Goldman Sachs Global Environmental Impact Equity Portfolio

A Greener Tomorrow

"We need to turn the recovery into a real opportunity to do things right for the future" *– António Guterres, United Nations Secretary-General*

Humans are notoriously bad at thinking about the far-off-future. For our contemporary focused brains 'far-off' includes anything that we can push out for another 5+ years before we need to deal with it. This carpe diem way of life partially explains why fathoming the consequences of global warming seems to be such an insurmountable challenge for us.

The current health crisis might put things into perspective by giving us a glimpse of how the far-off-future might actually look. We all know that history doesn't repeat itself, but **COVID-19 and Climate Change definitely rhyme**: environmentally driven, ignorant of borders, catastrophic economic as well as social implications, and a calling for a coordinated policy response. The next months will show if this epiphany can move policymakers to consider tomorrow's crisis while combating today's.

This piece will explore why recovery design matters (**'Taking a Breath'**), how green and economic stimulus are the same but not really (**'Altruism is Dead'**), and what all of this means for public equities (**'Through Rain or Shine'**).

Taking a Breath

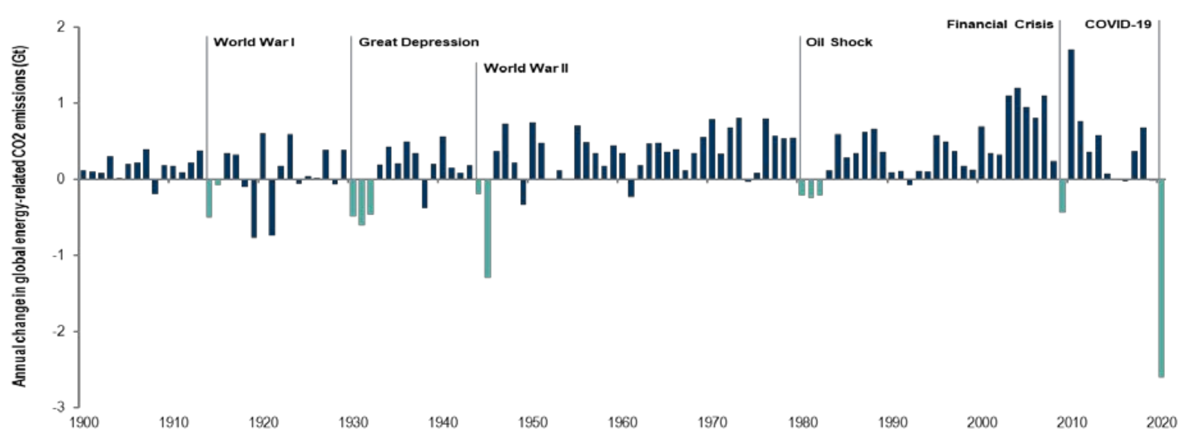
Unprecedented times once more

Now, before looking forward, let's learn from the past. While every crisis is unique, the outbreak of COVID-19 is not the first great global crisis and will certainly not be the last. As with previous episodes of major economic downturns, we can observe a significant drop in energy demand. The International Energy Agency (IEA) estimates that **total energy demand might decline by ~6% in 2020**.[1] This is not a trifling number. In fact, this represents the single biggest drop in energy demand in recorded history, equivalent to the total annual demand of Germany, France, Italy, and the UK combined. **A drop of this magnitude effectively annuls the last 5 years of demand growth**, posing the question – can this not be seen as at least a small silver-lining against an otherwise challenging backdrop?

Exhibit 1 might give an indication.[1] In short, the years following a crisis, i.e. the recovery cycle, matters too. Energy demand tends to return with a vengeance. **While a state of economic emergency definitely puts annual emissions growth on hiatus, it does not seem to meaningfully impede the structural upwards trend**.

Exhibit 1: Clearing the Air – Inverse Relationship between Economic Disaster and our Climate

Drops in annual emissions can be steep, but are historically not more than a bump in the road



Source: Goldman Sachs Asset Management (GSAM). [1] Source: IEA (2020), Global Energy Review 2020, IEA, Paris.

Standing out like a green thumb

Could this crisis be any different? Maybe. In our previous publication '*Driving A More Sustainable Future*', we argue that we have arrived at an **inflection point of peak awareness and – most importantly in today's context – willingness to take action across governments, corporates and consumers.**

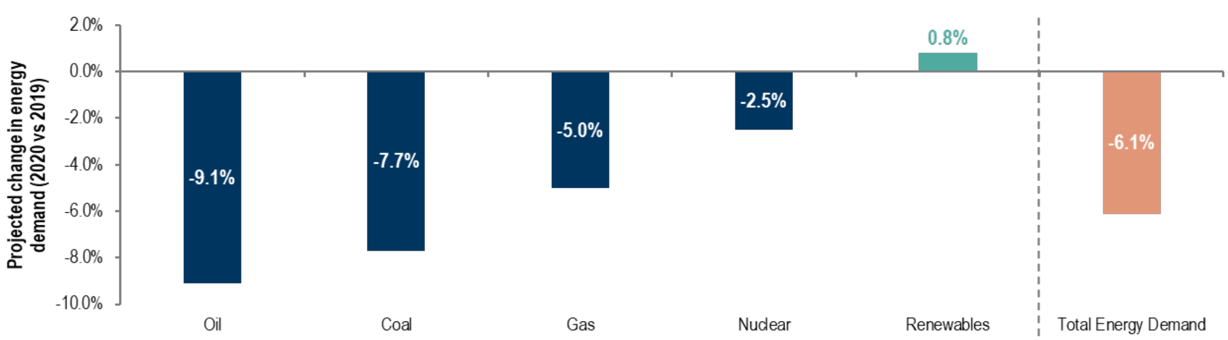
Dissecting the IEA's projected decline in total energy demand can also galvanize some optimism. In fact, the **expected erosion of demand does not treat all segments of the energy market equal** (Exhibit 2[2]). Oil is suffering by far the most, being severely exposed to the first and second derivative impacts of the global policy response. Demand is estimated to detract by close to 10%, as the world hits the pause button on business and private travel – curtailing demand for private vehicle use and aviation – as well as the majority of economic transport – reducing fuel needs for areas like shipping.

Demand implications for the old trinity of electricity supply, i.e. coal, gas, and nuclear, are also taking a dive, declining by approximately 8%, 5% and 3%, respectively. Here, the order of magnitude was somewhat dictated by price, as cheap natural gas shielded the industry from an even heftier hit, but at the same time further emphasising the challenges coal faces going forwards

Only renewables managed to keep their head above water. Sustaining positive demand momentum in 2020 is remarkable and while a pick-up of 1% would usually not spark green euphoria, its impact in today's environment is significantly amplified. In the first quarter, renewables expanded their share of the global energy mix to 13% and of the global power sector to 27.5%, marking an increase of 0.5% and 1.5%, respectively. This trend has been underpinned by three main aspects: i) grid priority and other measures of regulatory support, ii) new capacity coming online, as some utilities are steadily broadening out their footprint in alternative energy sources, and iii) economic considerations whereby renewables are increasingly attractive relative to traditional sources of energy production.[2]

Exhibit 2: The Exception to the Rule – Positive Demand Growth for Renewables in 2020

Total energy demand erosion presents biggest absolute change in recorded history



Admittedly, energy demand simply staying lower for longer sounds apocryphal at best and there is no guarantee that the recovery will mirror the downturn. In that sense, there is also no certainty that traditional sources of energy cannot reclaim lost market share over the coming years. In preparation for the inevitable resurgence of demand, **it will be crucial that we control which pockets of the energy mix help fuel the recovery.**

C-Curves

Observing the global policy response to the COVID-19 crisis, it is clear that governments remain convinced that they need more than an invisible hand to help drive the recovery cycle. Undoubtedly, **the global fight against COVID-19 is pushing us into a new paradigm of policy making.** We have been here before; after World War II Roosevelt catalysed the foundation of the United Nations to secure global peace and the regulatory aftermath post 2008 reformed the world of finance. All under the credo – never again. As eradicating the potential of a future pandemic is not (yet) an option, policymakers will overhaul our global and local health systems, fixing what went wrong and implementing what went right. So far so good. However, there is scope for more to be done. We have a reasonably well established idea of how the next crisis might unfold. This is certainly new. Roosevelt was likely as much thinking about mortgage-backed securities when drafting up the UN as Obama was taking a pandemic into consideration when signing the Dodd-Frank Act. This bliss of not knowing what could be next is absent today, giving us an opportunity to not only prevent more of the same, but also proactively fight the known unknown.

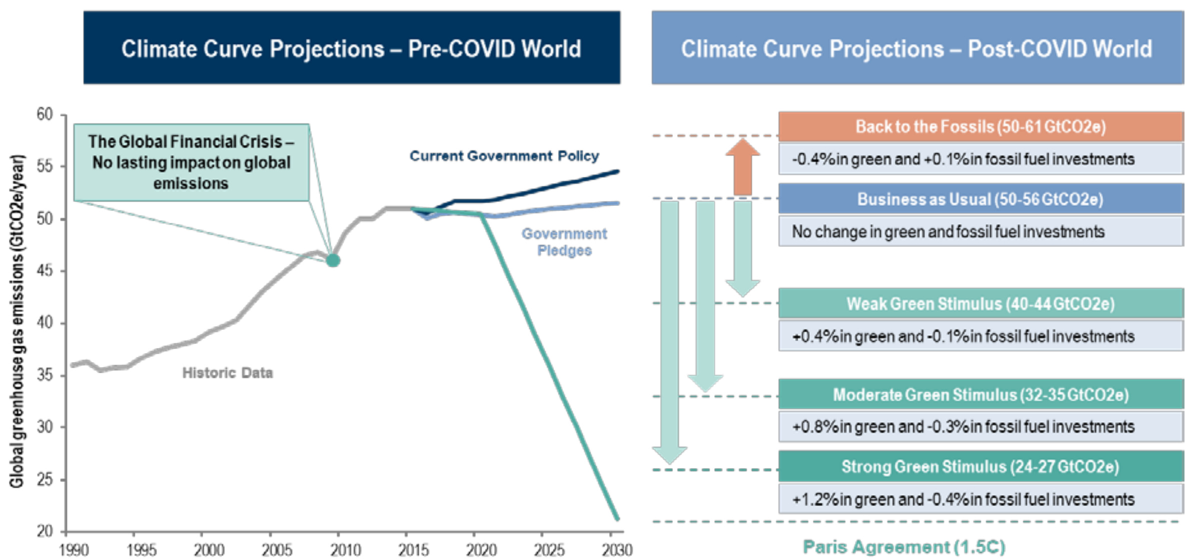
Source: Goldman Sachs Asset Management (GSAM). [2] Source: IEA (2020), Global Energy Review 2020, IEA, Paris.

Fighting tomorrow's crisis by solving today's sounds like the epitome of sound policymaking. Governments are indeed highly active. Besides facing the herculean task of finding the balance between protecting public health and re-opening the economy, country heads are already thinking ahead, sketching out the path for recovery. Getting this right is first and foremost crucial to keep public and societal harm to a minimum; this means the economy needs to get back on track now, not later. Luckily, choosing green stimulus has long lost its charitable aura (see 'Altruism is Dead'), making it a viable option for driving us out of the crisis.

Beyond the positive economic repercussions, lawmakers understand that **the magnitude of stimulus needed to lift the world out of economic abyss will also have severe implications on our climate.** Any new investment in traditional energy sources, such as oil, natural gas, coal, and nuclear, will be anything but short-lived. Phasing out the existing line-up of coal power plants in the UK will take until 2024. Germany is planning to switch-off its last plant in 2038.[3] This means bringing additional capacity online would lock-in emission intensive power generation for a considerable amount of time. Also, investing in an industry which is already destined to shut its doors seems like a questionable use of taxpayer money.

The combination of sheer magnitude and the longevity of the underlying investments means that **even (relatively) small fiscal allocation decisions could have meaningful impacts on total greenhouse gas emissions** (Exhibit 3[4]). Taking a 10-year view, any form of green stimulus introduced today can drive down the climate emissions curve considerably. By the same token, taking a wrong turn today might sabotage any chance of achieving the agreed upon objective of the Paris Agreement, namely keeping global warming to +1.5°C compared to pre-industrial levels.

Exhibit 3: Fork in the Road – The Climate Curve in a Post-COVID World
Choosing the right path to fight today's crisis is crucial in fighting tomorrow's



'Never waste a good crisis', Churchill and Guterres (opening quote) might be onto something. Our planet took a deep breath. Not to sigh in relief, but the kind of breath you take before you tackle a humongous task. As we have seen in the past, economic pain is turning back the clock on emissions, effectively buying us more time to curtail global warming. The next section explores how we can make this count.

Altruism is Dead

Long live altruism

Cost curves often explain how technology which has previously been only featured in our most detached Sci-Fi fantasies makes it into the real life. Once the cost side of the scale starts tipping down, simultaneously catapulting up efficiency, innovation can finally become disruptive. In fact, Moore's law – in some variation – seems to be as applicable to microchips as to the sequencing of genomes; one is slowly reaching the end of the curve, while the other is just getting started. Renewables? Depends, but at this stage we are likely somewhere in-between.

In the early days, renewable energy sources had to cut corners to get ahead, with governments often playing a willing accomplice. Direct financial transfers, grid priority, favourable tax treatment, price control. In the public and political eye alike, green technology and state subsidies were the modern age's Gordian knot, impossible to untie. However, over the

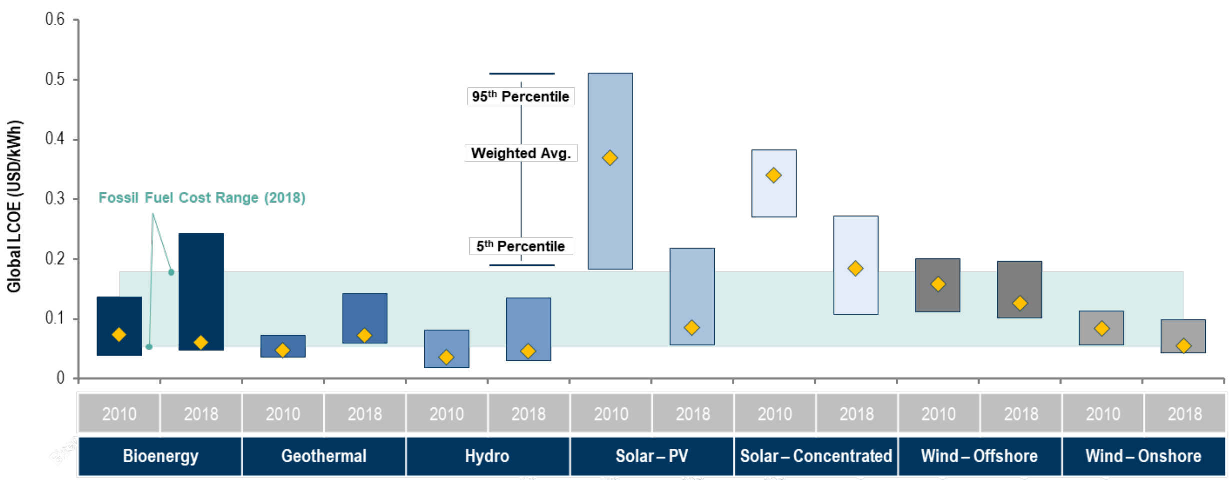
Source: Goldman Sachs Asset Management (GSAM). [3] Source: gov.uk, as of Feb-2020; CarbonBrief, as of Mar-2020.
[4] Source: Climate Action Tracker, as of April-20.

last decade (and very much in line with Moore's postulations), the tight knit relationship between the two started to unravel. In fact, in many cases, **renewables have already reached cost parity and are even incrementally more cost competitive than their old foes: coal, oil, and natural gas.**

According to data from the International Renewable Energy Agency (IRENA), **bioenergy, geothermal, hydro and wind are, on average, as or more cost effective than the lowest-cost fossil fuel alternative – *without financial assistance*.** Even solar photovoltaic (PV) farms managed to break into the cost band of fossil fuel-fired electricity production (Exhibit 4).[5]; and while concentrated solar power (CSP) and offshore wind farms are still trading towards the upper end of the range, their economics have improved meaningfully in the 2010s. In 2018 alone, average costs for CSP dropped by 26%, followed by bioenergy (-14%), and solar PV as well as onshore wind (-13%). The expectation is for costs to come down even more significantly across most categories over the coming years, especially in the areas of wind and solar. This view is underpinned by leaps in existing technology – as the Moore doctrine taught us – including the employment of more efficient turbines and solar modules.

Exhibit 4: Curveball – Fossil Fuels are Out

Global LCOE of utility-scale renewable power generation technologies, 2010-2018



Now, let's address the oil tanker in the paddling pool. Crude oil prices took a deep dive earlier this year making the stock market sell-off look like a non-event. Prices tumbled from $70 to below $20 with WTI even going negative at one point – if not in 2020, when else? We already touched upon the detraction of oil demand due to the economic repercussions of the pandemic. Against this backdrop, oil prices might be challenged for the next 6-12 months, expected to trade in the range of $40 to $50 per barrel.[6] This poses the question of how the above cost range for fossil fuel alternatives might look like today. The short answer: probably not that different. Oil makes up only ~3-4% of the global electricity sector, unlikely to drive a meaningful correction in overall price levels. Though there might be some short-term impact from natural gas, being a byproduct of oil production and accounting for ~25% of global electricity supply. However, the referenced cost calculations are considering the entire life cycle of the underlying asset, i.e. 15+ years, and, hence, are unlikely to be substantially altered by ephemeral price volatility. Besides, governments making the strategic commitment to phase-out certain pollution heavy industries are taking a long-term view and will not reverse sacrosanct energy policies on a whim.

The above cost analysis (Exhibit 4) certainly has additional limitations. While the underlying framework controls for subsidies to compare Watt to Watt, it does not differentiate between regions and excludes residential applications which tend to run behind the curve compared to its utility-scale siblings. However, it appears evident that, in many cases, **going green is no longer a philanthropic endeavor, but simply the smart thing to do economically.**

Having said this, factoring in second derivative implications of financing renewable power plants over fossil fuel-fired alternatives puts the societal good back on the map. The economic and social benefits of the reduction in air pollution or harm to the natural environment are impossible to quantify with a great degree of accuracy. But we know they exist and are likely to be meaningful. One estimate puts the global health costs from air pollution due to fossil fuel use alone at ~$2.3tn, further strengthening the case for shifting assets to cleaner alternatives.[7] Knowing all this, how are policymakers reacting?

Source: Goldman Sachs Asset Management (GSAM). [5] Source: IRENA (2019), Renewable Power Generation Costs in 2018, International Renewable Energy Agency, Abu Dhabi. LCOE = Levelized Cost of Electricity. LCOE measures the average cost of energy production over the lifetime of the underlying asset, discounted back to the present. Copyright © IRENA 2019.
[6] Source: Goldman Sachs Global Investment Research (GIR), as of 27-Jun-2020.
[7] Taylor, Michael (2020), Energy subsidies: Evolution in the global energy transformation to 2050, International Renewable Energy Agency, Abu Dhabi.

Europe ahead of the curve

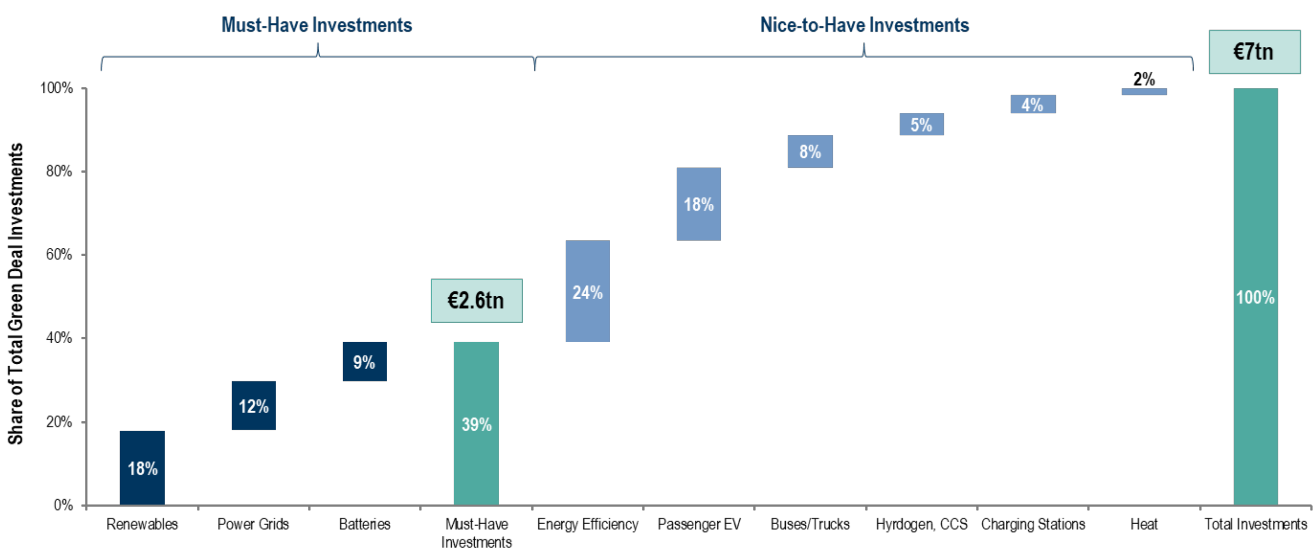
In December 2019, the European Commission put forward the European Green Deal, making a **sweeping commitment to effectively turn the Union carbon neutral by 2050**. To get there, the body announced it will bump up its greenhouse gas emission reduction targets for 2030 to 50-55% compared to 1990 levels. Lawmakers estimated the required annual additional investment to be around €260bn to arrive at the 2030 milestone alone. This represents 1.5% of 2018 GDP and pencils in public as well as private money. The initial publication laying out the roadmap to drive down emissions to net zero was titled 'Turning an Urgent Challenge into a Unique Opportunity'.[8] This was before COVID-19.

The challenge is now two-fold. As we have said at the outset, the opportunity became more tangible than ever, but the challenge got equally more complex. European Commission President Ursula von der Leyen and her staff now need to steer the country bloc through an economic crisis, while preventing the next. However, we also gave governments our vote of confidence that, once committed, state heads are unlikely to completely topple their policy agenda. In fact, in March, the Commission took the next step, kicking-off the process of integrating the Deal into EU law by proposing a framework for achieving climate neutrality and amending regulation in front of the European Parliament and the Council. Additionally, at the end of May this year, the Commission unveiled its plan for the recovery ahead, making the European Green Deal the cornerstone of its proposal. With its new recovery instrument 'Next Generation EU' – worth 750bn – von der Leyen aims to harness the economic power of the digital as well as green transformation of the continent to bolster jobs and growth.[9] After all, the renewable industry created 1.5mn jobs globally in 2017 alone and it is estimated that each €1 spent on renewables has a positive multiplier effect, translating into an additional €0.8 of GDP.

It is reasonable to argue that adoption rates in certain areas targeted by the European Green Deal might be delayed given the new operating environment; however, there are certain must-have investments which are likely to be insulated from the new normal and will remain a fixed part of the recovery. Goldman Sachs Global Investment Research (GIR) categorizes these must-have investments into three main buckets: renewables, power grids and storage (Exhibit 5[10]). All three pillars are primarily held sturdy by private investments (no or only minimal subsidies are required) as well as attractive economics (the average LCOE for solar and wind farms in Europe are significantly lower than the global proxy shown in Exhibit 4). According to GIR, excluding all other areas of the policy agenda, **investments in these areas would translate to a total of €2.6tn by 2050, or approx. €80bn per annum**. Most of this spending will be carried out by utility companies, but other parts of the climate value chain, in our view, might also enjoy elevated earnings growth, as the entire ecosystem needs to be re-calibrated to achieve net zero.

Evidently, the EU and its member states are leading the charge as far as climate conscious recovery planning goes. The hope now is for other regions to follow suit, facilitating an accelerated economic recovery by pushing us towards a greener tomorrow.

Exhibit 5: Escaping Economic Abyss – Investments under the European Green Deal
Must-have investments alone can drive €2.6tn in spending by 2050



Source: Goldman Sachs Asset Management (GSAM). [8] Source: European Commission, the European Green Deal, as of 11-Dec-2019.
[9] Source: European Commission, Europe's moment: Repair and prepare for the next generation, 27-May-2020.
[10] Source: Goldman Sachs Global Investment Research, European Commission, the EU Green Deal – Net Zero policies in a post-COVID world, as of 27-Apr-2020.

Through Rain or Shine

We launched the Goldman Sachs Global Environmental Impact Equity Portfolio (the portfolio) in February this year, as we believe the fight against climate change has reached an inflection point and will drive policy (public and corporate) as well as consumer behavior over the next decades. In fact, governments, the private sector and consumers are all raising the stakes in the global transition to a more sustainable future. As such, companies actively involved in solving for some of the challenges ahead can also be poised to benefit from secular demand tailwinds. This includes, in our view, businesses engaged in the areas of clean energy, resource efficiency, sustainable consumption & production, the circular economy, and water sustainability, which form the basis of our thematic investment framework.

In this context, we welcome any and all government attempts to integrate environmentally conscious investments into their recovery proposals. Not least of which because it is the right thing to do, but also because it can have material economic impact. **However, even in a world without targeted stimulus, the green investing space is not going to disappear.** We have crossed the point of no return; and corporates across our key impact themes (outlined above) have grown into robust businesses with sound fundamentals, benefitting from increasingly attractive economics. Investing in public equities driving positive environmental change has long carried the connotation of being a benevolent bull market hobby. Looking at our proprietary investment universe of ~500 corporates exposed to our key impact themes demonstrates this view has become outdated (Exhibit 6).[11]

Year-to-date (YTD), our universe has comfortably survived the torrent, outperforming global equities, as measured by the MSCI All Country World Index (MSCI ACWI), by ~5.7%. Dissecting performance further shows that the universe managed to meaningfully outperform during the market recovery, and traded essentially flat during the initial sell-off relative to the index. This is a strong outcome. Our universe, by nature of being focused on environmental impact, is biased towards industrials, materials and utility companies; pockets of the market which have been challenged in the downturn and re-rated meaningfully. Additionally, our opportunity set is not exposed to Big Tech* and, hence, did not benefit from the robust performance of Amazon and Co. In fact, excluding big Tech from the MSCI ACWI bumps up the outperformance of our themes substantially to 930bps, 140bps, and 830bps over the YTD, downturn, and recovery periods, respectively.

Breaking down performance by investment theme, sustainable consumption & production has fared best during the downturn primarily due to exposure to defensive names in the food and nutrition industry. On the flipside, resource efficiency has been challenged on the way down, as some of the more cyclical industrials underperformed the broader market. Tables turned once markets started to rise, pushing up cyclically depressed industrials and granting the darlings of the sell-off a break. This demonstrates well how the breadth of the universe can allow for consistent outperformance in various market environments and further instills confidence in our approach to construct a balanced and diversified portfolio.

Exhibit 6: Look to the Weeds – Going Green is no Longer the Delicate Flower of Investing

Our universe of ~500 environmental impact stocks weathered the storm well

	Year-to-Date (Total Return, %)	Downturn (Total Return, %)	Recovery (Total Return, %)
Universe	-0.6	-33.5	44.4
Clean Energy	-7.9	-35.7	40.2
Resource Efficiency	1.9	-35.2	50.5
Sustainable Con. & Prod.	-2.5	-27.6	32.6
Circular Economy	-3.2	-30.8	35.4
Water Sustainability	2.2	-32.2	43.1
MSCI All Country World	-6.3	-33.7	37.5
Excess Return	5.7	0.2	6.9

Besides the importance of being positioned on the right side of structural market trends, picking the right subset of corporates within those themes is also crucial. Last decade's investment paradigm of low correlations and benign levels of dispersion seems to have come of age. **Elevated volatility has widened the gap between winners and losers – also in our investment universe – giving us opportunity to be selective and enhance the performance outcome of our clients.**

Source: Goldman Sachs Asset Management (GSAM). [11] Source: GSAM, FactSet, as of 30-Jun-2020. Downturn: 13-Feb-2020 through 23-Mar-2020. Recovery: 24-Mar-2020 through 30-Jun-2020. *Big Tech includes Alibaba, Alphabet, Amazon, Apple, Baidu, Microsoft, Netflix, and Tencent.

APPENDIX

Objectives and Investment Policy

- The Portfolio seeks to provide capital growth over the longer term.
- The Portfolio will mostly hold shares or similar instruments relating to companies anywhere in the world, which in the view of the Investment Adviser are aligned to the key themes associated with solving environmental problems including, but not limited to, clean energy, resource efficiency, sustainable consumption and production, waste management & recycling and water sustainability.
- The Portfolio will be concentrated and may have significant exposure to specific sectors, including but not limited technology and consumer sectors.
- The Portfolio will not invest more than one-third of its assets in other types of companies, money market instruments and non-share related instruments.
- The Portfolio will not invest more than one-tenth of its assets in other collective investment schemes.
- The Portfolio may use derivatives for efficient portfolio management purposes, to help manage risks and for investment purposes in order to seek to increase return. A derivative instrument is a contract between two or more parties whose value depends on the rise and fall of other underlying assets.
- The Portfolio may invest in mainland China equity securities directly through the Stock Connect scheme or the Renminbi qualified foreign institutional investor program, or indirectly through access products.
- Shares in the Portfolio may be redeemed daily (on each business day) on demand.
- The Portfolio is actively managed and references the MSCI ACWI (Total Return Net) (EUR) (the "Benchmark") for the purposes of setting discretionary internal risk thresholds which may reference deviations from the Benchmark.
- The Investment Adviser has full discretion over the composition of the assets in the Portfolio. While the Portfolio will generally hold assets that are components of the Benchmark, it can invest in such components in different proportions, and it can hold assets which are not components of the Benchmark. Therefore returns may deviate materially from the performance of the specified reference Benchmark.
- Income is rolled up into the value of your investment.
- The Portfolio currency is USD. The share class currency is EUR.
- **For full investment objective and policy details see the Prospectus.**

Risk and Reward Profile

Lower risk						**Higher risk**
Potentially lower reward						Potentially higher reward
1	2	3	4	**5**	6	7

This risk profile is based on historical data and may not be a reliable indication of the future risk profile of the Portfolio. The risk category shown is not guaranteed and may change over time. The lowest category does not mean risk free. It is possible that a portfolio stated to have a lower risk profile may in fact fall in value more than a portfolio with a higher risk profile.

The Portfolio is in category 5 as it mostly invests in shares and similar instruments which typically experience higher levels of price fluctuations than fixed income securities.

The capital is not guaranteed.

Other Material Risks:

- **Market risk** - the value of assets in the Portfolio is typically dictated by a number of factors, including the confidence levels of the market in which they are traded.
- **Operational risk** - material losses to the Portfolio may arise as a result of human error, system and/or process failures, inadequate procedures or controls.
- **Liquidity risk** - the Portfolio may not always find another party willing to purchase an asset that the Portfolio wants to sell which could impact the Portfolio's ability to meet redemption requests on demand.
- **Exchange rate risk** - changes in exchange rates may reduce or increase the returns an investor might expect to receive independent of the performance of such assets. If applicable, investment techniques used to attempt to reduce the risk of currency movements (hedging), may not be effective. Hedging also involves additional risks associated with derivatives.
- **Custodian risk** - insolvency, breaches of duty of care or misconduct of a custodian or sub-custodian responsible for the safekeeping of the Portfolio's assets can result in loss to the Portfolio.
- **Derivatives risk** - derivative instruments are highly sensitive to changes in the value of the underlying asset that they are based on. Certain derivatives may result in losses greater than the amount originally invested.
- **Counterparty risk** - a party that the Portfolio transacts with may fail to meet its obligations which could cause losses.
- **Emerging markets risk** - emerging markets are likely to bear higher risk due to lower liquidity and possible lack of adequate financial, legal, social, political and economic structures, protection and stability as well as uncertain tax positions.
- **Stock Connect** - Stock Connect is a new trading programme and the relevant regulations are untested and subject to change. Investments through the Shanghai-Hong Kong Stock Connect are subject to additional risks, including amongst others, quota limitations, restrictions on selling imposed by frontend monitoring, ownership of securities held on Stock Connect applicable to certain rules, participation in corporate actions and shareholders' meetings, non-protection by any investor compensation scheme, differences in trading day, operational risk, recalling of eligible stocks and trading restrictions, trading costs (including tax), local market rules, foreign shareholding restrictions and disclosure obligations, clearing, settlement and custody risk, currency risk and default risk.
- **Concentration risk** - this is a concentrated asset strategy that is likely to exhibit a significantly greater fluctuations in asset values than a broad investment in a wide range of shares of companies.
- **Risks associated with investments in China:** The Portfolio's operations and financial results could be adversely affected by adjustments in the PRC's state plans, political, economic and social conditions, changes in the policies of the PRC government and laws and regulations, in particular where investments are made through any of the investment regime introduced by the PRC government.
- **For more detailed information on the risks associated with an investment in the Portfolio, please refer to the section in the Prospectus entitled "Risk Considerations" and discuss with your professional advisers.**

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Index Benchmarks

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