inferred from this single metric.

GDP is now a firmly established concept. Expressed as an absolute or per capita number, it measures the total

added value generated in a country during a given period of time. The more it grows, the better. The higher it is per capita, the richer the country is. But GDP does not show whether income is fairly distributed. Nor does it show whether working conditions are humane. And critically, it has nothing to say about the nature of the resources consumed. Does the energy for industrial activity or heating come from coal or renewables? Does a newly purchased car run on clean electricity or does it guzzle 40 litres of petrol per 100 km? GDP is silent on these matters. Growth can be sustained, at least for a time, even if resources are over-used. The

problem is a lack of pricing. If a natural resource costs nothing (fresh air for example), anyone can use it free of charge. Economists employ the term "externalities". It is only when air pollution, for example, becomes rampant that polluters are called upon to pay a price for impairing the nation's welfare and damaging the population's health.

Two lines of criticism

Critics of GDP as a measure of a nation's welfare fall into two camps. One line of criticism is that economic growth does not necessarily mean that everyone is better off. In the late 1950s Moses Abramovitz criticised economists for assuming that economic well-being automatically translates into general welfare. The fourth King of Bhutan, Jigme Singye Wangchuck, was so taken with this idea that in 1972 he introduced a Gross National Happiness Index, which gives weight to non-economic factors affecting personal contentment. This ten-factor index includes factors such as psychological well-being, physical health and ecological diversity.

// The welfare of a nation can scarcely be inferred from a single metric like GDP. //

The second line of criticism relates to the use of resources, an aspect that is neglected in national accounts. Growth in the past has always gone hand in hand with rising CO₂ emissions, but countries' commitment to climate objectives is now forcing them to decouple economic growth from CO₂. The EU and China, for example, aim to reach carbon neutrality by 2050 and 2060 respectively.

This process is on the move, as figures from the World Bank illustrate. Since 1990 per capita CO₂ emissions have grown much more slowly than global per capita GDP. That is progress, but only in relative terms. Growth continues to be associated with rising production of CO₂. Few countries have achieved an absolute decoupling, i.e. cutting emissions while GDP grows. Sweden has done so by imposing a carbon tax.

defines green growth as "fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies." The measurement of green growth is based on 26 indicators.

The full set of indicators is published for all OECD member countries and for some emerging nations. But a glance at the data shows numerous gaps, and the figures are sometimes so out-of-date that they provide no realistic basis for targeted and measurable political action. On top of that, the data are simply too plentiful. For a while the OECD considered using a single composite green growth indicator, but this idea was rejected in favour of a set of "headline indicators" (→ see box).

While the OECD provides a uniform data gathering framework for measuring the green economy, it is up to individual countries to collect the data and present them in a form that makes comparisons possible. And it is left to individual countries to draw their own conclusions and decide on a mix of political measures to promote green growth.

The OECD has shown that it is certainly possible to measure how green an economy is. But the multiplicity of indicators blurs the picture and threatens to cause discussion to get bogged down in detail. Perhaps the OECD should have persevered with trying to devise a single composite indicator. The success of the GDP metric shows that one imprecise number can say more than 26 precise ones.

Detailed OECD datasets

There are broader methods of measurement than merely comparing GDP and CO₂. The watchword here is "green economy" or "green growth". In this approach, sustainability is measured by feeding ecological, social and technological aspects into the calculation.

Comprehensive international data for green growth have been assembled by the Organisation for Economic Cooperation and Development. The OECD, with its 37 member countries, provides a forum in which political movers and shakers can exchange views on policy objectives, notably with regard to the economy, education and the environment. The OECD

INFO

The **OECD** has produced a comprehensive set of indicators to measure green growth. It has identified 26 indicators in all, divided into five areas:

1. the socio-economic context and the characteristics of growth;
2. the environmental and resource productivity of the economy;
3. the natural asset base;
4. the environmental dimension of quality of life;
5. economic opportunities and policy responses.

The OECD has recognised that such a large set of indicators runs the risk of clouding the message. To help communication with policy-makers and others, it has therefore developed a set of six headline indicators. These are:

1. CO₂ productivity
2. Non-energy material productivity
3. Environmentally adjusted multifactor productivity
4. Natural resource index
5. Changes in land cover
6. Population exposure to air pollution (PM_{2.5})

STRATEGY IS NOT SET IN STONE

Achieving investment objectives depends on following the right strategy. All too often, however, strategy is regarded as something static. That is a mistake. A strategy needs to be reviewed regularly in the light of the changing investment environment. Adapting to the business cycle is an important part of this process.

Felix Brill

“Modern portfolio theory” is hardly modern any more. But 70 years after its inception it continues to influence the way investment strategies are defined and portfolios constructed. The theory was formulated by the American economist Harry Markowitz and earned him the Nobel prize in economics in 1990. It centres on the search for an “optimal” portfolio.

Optimisation is based on risk and reward. The aim is to find the portfolio with the highest expected return for a specified level of risk or the least risky portfolio for a specified expected return. Differing preferences among investors mean that there are many “optimal” portfolios. In practice portfolios are divided into five basic models depending on the level of risk involved.

At one end of the risk spectrum is the pure bond portfolio, at the other end the pure equity portfolio. In between there are three mixed strategies: “conservative”, “balanced” and “growth”. In its classic form a balanced portfolio contains 50% equities and 50% bonds.

However, this apparently convincing approach involves a number of challenging problems. The biggest challenge is that the portfolio must be optimised for the future, not the past. Forecasting is difficult, and small changes in assumptions can lead to a completely different portfolio composition.

Modern portfolio theory has undergone many refinements and adaptations aimed at producing more robust results. These include the Black-Litterman model and portfolio resampling. But the crux of the matter remains the same: the world is a changing place and the future is uncertain. It has therefore become normal practice to make a distinction between investment strategy and investment tactics. This is the procedure that we at VP Bank follow in our investment process (→ see box). Strategy defines the composition of the portfolio from a long-term perspective. Tactics make short-term deviations from strategy in order to reduce risk or improve potential return. Strategy typically has a horizon of several years, whereas tactics have a time frame of just a few months.

// There is an important difference between strategy and tactics. //

Empirical studies have shown that achieving long-term financial objectives depends mainly on strategy. But time does not stand still. A glance at the movement of interest rates over the last 30 years makes this very clear. A portfolio with a 50% bond allocation now offers a much lower return than it did 10 or 20 years ago, but the portfolio's risk has not declined to the same extent. We therefore have to look for ways to make strategy as future-oriented as possible. The business cycle is a key factor here (→ see page 16). Economic expansions typically last much longer than recessions. We are talking about years, not months. A year or two ago the economy was at a mature phase of the cycle, but now it is on the verge of a new expansion. This creates interesting possibilities for investment strategy.

The relationship between the business cycle and portfolio performance is highlighted by an analysis of risk and return in 1,000 sample portfolios consisting of equities, bonds and alternative asset classes such as commodities and real estate (→ see chart below). The analysis is based on monthly data since 1970. If we look at the months in which the growth of the US economy was above trend (i.e. a positive

business environment), most portfolios showed a higher return. This effect was most pronounced in riskier portfolio profiles. Our probit model (→ see page 10) currently indicates that the probability of an economic expansion in the next two years is over 99%. This argues for a higher equity allocation in mixed portfolios.

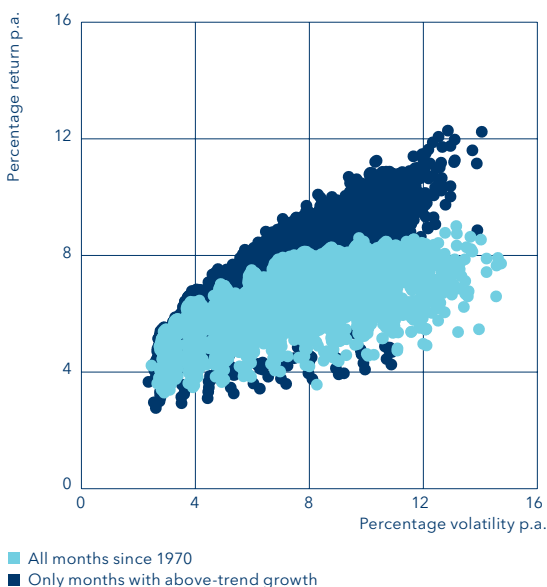
INFO

Adjusting VP Bank's investment strategy

VP Bank's investment process makes a distinction between investment strategy and investment tactics. Strategy is decided by the Investment Strategy Committee (ISC), which meets twice a year. Tactics are handled by the Investment Tactics Committee (ITC), which usually meets on the second Tuesday of every month and also at other times in reaction to exceptional market developments. The results are published in our monthly publication "Our View".

After the latest strategic review, the ISC has decided to raise the equity allocation in response to the high probability of an economic expansion and to reduce the bond allocation to take account of the low level of interest rates. In the equity sector, emphasis is placed on investment themes that address long-term trends. In the bond sector, interest rate sensitivity has been further reduced. At the same time the ISC has reaffirmed a supplementary positioning in alternative asset classes in order to optimise diversification. This makes the portfolio robust and more effectively shielded against unpleasant surprises. We are also consistently applying sustainability criteria. The new investment strategy will be implemented in wealth management mandates as per 1 January 2021.

Return sensitivity to growth (1,000 sample portfolios)



OPTIMISM KEEPS RISING

Bernd Hartmann

It is something we have grown used to: the broad economy gets into trouble, but the financial markets boom. Even so, the markets' resilience this year has been amazing. The worst economic crisis since the Great Depression put the markets off their stride only briefly. A record-breaking crash on the equity markets was promptly followed by a record-breaking recovery.

But the mismatch between the financial markets and the real economy could soon disappear. It now looks as if the economy will return to a

growth path in 2021 (→ see page 4). The recovery will be underpinned by the rapid and determined action that governments have taken in response to the Covid-19 pandemic. Short-term measures such as financial support for people affected by the decimation of the labour market have reduced the collateral damage. Together with public sector investment spending, these measures should provide important stimulus for the recovery.

Economy still vulnerable

This positive outlook should not blind us to the risks that still exist. The economic situation remains fragile at present. Delayed damage as a result of coronavirus containment measures cannot be ruled out. This includes rising bankruptcy rates. There is now real hope that vaccination programmes can be launched in the near future, but it will nevertheless be some time before herd immunity can be achieved. Until then we must expect further rounds of government action to limit the infection rate. Even if the measures are carefully calibrated and do not impinge on the whole economy, they will represent an existential threat for some companies.

Thus governments and central banks are still in a state of alarm and are sticking to their expansionary policies. Their continuing readiness to support and stimulate the economy sends an important message to investors.

Unlike fiscal policy, which did not take a more expansionary turn until the first wave of the pandemic, central banks' monetary policies have been on a pro-growth track for years. By expanding the volume and scope of their asset purchase programmes, central banks are exerting an ever stronger direct influence on the markets and the pricing of financial assets. This has helped stabilise the markets and facilitate financing. But this will not be enough to prevent a rise in corporate defaults in the low-quality segment in 2021.

Avoid low quality

In our view, this danger is not adequately reflected in current market prices. We therefore regard borrowers in the low quality bracket as unattractive. Nevertheless, we assume that the central banks will allow credit spreads on corporate bonds to widen somewhat. The typical narrowing of spreads at the start on an economic expansion has therefore

// The
mismatch
between the
financial markets
and the real
economy could
soon disappear.
//

already been pre-empted to some extent.

In investment grade bond markets, brighter economic prospects should lead to a moderate upward movement of yields. Central banks can be expected to leave their key interest rates untouched for a protracted period so as not to jeopardise the recovery, especially as the subdued inflation picture makes higher interest rates unnecessary.

Robust portfolio composition

After their headlong retreat in the spring of 2020 many equity indices have since recouped their losses. But reduced corporate earnings mean that equity valuation ratios have risen steeply and are now historically high. Even so, low bond yields ensure that equities are still in demand.

A return to corporate earnings growth as the economy recovers will ensure a positive dynamic. Equity markets have been driven largely by technology shares in 2020, but upside potential from now on will depend on a broadening of the expansion. This can be helped by a combination of economic stimulus and large-scale investment in green technologies (→ see page 12).

Equities offer higher potential returns than bonds, even more

// We recommend starting 2021 with a robustly constructed portfolio. //

so in this environment. Thus there is a basic case for strategically increasing the equity allocation at the expense of bonds (→ see page 26). However, experience early this year showed yet again that equity investments can lose a lot of their value in a very short time. Investors must therefore ensure that their investment strategy can cope with such setbacks. In other words, when deciding the equity allocation they must consider what amount of losses they can live with.

Within the framework of our investment strategy we recommend starting 2021 with a robustly constructed portfolio. The portfolio can then be given a somewhat more cyclical bias as signs of an improvement in the economic situation emerge, but it should

still be firmly anchored in quality shares.

We also recommend a mix of theme-based investments and systematic low-risk equity strategies. In the continuing low interest rate environment it also makes sense to deploy alternative asset classes to ensure broad diversification and thus make the portfolio more resilient. For this purpose we particularly recommend gold and insurance-linked securities.

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Investing for **Change**

Forward-looking management and responsible action are the foundations of our business success. We are committed to the principle of sustainable action as an important strategic pillar. This is how we make banking an investment for the future.



