2022

Investment views for uncertain times

OUR CONVICTIONS, YOUR RESOLUTIONS.

CANDRIAM

A NEW YORK LIFE INVESTMENTS COMPANY

What is the market outlook for 2022?

Every day in December, our experts answered some key questions you may face this year. Please find all their convictions in a single document, a summary of Candriam's 2022 Perspectives.
Happy reading, and all the best in the year ahead!

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Outlook 2022: Gearing up for transformation

Vincent Hamelink
Chief Investment Officer

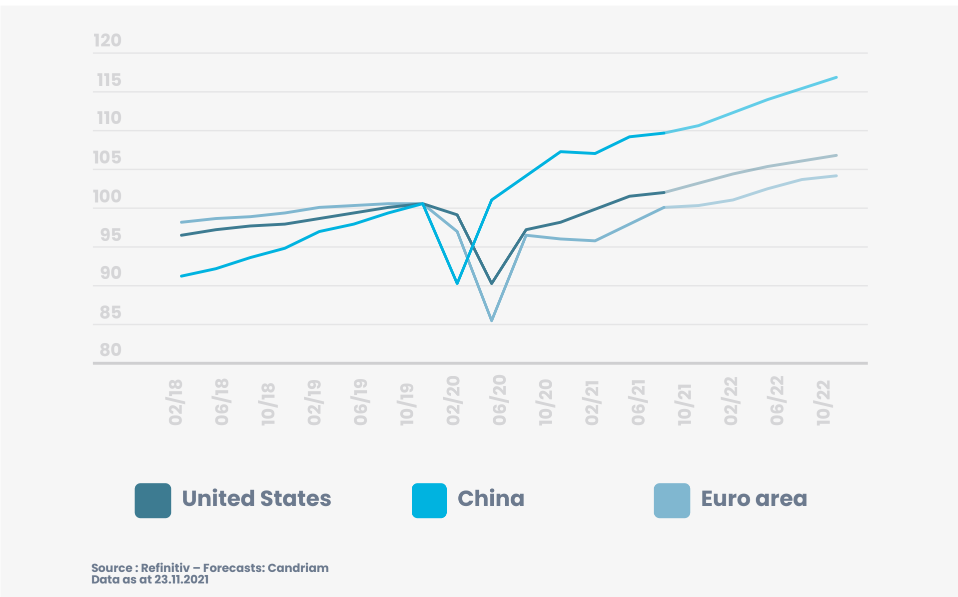
One year after the discovery of anti-Covid vaccines, financial markets will soon have left (or slowly leaving) the pandemic behind. The economy has not.

This is demonstrated by the numerous disruptions among supply chains, on labour markets or on commodity markets. The longest economic expansion in American history – 128 months – has been followed by the shortest recession – 2 months – and registered the sharpest rebound ever measured until now.

Ongoing growth recovery in developed economies

As hoped for, 2021 has been a year of rebirth, a year focused on healthcare developments, of gradual re-opening and return to a more "normal" life. The strong economic performance should continue into 2022, with growth of around 4% both in the United States and in the Euro area. And yet, we are all feeling that this is only the beginning of something new as the pandemic has been a game-changer. We expect all developed economies to regain pre-pandemic output levels by the end of next year, while some emerging market and developing economies will continue to register output losses. Further, employment growth is expected to lag the output recovery as global employment is projected to return to only two-thirds of its pre-pandemic level, due to lingering health concerns and an accelerated shift to automation, among other elements.

Figure 1:
Real GDP Trajectory - *2019 Q4 = 100*



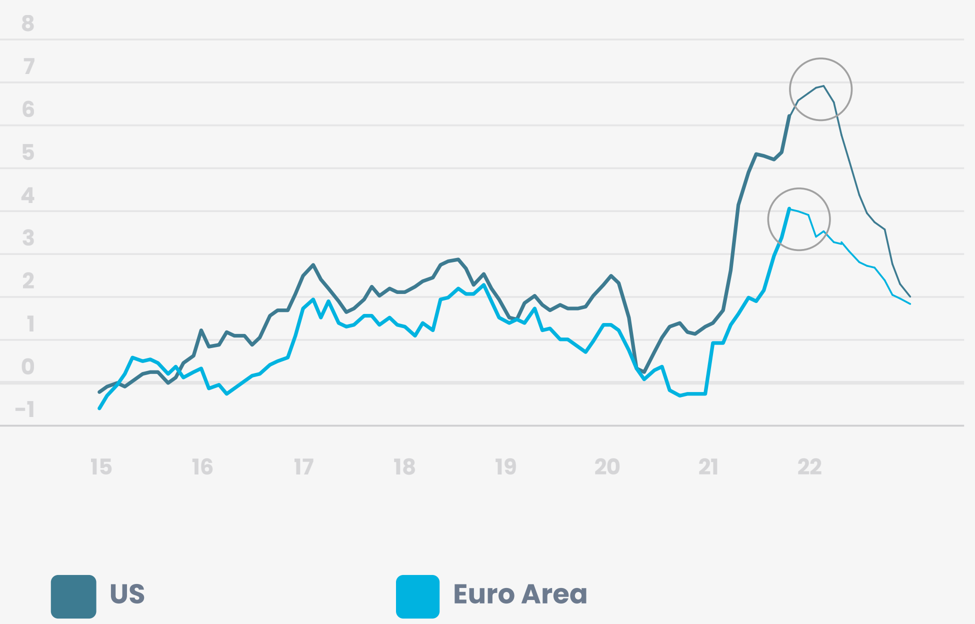
"We expect inflation expectations to peak in 2022. That being said, inflation worries should fluctuate during the first half of 2022."

Higher inflation for longer... and more lift-off

We expect supply and demand will gradually rebalance in an above-potential growth context in major developed economies. As strong demand faces pandemic-related supply bottlenecks, tensions arise and are leading to higher prices. Inflation should remain uncomfortably elevated, at least during the winter months. Hence, we agree with Fed Chair Jerome Powell that the term "transitory" does not mean short-lived, but rather something that is unlikely to result in very persistently higher inflation." We expect inflation expectations to peak in 2022. That being said, inflation worries should fluctuate during the first half of 2022, thereby testing the patience of central banks and bringing volatility to the fixed income markets and impacting equity factors.

Figure 2:

Peak of inflation in 2022



Source: Bloomberg – Forecasts: Candriam
Data as at 23.11.2021

The FED has already started to implement a new tightening cycle by targeting 3 rates hikes in 2022 in order to struggle against inflation. An extreme risk to our central scenario would be that the unprecedented global fiscal and monetary stimulus, which created the economic boom currently underway, could become unsustainable and morph into a high-inflation boom and bust cycle, leading to a double-dip recession. This is not our main scenario. We do not expect any curve inversion during 2022, as we see sufficient margin of manoeuvre for a flattening movement.

Cross-asset approach: Enter 2022 with a preference for equities over bonds, remain flexible

In this environment, 10-year US Treasury yields should evolve between 1.3% and 2.3%, warranting a short duration. This volatile environment will likely lead the yield curve to alternate between steepening and flattening, depending on fears regarding inflation and, more importantly, the Federal Reserve's reaction function. With the economy getting closer to full employment in the US, the central bank will conclude its tapering by March 2022 and should lift rates over the following months. The transition of a Fed rate hike cycle is a very delicate time, which has historically been associated with a flattening of the yield curve. Therefore, we would underweight US credit combined with a constructive position for European credit. For equity markets, the context of an initial yield curve steepening combined with above-potential growth leads us to begin 2022 with a positive stance. Responsibility remains our active equity choice, seeking opportunities and selecting innovative companies that invest in the world of tomorrow -- healthcare providers, corporates accelerating their decarbonization transition, minimizing waste, and embracing the mobility revolution. Companies 'playing the card' of disruptive technologies also deserve a prominent place in portfolios.

Investment opportunities arise in a challenging environment for Emerging economies

Monetary tightening in the US usually represents a headwind for emerging asset classes. This time around, financial markets have already begun to integrate this development, as most of Latin America and Eastern Europe central banks – Brazil, Mexico, Russia, Poland– have already become less accommodative.

After being the only G20 country registering positive GDP growth in 2020, the investment environment in China has become particularly challenging in 2021. Growth momentum has weakened, affected by the zero-Covid strategy, measures to curb carbon emissions and a deliberate cooling of the property market. While Beijing has already stepped up its monetary and fiscal easing polices, the risks for growth are skewed to the downside. Our analysis shows that financial markets have integrated this bad news and Chinese valuations look increasingly attractive, Chinese authorities are confident that a new "historical starting point" has been achieved under Xi Jinping's leadership. He appears set to receive a third 5-year term as paramount leader at the 20th Party congress scheduled for mid-October 2022, providing continuity and visibility for investors.

Figure 3:
Relative P/E MSCI China vs. MSCI World

Euro area still supported

Closer to 'home', the ECB should retain its dovish stance. With the Euro area further from full employment, the ECB will remain accommodative -- it would be a surprise to see the ECB start hiking its short-term rate before mid-2023. Even if pandemic emergency purchases (PEPP) end is set for March 2022, other asset purchase programs are slightly amended to ease the fading out of the PEPP. With the ECB continuing to buy paper in 2022 while the Federal Reserve is phasing out its purchases, we find European more attractive than US credit. Following the US leadership, bond yields should however trend higher in the Euro area, and we target a 0.2% yield on the German 10-year. Conversely, investors should become more cautious on peripheral European spreads as we believe that a lot of good news has already been priced in.

On the fiscal front, the rollout of the Next Generation EU plan will be gathering speed, while budgets for 2022 do not look restrictive. At the top of the agenda will be the reform of the Stability and Growth Pact, which dates back to 1997 – a time when Euro area bonds yields were several hundred basis points in positive territory.

Investing for a new era

After two years of lockdowns and reopenings, we expect 2022 to be a more "normal" year in what will be, we hope, the post-Covid era, the New Normal.

Covid-19 has been a global wake-up call to our greatest challenge -- the development and implementation of a just and inclusive energy transition to fight climate change. In the wake of the UN's COP26 conference, a multitude of announcements and pledges have been made to reduce harmful emissions and limit temperature rises. The new year will be pivotal. As Responsible investors, we have a duty to facilitate and accelerate this transition. We believe that Sustainability is a key driver of investment performance, and that active management will be key in selecting those corporates whose business models make a positive contribution to the world of tomorrow.

It is on this hopeful note that I wish you a very happy 2022.

The waiting game - how long?

Nicolas Forest
Global Head of Fixed Income

Céline Deroux
Senior Fixed Income Strategist, Global Bonds

Are Central Bank objectives compatible with financial stability in an environment of stronger inflation? Following recent strategic changes in monetary policies and bold post-pandemic responses, policy makers are also balancing inequalities stemming from Quantitative Easing and their role in the fight against climate change.

An Unstable Equilibrium?

Global Inflation remains elevated due to supply chain bottlenecks and labor shortages. As price pressures continue unabated, bond markets have become more hawkish and have already tested the reaction functions of developed central banks. Notably, Australia removed the yield cap it had maintained on 3-year bonds.

The US Fed – Average Inflation Target, and Full Employment

The US Federal Reserve has a *dual* mandate, specifically price stability and full employment. A year ago, the Fed also adopted a flexible 2% *average* inflation target (FAIT), which must be consistent with a fully-participating labour market. Therefore the Fed can accept an inflation overshoot as long as full employment has not been reached. In its latest communications, the Fed recognized that inflation is running above its 2% target, but has described the excess as transitory, with a level closer to 2.2% by the end of 2022. As the US economy pursues its recovery, the central Bank has announced a normalization policy of reducing its $120 billion monthly asset purchases by $15 billion in November and December, with the aim of halting bond purchases towards the end of the second quarter of 2022. Based on the FOMC's 'Dot Plot', rate hikes should arrive after tapering ends, as the US economy is still far from full employment (labor force participation has failed to pick up, in part due to early retirement programs).

Result? Following a 6.2% YoY rise in consumer prices in November, investors now seem to be pricing in interest rate increases from the Fed both sooner and more aggressively than the Bank is currently communicating. Our view is that the Fed could proceed with two rate hikes during the second half of 2022. It remains to be seen how the Fed will manage its oversized balance sheet. An active reduction of its balance sheet could take place before, during or after the initial rate hikes. For the moment this topic has been left unaddressed, but it will certainly be part of future policy decisions as it could complement the Fed's toolbox on its journey towards policy normalisation.

The ECB – Symmetric Inflation Target, and Climate

In Europe, the ECB has adopted a *symmetric* inflation target and has reinforced its forward guidance. Further, the Bank will include climate factors in its monetary policy assessment. The ECB expects additional near-term inflation, declining during 2022 before falling below the 2% target in 2023. In terms of asset purchases, the € 1.875 billion PEPP Program will continue at a slower pace, ending in March 2022. This will be followed by a more flexible Asset Purchase Program.

Result? As in the US, expectations of higher European CPI around 4% have given rise to speculation of a potential rate hike in 2022. This option has been largely dismissed by Mrs. Lagarde during the ECB's most recent Monetary Policy Decision communication.

Emerging Markets Present a Contrast

This "patient approach" of DM Central Banks contrasts sharply with the recent actions of EM central banks. For example, Brazil has raised rates by 575bps since the beginning of 2021, notably with a hike of 150bps in October, its largest single-meeting move of the last 20 years.

Reactions Soon, Results Over Time

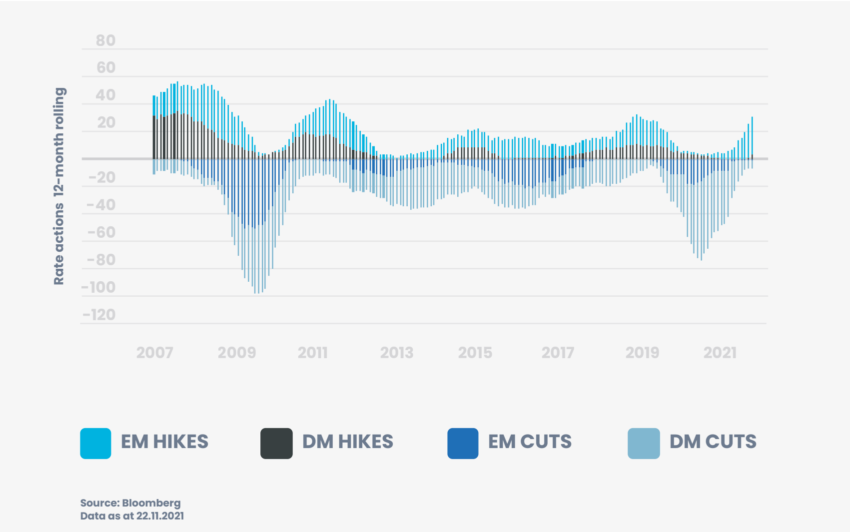
On the one hand, DM Central Banks run the risk of falling behind the curve, in which case they might need to act aggressively should inflation expectations become unanchored. Inflation now represents the main area of concern for companies, while consumers are feeling the impact of higher prices. Wage pressures also need to be closely monitored as they could create a feedback loop that could convert short-term inflation into a more permanent feature. On the other hand, an aggressive response to (potentially) transitory inflation could jeopardize the economic recovery and risks precipitating an abrupt slowdown, in a context of globally-higher government and consumer debt.

The drivers of the surge in prices – particularly supply chain bottlenecks -- should persist for a couple of months while the energy shock adds uncertainty to the growth trajectory. In this context, the new reaction functions of Central Banks will be put rapidly to the test. Only time will tell whether their patience will have been rewarded with resilient growth and financial stability.

Figure 1:

Central banks Actions Before and Since the Financial Crisis

*Based on 10 DM and 10 EM Central Bank**



* Central Banks – DM = US, EU, UK, Japan, Canada, Australia, New Zealand, Norway, Sweden, Switzerland EM = China, Mexico, Brazil, Indonesia, Turkey, Russia, South Africa, Czech Republic, Hungary, Poland.

How can we consider inflation in 2022?

Nadège Dufossé
Global Head of
Multi-Asset

"With a CPI rising in October to 6.2% in the US, a level not seen since 1982, and 4.1% in the Eurozone, inflation is a major topic for the markets in the coming months."

Children's online learning lifeline

Theany Bazet
Thematic Fund
Manager

To mark St Nicholas' Day celebrated today in remembrance of the patron saint of children, *Theany Bazet, Thematic Fund Manager*, looks at how companies working in the field of online learning can help build a more sustainable world of tomorrow.

Many parents try to get their kids off computer games and the web and onto a good book. But the COVID-19 pandemic has changed all that across the world, at least in relation to the Internet. During the lockdowns and school closures, web-based schooling platforms have become essential tools of their children's education. But not for all.

"Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"

UN Social Development Goal 4

Inequality again has proved to be the crucial segregating factor. The extent to which pandemic school closures had affected children depended on what access and tools their parents and their schools could afford to keep on learning during the pandemic. Not only home internet connection is regarded as a luxury in many of the world's poorer countries, but many historically under-resourced schools did not have the necessary online tools to reach all of their pupils during the crisis, leading to an increased digital divide[1].

The COVID-19 pandemic has brought into the spotlight the shortcomings of attaining the UN SDG 4 by 2030 (quality education for all), given the digital divide that hindered education continuity under lockdowns for those with no access to technology. In order to find solutions for some of the worst affected countries, international organisations like UNICEF have been working together with businesses, demonstrating that the private sector can play a positive role in crisis relief and mitigating existing inequalities by providing pupils and schools with affordable and reliable internet access, computer equipment and software supporting home schooling platforms.

When COVID shut down schools

What was truly unprecedented during the COVID-19 pandemic was the global scale of the disruption, as schools for more than 168 million children[2] were closed around the world. About 214 million children globally – that is one in seven – have missed more than three-quarters of their in-person learning[3]. According to UNESCO, 1.6 billion students across more than 190 countries were affected by school closures at the peak of COVID-19 - disrupting the learning and the provision of critical services to children and young people across the world, especially the most disadvantaged[4].

A majority (53%) of children in low-and-middle income countries experience "learning poverty"[5]. This is a term used by the World Bank in their study to describe children who received education so poor that they cannot read or understand a simple text by the age of 10. The report puts this figure even higher (80%) for poor countries, given the fact that many children do not attend school at all. Only in crisis-affected countries, 127 million children and young people were out of primary and secondary school in 2019 - this is equivalent to almost half the global out-of-school population[6].

So it is clear that COVID-induced school closures tended to particularly harm students from groups facing discrimination and exclusion from education even before the pandemic. The damage to many children's education is largely driven by preexisting issues as one in five children were out of school even before COVID-19 began to spread[7].

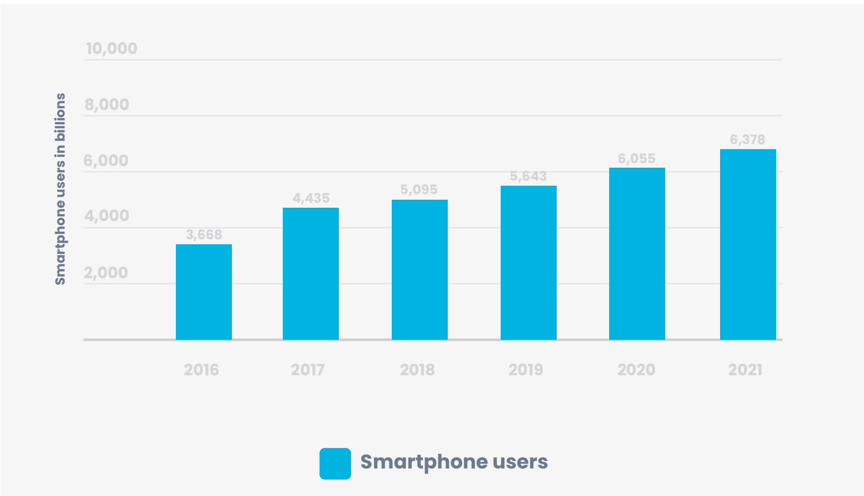
The sustainable role of companies

Investors will have a part to play as they join companies, governments and international organisations in the effort to fulfil the United Nations Sustainable Development Goals (SDGs) and their central objective to "leave no one behind" by 2030.

Thanks to international efforts, there are already examples of businesses enabling the provision of online learning tools, including to schools and pupils with limited means. For example, UNICEF's Reimagine Education programme has linked governments and companies to provide digital learning tools to children and teenagers. There is clearly a market for affordable online education in this area that can be filled by companies in a sustainable way as they follow in the steps of international organisations. A range of suppliers can be involved, as online learning is not just software but also a range of educational materials and tools, from textbooks to educational radio broadcasts, online support and tutoring groups as well as podcasts.

As we already mentioned, in most cases when delivering online school tools was not possible, it was due to the absence of internet connection at home or at school. In fact, 1.3 billion children aged 3-17 years old live without internet connection. Hence, there is a scope for innovative commercial solutions across the online education value chain, both for infrastructure and connectivity services.

Figure 1:
Number of Smartphone Users
Worlwide data from 2016-2021 in billions



Source: Statista, December 2021.

In fact, probably most solutions for a problem like online education in poorer countries will have to be innovative. It is simply because the standard solutions require access to a personal computer connected to the Internet. As we see, many poorer families do not have that. However, 80% of the world's population owns a smartphone, which means that software that works as an app on smartphones could be a game changer. It also means that there is a large addressable market for incumbent companies.

In fact, there are several sectors that could not only benefit from potentially strong growth but also meet sustainability objectives in this area – such as infrastructure companies (including electricity providers, telecommunication services, broadband and wireless networks, tower infrastructure, fiber companies), hardware (smartphones, tablets, PC and even educational toys) and software companies (existing actors and new entrants); content creators (publishers and education companies that provide not only printed but digital content too).

Apart from addressing SDG4 by providing commercial solutions to this social problem would indirectly contribute also to reducing inequalities (SDG10), gender equality (SDG5), industry, innovation and infrastructure (SDG9) and partnerships for the goals (SDG17), while permeating into SDGs 1 and 2 (no poverty, zero hunger, decent work and economic growth) as a better education could pave the way towards better opportunities later in adult life.

Global efforts to improve the lives of children worldwide have so far been almost exclusively in the hands of governments, regulators and international institutions. Increasingly, market forces start to play an important part too and investors, as part of that equation, can help drive a positive change.

The ESG movement has proven to be a force for good in fostering corporations to incorporate sustainability matters into their strategic vision while also demanding more transparency. Shareholder activism is increasingly calling for change, better practices and more accountability. Now that social issues have come more into the spotlight, responsible investors continue to evolve and align their investment practices towards those companies leading the way into a transformational contribution towards reduced inequalities and more fair and just societies.

1 https://www.hrw.org/report/2021/05/17/years-dont-wait-them/increasedinequalities-childrens-right-education-due-covid

2 https://data.unicef.org/resources/one-year-of-covid-19-and-school-closures/

3 https://www.oecd.org/education/the-impact-of-covid-19-on-education-insightseducation-at-a-glance-2020.pdf

4 https://en.unesco.org/news/one-year-covid-19-education-disruption-where-dowe-Stand

5 https://www.worldbank.org/en/topic/education/brief/what-is-learningpoverty#:~:text=Using%20a%20database%20jointly%20developed,as%20high%20as%2080%20percent

6 https://inee.org/resources/20-years-inee-achievements-and-challengeseducation-emergencies

7 https://www.unicef.org/coronavirus/keeping-worlds-children-learning-throughcovid-19

2022, year of Circularity?

David Czupryna
Head of ESG
Development

"2022 promises to be a crucial year for the advancement of a more circular economy."

Taking a careful aim at cancers?

Malgorzata Kluba
Senior Biotechnology Analyst

Oncology has seen some remarkable advances over the past few decades. Cancer is a difficult and complex enemy – there are actually over 200 types of this illness and they are constantly changing in response to the therapies used against them.

Today there is a wide range of different types of cancer treatments, including chemotherapy, radiation therapy, targeted therapy, immunotherapy, bone marrow stem cells transplants, hormone therapy and surgery. Some of the more exciting developments we can see in the field of precision oncology.

Some of the oldest treatments, such as chemotherapy, are still used today, however they come with major side effects. This is because they do not differentiate between healthy and cancerous cells in our body – and kill both.

Better understanding of cancer biology acquired through many decades of painstaking research have allowed to develop targeted therapies. This is where we find some of today's most exciting developments in oncology, and the companies that work on these new cancer treatments. These targeted therapies use the precise information about cancer to attack only cancer cells while sparing healthy cells, thus increasing the success rate and reducing side effects.

Over the years, several types of targeted treatments have been developed, most of which aim at blocking the activity of proteins that help cancer to thrive. The human body develops around 20,000 proteins, and about 600[1] of them are functionally important for various types of cancers. Because cancer cannot function without those proteins, blocking or removing them entirely is a good strategy to fight the disease.

Advanced antibody therapies: guiding the immune system to attack cancer cells

Cancer cells can be selectively targeted with antibodies, exploiting the subtle differences between the diseases and healthy cells. There are cancer treatments that use antibodies which are specially designed to bind only to the proteins on the surface of cancer cells rather than any other cells in our body. As in the case of ordinary antibodies, once they find its target (a matching cancerous protein), it disables its activity and signals the immune system to attack the intruder.

Antibody therapeutics represent the fastest growing class of drugs on the market. Even after 35 years since the approval of the first antibody treatment, they are the subject of intensive research to improve the way it is used and its efficiency.

1 https://pubmed.ncbi.nlm.nih.gov/34131295/

The most significant developments in this field in recent years have been around the so-called bispecific antibodies and antibody drug conjugates. The bispecific antibodies can bind to not one but two different types of cells, for example a cancer cell at one end, and the defensive T-cell that can destroy the cancer cell on the other.

Antibody drug conjugates combine the selectivity of an antibody and the high toxicity of a drug to which they are fused. This way the treatment is delivered to cancer cells rather than healthy cells, which reduces side effects.

There are hundreds of types of different cancers in existence, and each of them has many different types proteins on the surface of their cells that can mutate very fast in order to escape current therapies. Nonetheless, with more than 200 bispecific antibody treatments in development, our chances are not hopeless in this fight. Recent examples include Genmab's bispecific antibody currently in the late stage clinical trials for lymphoma, Johnson & Johnson's recently approved bispecific drug addressing two separate drivers of lung cancer or antibody drug conjugate developed by Daiichi Sankyo in collaboration with AstraZeneca, approved for one of the types of breast cancer.

Protein degradation – killing the cancer cells from within

Our bodies constantly create and eliminate a huge number of proteins. The proteins that make our bodies do not stay there forever, they are consistently recycled once they reach the end of their lifetime. During this process proteins are first tagged for destruction with a marker called *ubiquitin* and then degraded within a sort of a waste bin structure called *proteasome*. This is called protein degradation.

Scientists have created a new type of treatment based on protein degradation. It uses our body's *ubiquitin-proteasome* process to remove the proteins that are essential for the proper functioning of cancer cells.

Several types of protein degraders are currently being investigated in clinical studies to see if they can be used to treat breast and prostate cancers, as well as lymphoma. There are also early stage trials to develop protein degradation mechanisms for melanoma, lung, colorectal, and pancreatic cancers. Recently this new class of drugs has been generating tremendous interest attracting both large pharma companies as well as smaller players.

The leaders in this field are several small and relatively young companies focusing exclusively in this field, such as Arvinas, Nurix and C4 Theraputics. They are working to develop degraders for many different types of cancer. Some of these cancers have previously been thought of as untreatable, while others are being currently addressed by various therapies, however not without problems such as drug resistance, mutations within the cancer cells and disease progression. Protein degraders could potentially overcome all those limitations: the aim is to develop cancer treatments that are able to degrade the proteins that are normally outside the reach of other drugs.

"The most significant developments in this field in recent years have been around the so-called bispecific antibodies and antibody drug conjugates."

What's on the horizon?

With ever growing scientific knowledge of how cancer cells function, there are many potential new treatments that could improve the current standards of care in the near future. The number of clinical trials initiations in oncology have roughly doubled in last 10 years, reaching a historic high level of 1600 studies started in 2020. The progress in clinical trials leads to approval of tens of unique new treatments each year. Examples include highly targeted enzyme inhibitors, antibody immunotherapies, and cell therapies, where patient's own immune cells are collected, modified in the laboratory and returned to the patient's body to fight the cancerous cells. New classes of therapeutics such as protein degraders emerge regularly, adding to the toolbox of already approved treatments.

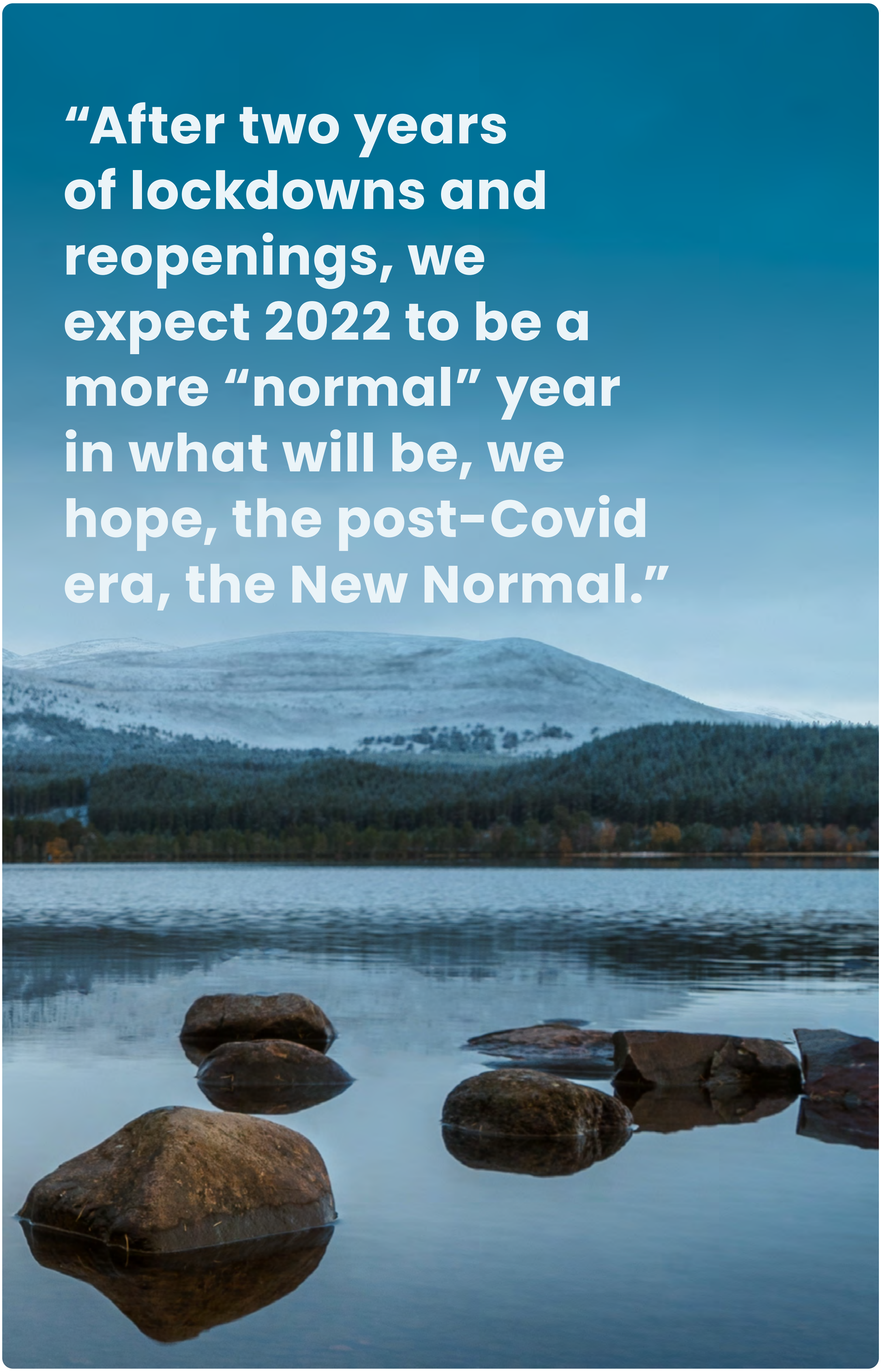
Our team applies its highly specialist expertise and thorough analysis to follow closely a wide range of ongoing oncology drug developments and target the companies that should benefit from the potential successes in this field.

Candriam supports PrecISion Medecine Institute in oncology (PRISM), which is a consortium comprising the Gustave-Roussy Institute, the Central Supelec engineering school, Paris Saclay University and INSERM. Its efforts are focused on molecular analysis to accurately detect the molecular mechanism that causes cancer to progress in each patient at risk of dying from cancer. That is what is known as cancer modelling and, if successful, it can save around 200,000 lives a year over the long term.

Watch the interview of Professor Fabrice André – Directeur de la Recherche de Gustave Roussy, oncologue médical spécialiste du cancer du sein and Professeur de médecine à l'Université Paris-Saclay.

PRISM - PRecISion Medecine Institute in oncology by Gustave Roussy

Professeur Fabrice André
Directeur de la Recherche de Gustave Roussy, oncologue médical spécialiste du cancer du sein and Professeur de médecine à l'Université Paris-Saclay



“After two years of lockdowns and reopenings, we expect 2022 to be a more “normal” year in what will be, we hope, the post-Covid era, the New Normal.”

A post-COVID corporate cybersecurity: a silver lining?

Johan Van der Biest
Senior Equity Fund Manager

Felix Demaeght
Equity Research Analyst

There aren't many well-established businesses that don't regard digital transformation as one of their top priorities. And while there is yet no universal agreement on what it exactly entails, it is widely considered a megatrend. Moreover, as the COVID-19 lockdowns pushed employees into home-based working, digital transformation has become a rapidly accelerating megatrend.

A key element of the ongoing digital transformation will be a paradigm shift from a centralised "on-premises" type of IT architecture to a distributed - Cloud-based one. This shift is still in its early stages but we expect it to extend to most sectors, geographies and industries. It is not just about changing the way companies connect their employees to internal computer resources, the Internet and various applications. It will also be about cybersecurity, which today is more important than ever.

Cybersecurity and ESG

Cybersecurity has a direct and significant impact on environmental safety, partner relationships, and the security of sensitive data, as well as of employees[1]. All that has serious implications on social and governance aspects of corporate activities, as well as companies' sustainability profile.

"The extent of board buy-in on cyber security can be a good litmus test for the effectiveness of a company's approach to cyber risk", pointed out Principles for Responsible Investment (PRI), the world's leading proponent of responsible investment. In addition to governance aspects of cybersecurity, there are also social aspects, which include the security around the collection, retention and use of sensitive, confidential, or proprietary customer data.

This has led many companies to include updates on the ESG aspects of their cybersecurity resilience in annual sustainability reports. Whilst this is a welcome development, we must say that companies tend to customise metrics they report[2] because there are still no standard reporting requirements in this area.

What has changed?

Only a few years ago, corporate networks had to facilitate access and provide security for connections predominantly from employees' office computers. On the rare occasions when employees required remote access, a VPN-type application (virtual private network) was used.

The main security feature of such centralised networks has been a perimeter (firewall) designed to screen both incoming and outgoing traffic.

However, the COVID-19 pandemic lockdowns and restrictions have made remote working a necessity, for which the old centralised IT infrastructure was not designed for. Its limitations have been tested as companies experienced thousands of employees (in some cases) logging in remotely from thousands of locations, with some people perhaps using unsecure laptops and tablets. Employees abandoned their office PCs, and system vulnerabilities and potential entry points for hackers have extended well beyond the old familiar "firewall".

A silver lining

Cloud-based IT infrastructure has been an obvious alternative to the traditional centralised model for some time now but the pandemic has brought it to the fore. We expect the broader migration to the Cloud to speed up.

The emergence of several providers of Cloud services, such as AWS, Microsoft Azure and GCP, has helped to create a new broader vision about IT infrastructure. In the past, hardware and software such as servers and databases had to be acquired and managed by the companies themselves. Today, IT infrastructure can be outsourced as a "IaaS" (Infrastructure-as-a-service[3]), together with all the applications and software that are required - Software-as-a-Service[4] (SaaS). These new service options have attracted strong interest from many listed companies, with an average company now using 100+ SaaS applications.

The emergence of the Cloud offers companies the kind of flexibility and scalability which they did not have before. It also offers a different kind of security. Security based on a central perimeter allowed authorised users to access virtually everything on that network. Clearly, this would pose a significant risk when a request for a connection comes from outside the organisation, and its security perimeter. That is why cybersecurity today is much more centered around a concept of "Zero Trust". Every request from a known user to access a service, such as Salesforce, Office 365 or Zoom, is validated separately and the connection with that service is severed again once the user closed the application. That way access is only allowed to the applications the user needs to use and no lateral movement around the network is permitted.

As companies update and develop their approach to cybersecurity, they are helped by the tailwinds from the recognition of its ESG credentials, as well as the need for change stemming from the new working environment. Undertaking the "Move to the Cloud", as we call it, and strengthening their cybersecurity will benefit businesses in the long term, in more ways than one. Being a silver lining of the COVID-19 crisis, we are strongly convinced that these positive trends are here to stay for the foreseeable future.

Our team applies its expertise in innovative technologies, digital transformation and cybersecurity to follow closely a wide range of ongoing developments and target the companies that stand to benefit from the accelerating market trends in these fields.

1 https://www.darkreading.com/risk/new-report-links-cybersecurity-and-sustainability

2 https://thestack.technology/cybersecurity-esg-reporting/

3 https://en.wikipedia.org/wiki/Infrastructure_as_a_service

4 https://en.wikipedia.org/wiki/Software_as_a_service

Innovators: sustainable companies at the forefront of low return markets?

Geoffroy Goenen
Head of Fundamental European Equity

Antoine Hamoir
Senior Portfolio manager

Central bank support during the COVID-19 pandemic has been good for investors. Throughout 2021 investment performance of most assets benefitted from a period of robust economic growth supported by highly accommodative fiscal and monetary policies, including quantitative easing, across all key markets. However this period is coming to an end.

Key economic indicators show that global GDP growth has peaked and is now decelerating. The pace of this deceleration will depend on whether inflation remains elevated for a year or more while long-term interest rates normalise as central banks embark on the road of tapering their monetary stimulus programmes.

In this kind of an environment, we expect the volatility of risky assets to increase dramatically over the course of 2022. With revenue growth negatively impacted, cyclical companies will come under particularly heavy pressure. In contrast, among those companies expected to fare better than most we expect to see innovators with the flexibility needed to quickly adapt to the fast changing consumer trends and demand. Such companies tend to be less affected during periods of economic growth slowdown. Moreover, as rising inflation places most companies under pressure, innovative companies typically have superior pricing power. This is mainly due to the perceived superior value of their products and services, which helps innovative companies to pass inflation costs to their customers.

Combining sustainability and resilience

With many innovative companies also offering a sustainability angle, they seem almost too good to be true. Indeed, many of these companies can become huge disappointments despite their exciting innovative ideas, as the lack of sound financial basis eventually leads to an implosion of the investment opportunity. That is why successful investing in this area is typically associated with strict selection discipline built around company fundamentals and financials.

Apart from a good balance sheet, we believe that a good innovative company also would have above average business growth, and strong and stable management, focused on placing their company at the forefront of their sector. A management not distracted by restructuring of the business, its debt or struggling with liquidity. Typically the company will have its eye firmly on growth opportunities, and using its full creative potential on creating innovative solutions to grasp them.

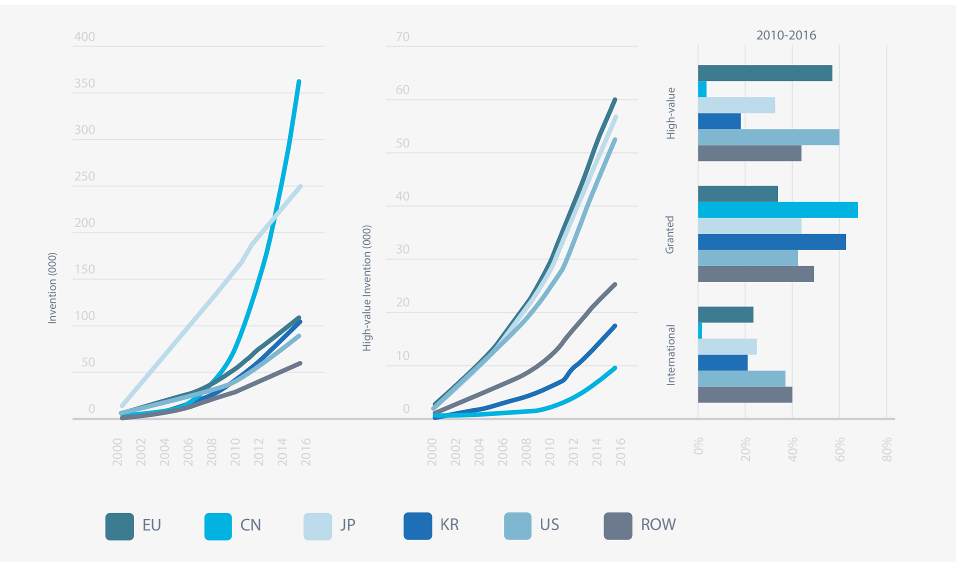
The market of innovative companies is actually expanding due to various regulations around the issue of climate change, meaning that companies are driven to embrace change and take measures aiming to protect the environment, stall the pace of climate change and mitigate its impact. This will be very valuable in market conditions which make areas of growth hard to find.

Europe’s innovative environment

Despite some common misconceptions, Europe has created a highly favorable environment for innovators. It is not just about the level of Research & Development (R&D) spending by companies, but also research hubs, university research, scientific and engineering networks and publication of research. Data shows that innovative companies in Europe have achieved better alignment with sustainability challenges than their peers in other global markets. Moreover, Europe is closely second to the US in terms of high value “green” inventions, i.e. those ESG-related inventions that are patented in at least two different countries.

Figure 1:

Green inventions



Source: The 2020 EU Industrial R&D Investment Scoreboard, European Commission, JRC/DG R&I.

Note: Cumulative trend of green inventions (left), high-value green inventions (centre), and share in the period of 2010-2016 of high-value, granted and international inventions (right) for major economies over their total number of green inventions. “High value” means that the invention is patented in at least two different regions of the world.

Areas of opportunity

We see many exciting areas of innovation across a multitude of sectors but we find it particularly encouraging for investors that so many of them are linked to ESG. This is driven mainly by consumers and clients of different companies, who have their own goals and expectations related to ESG agenda. Regardless of their sector and area of activity, companies need innovative solutions to meet their objectives.

When it comes to sustainable innovative solutions, much of it of course is about climate change but there is a lot that is not. Many of the climate change-related innovations are to do with familiar areas, such as more effective building insulations, energy efficient technologies, including electric vehicles, hydrogen transport, as well as innovative solutions aimed at reducing greenhouse gas (GHG) emissions.

There are also less obvious solutions in this category, such as the use of enzyme and microbiological solutions in many industrial processes to simplify them, achieve better energy efficiency and replace poisonous chemicals. Or a feed additive for cows that reduces by a third the production of methane by their digestive system, by about 30%. Methane is more than 80 times as potent as carbon dioxide in warming the atmosphere.

In addition to climate change, there are other areas of innovation which come with a strong sustainability focus, such as medical treatments, vaccination, biotechnology, artificial intelligence, quantum computing and new materials. And it is good to know that in a slow growth environment, investing in innovative companies is also one of the best ways of accessing some of the best sources of returns.

"In addition to climate change, there are other areas of innovation which come with a strong sustainability focus, such as medical treatments, vaccination, biotechnology, artificial intelligence, quantum computing and new materials."

Emissions in the US, Europe, and China: who is on track?

Emile Gagna
Macroeconomist

The United Nations conference in Glasgow, COP26, ended for many with a feeling of too little. Three economies generate more than half of greenhouse gas emissions. We plot out the gaps.

Still not on track for 1.5 degrees C

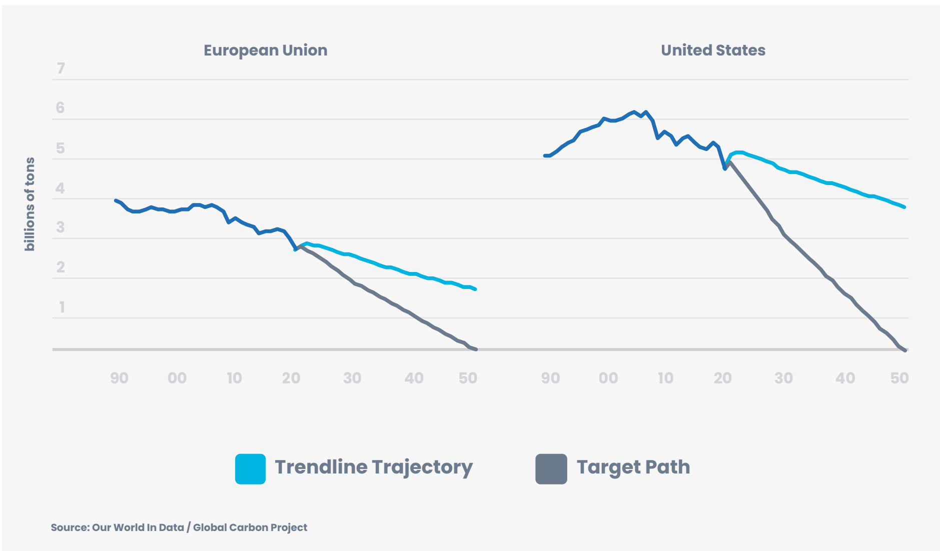
The stated objective of the COP26 was to accelerate the pace of CO_2 emissions reduction in order to contain global warming within a range of 1.5°C to 2°C, while respecting the principle of 'subsidiarity', according to which each country organizes itself as it wishes and sets its own Nationally Determined Contribution (NDCs). According to Climate Action Tracker, the commitments should enable the world to limit warming to 2.4°C (compared to 2.7°C before the COP). To reach the 1.5°C target, global net CO_2 **emissions must be reduced by 45% by 2030** from 2010 levels, and decline to net zero by 2050. However, even achieving the latest NDCs would lead to a level of global greenhouse gas emissions in 2030 that is still higher than in 2010!

We all know the major players. Together, the United States and Europe contribute a quarter of global emissions (15% and 10% respectively), while China accounts for a little more than a quarter (27%). These three economies alone now emit more than half of all CO_2[1].

The Extra Effort Required - Developed Nations

Starting from very different emission levels, Europe and the United States have similar objectives – to achieve carbon neutrality by 2050. To achieve this goal, the United States has set an intermediate 2030 target of a 50 to 52% reduction in emissions from 2005 levels, while Europe has set an interim target of a 55% reduction in emissions from 1990 levels. These targets are ambitious – maintaining the recent trend of carbon intensity reduction (CO_2 emissions per unit of GDP) will not be enough! In 2050, without a more pronounced reduction in carbon intensity, emissions in both regions would be well above the carbon neutrality target (Figure 1).

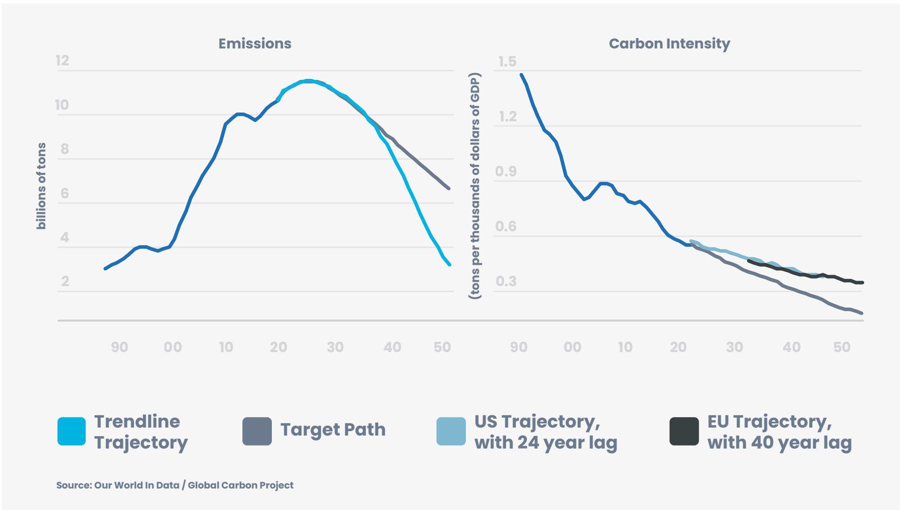
Figure 1:
Developed Nations CO_2 Emissions – EU and US
billions of tons



The Path for China

China's ambition is to be carbon neutral by 2060. Its target for 2030 is more modest -- it plans only to reduce its *carbon intensity*[2], by 65% compared to 2005. Given China's continued economic development, its emissions would therefore continue to rise, peaking just before 2030. The effort required for these goals is nonetheless substantial. Compared to the rate of reduction of carbon intensity observed in the United States since 1996 (when US intensity was comparable to that of China today) or to that of the European Union, which began even earlier, the reduction in intensity announced by China still appears ambitious (Figure 2).

Figure 2:
China CO2 Emissions Trajectory



And That Gap Between 'Target' and 'Trajectory' ?

The emissions graphs display a straight line 'Target' between where the nations are today, and their net zero goals. They also display a straight-line 'Trajectory' based on emission improvements actually achieved in the ten years prior to Covid-19.

And the gap? Assuming that we actually do achieve our targets, that growing gap hints at the size of the problem that financial markets must help address. Perhaps this is why Impact is such a popular word in today's investment vocabulary.

1 We might note that while these current emissions levels are relevant for projecting the future of global emissions, the history of emissions has some relevance to negotiating targets between developed and emerging nations. While today the US and Europe are contributing roughly a quarter of new emissions, over half of cumulative emissions already in the atmosphere came from these two regions. Conversely, while China may be contributing a fourth of new emissions, less than 13% of Greenhouse Gases already in the atmosphere are attributable to this nation.

2 Carbon intensity is the quantity of carbon emissions per dollar of GDP. This is a measure of the efforts realized by countries to decarbonize their economy. In countries that are developing fast, this reduction in carbon intensity can be compensated by high GDP growth -- this is especially the case for China where carbon intensity has been declining since the early 90s while carbon emissions have been increasing at the same time!

Can impact be the purpose of the firm? Measuring 'pure' impact

Maïa Ferrand
Co-Head of External Multimanagment

'Impact' is an important word to define in investing – and a difficult concept to measure, report, and compare. In our private equity investing, we mean a company which was specifically founded with the purpose to create a measurable Societal impact – and for level of impact to be intimately related to level of profitability.

Case Studies in Impact Measurement and Management

The societal goals of 'Impact' funds of large, publicly-traded equities can be as broad as a portfolio of publicly-traded companies which limits the portfolio carbon emissions, perhaps using a data provider such as Trucost for measuring and reporting the portfolio footprint. This is new enough.

At the other end of the spectrum, one might invest in Impact companies which were founded with specific societal -- environmental or social -- aims. Companies which were actually founded with the purpose of addressing specific societal goals tend, at present, to still be small and non-public. And how do we measure very specific impacts, such as providing jobs for handicapped workers or developing technologies for green energy. Managing a fund of impact funds requires that we measure and monitor at multiple levels -- the underlying company, the private equity fund level and fund-of-funds portfolio level.

It took decades for the field of financial accounting to develop standards enabling companies to be compared across industries. How can we measure Impact? And how can we consolidate 'Impact' measurements across multiple types of businesses in a portfolio of companies?

We start with the 17 UN Sustainable Development Goals, which provide an internationally-accepted conceptual framework and are widely-used by sustainable investors.

Each company reports quarterly on both measures, impact and profit. Portfolio companies and the private equity general partners agree on from one to three Key Performance Indicators (KPIs) tied to each company's particular business purpose. By holding seats on the impact committees for each fund in which we are invested, we take an active role. The KPIs are mapped to SDG targets. In turn, we group these into six thematic categories of SDGs[1]. This allows us to generate fund level reporting of both impact results and financial results.

To illustrate, we describe two companies from two different impact funds.

Company 1: Okeenea

Business Purpose: Okeenea was founded to improve accessibility for the roughly 12 million people living with disabilities in France. More than one billion people worldwide – 15% of the population -- live with disabilities. Two-thirds have difficulty accessing transportation and public spaces. Mobility for the disabled is a major concern for citizenship, education, health, work, culture.

Products and Services: Okeenea combines new and digital technologies to create solutions for those with mobility limitations, and to make cities and services more accessible and safer for everyone. Products include triggered APS (Accessible Pedestrian Signals for blind pedestrians), sound beacons, and multisensory maps. In France, 20% of the population experience some form of disability.

Okeenea currently has four product lines, including audible signage for the visually impaired, building products for accessibility and compliance standards, connected digital solutions for 'inclusive' mobility, and an online distribution business for accessibility equipment.

Impact Reporting: Okeenea is now the French leader in accessibility. More than 200,000 APS have been installed in France. Projects have included the Paris airports, the Louvre museum, the ACCOR hotel group, the Paris RATP public transport system, and the French SNCF national rail system. These are being followed by installations in the five largest Russian train stations and the New York City Department of Transportation.

Okeenea
Impact Measurement and Reporting

SDG	3 GOOD HEALTH AND WELL-BEING; 11 SUSTAINABLE CITIES AND COMMUNITIES
Impact KPIs	**KPI 1 : number of public facilities made accessible** **KPI 2 : number of audio-signal devices implemented in traffic lights**

Source: Okeenea & Candriam

Company 2: SkillLab

Business Purpose: SkillLab was founded to help workers in marginalized communities such as refugees, migrants, and informal workers enter the workforce. Traditional forms of skill recognition often fail to demonstrate the capabilities of these workers. As a result, these populations can find themselves excluded from formal labour markets despite possessing employable skills.

Products and Services: SkillLab BV, based in Amsterdam, provides equal opportunities through partnership-enabled education and employment for all job-seekers. Based in Amsterdam, they focus on competencies rather than qualifications to help uncover unknown practical skills of vulnerable youth. They use unique matching technology to reduce inequalities based on gender, race and backgrounds for job seekers. The more skills profiles are constructed and completed, the more data is collected and the more precise and improved the matches. Current customers include the UN International Labour Organization (ILO), the City of Amsterdam and Springhouse. The company targets marginalized job seekers, such as displaced workers, refugees and informal workers. SkillLab won the Google AI Impact Challenge in 2019, which allowed them to further improve their algorithm and place refugees in jobs more effectively.

Impact Reporting: SkillLab's three-year target is to help 150,000 marginalised job-seekers. Covid-19 has reduced job opportunities and increased mobility challenges, which is likely to increase medium-term demand for more effective technology solutions for employment. So near-term, Covid-19 may cause some shortfall from plan, while medium-term, it could enhance the outlook for SillLab's services.

Next Steps

Investors are increasingly demanding responsibility and accountability from the companies in which we invest. Businesses actually founded with the intention of making a societal impact, whether environmental or social, are the purest form. As this new breed of company develops ways to measure and report impact, their experiences can help the broader financial world to adopt a formal system of impact accounting. It is our Conviction that we should bring our experience to help this happen.

1 Using the Cambridge Investor Leadership Group framework, these six themes are Basic Needs, Resource Security, Healthy Ecosystems, Climate Stability, Decent Work, and Wellbeing.

SkillLabs
Impact Measurement and Reporting

SDG	8 DECENT WORK AND ECONOMIC GROWTH
Impact KPIs	**KPI 1 : Cumulative number of completed skill profiles**

Source: SkillLabs & Candriam

How can private loan investors make an impact?

Vincent Compiègne
Deputy Global Head
ESG Investments &
Research

Direct Investing might be the ultimate investor/investee engagement. But it does not have to be private equity ownership. Private loan investors, too, often play a strategic role in the firms to which they lend, even holding Board seats. And good news -- the Impact Investment category increasingly targets market or above-market returns.

Private Loan Investing: Two Paths to Impact

Private loans are often negotiated directly between the investment partnership and the borrowing firm. Often the borrowers rely on financial and strategic advice from the private debt investment managers.

This close relationship offers two possible paths to impact. First, the working relationship and dialogue between the investors and the business can lead these firms, which are often smaller companies, to a greater understanding of how to become more sustainable in their business practices or in their product offerings.

An even more profitable path – both in terms of impact and financial benefits – can be achieved with firms we think of as sustainable 'Pure Players'. As investors, we can directly guide these firms to specific environmental or social goals by tying interest rates to Key Performance Indicators. A second area where we can have an impact is 'evolving sustainability', with companies who are willing to explore more sustainable methods.

At Candriam, we solicit quite specific information. Our due diligence questionnaire is designed to collect the information we use in our proprietary ESG analysis models for Business Activities and Stakeholders. We use the information to prepare for our discussions with the company, and to design and agree on Key Performance Indicators (KPIs). The interest rate is linked to the KPIs, so it is important to both the company and the investor to design indicators which accurately reflect the impact made by the company.

Below, we present a case study of each of the two types. We being with Evolving Sustainability, because it is more familiar to sustainable investors.

Case Study of Evolving Sustainability - Pyrex

Business: Pyrex is a France-based manufacturer and distributor of tempered glass cookware products. This is an energy-intensive process, manufactured mainly using gas-fired furnaces, with a small number of electric furnaces.

Impact: It is important to encourage and reward sustainability among European industrial companies. The EU wishes to avoid 'importing' CO2 by purchasing goods manufactured in regions with high-emission energy. As nations tighten regulations, it is tempting to produce offshore. The shift of high-emissions production to less-regulated markets does not just move the problem. When production shifts from a region with natural-gas-generated electricity to a region with coal-generated electricity, the problem is worse for all of us. This 'imported' CO2 has been a tremendous problem for the EU over the last decade. On the Social side, industry within the region keeps a balance of employment and research. Affordable, low-emission cookware can reduce the use of plastic wrap and other disposables.

Supporting, informing, and encouraging this type of industrial company can generate societal benefits, both environmental and social. There is much work to be done on this measure across industrial sectors. Pyrex has the potential to contribute to multiple UN Sustainable Development Goals. While similar to engaging with issuers of publicly held securities, the closer ties between management and investor in these private loans can means greater trust, closer communication, and more rapid adoption of new practices.

Impact Reporting: One possible KPI, or Key Performance Indicator, would be the number of women in full-time employment (FTE). Our due diligence and analysis point to a lack of diversity as one of the points where some improvement could be achieved. Another potentially useful KPI would be Scope 2 carbon emission. That is, indirect emissions associated with the purchase of electricity, steam, etc. This would encourage both more efficient use of power, plus migration towards green power, and discourage purchase of electricity generated from fossil fuels.

Pyrex
Impact Measurement and Reporting

SDG	
Impact KPI Proposals	**KPI 1 : Women in workforce** **KPI 2 : Scope 2 emissions**

Source: Pyrex & Kartesia

Case Study of Sustainable 'Pure Play' - Eden Futures

Business: Eden Futures provides structured living services and support for adults with learning disabilities, autism, mental health, and other needs. Operating across central and northern England, their business model is to improve the lives of their clients by giving support and skills towards independence and a better quality of life.

Impact: The business product and impact goal are one and the same for this firm. As a 'pure play', this is a case where the debt could be structured to link the KPIs to the interest rate. The borrower is rewarded with a lower rate if the agreed KPIs are achieved.

As is generally the case, KPIs must be carefully chosen and structured to encourage the intended result. For example, lower staff turnover indicates better care of and support for the clients, a measurable indicator of the impact goal. Lower staff turnover could also lead to better margins, better debt coverage, and a higher-quality borrower for the private debt investor.

Potential KPIs: Some measurable indicators under discussion include employee turnover, and certification of facilities. High-quality human capital is an important input, and the questionnaire solicits information on several aspects. Using a KPI based on employee turnover offers a numerical indicator of quality. Another potential KPI is regulatory certification by the English Care Quality Commission, both in number of units and the rating, which in this case includes a strong element of client opinion and assessment.

Is This a 'Win-Win'?

It is our Conviction that a *material* discount in the lending rate, matched by challenging impact targets and ongoing support, can be an effective incentive for meaningful impact – that is, measurable social and environmental improvements.

As private lenders receive illiquidity premiums, a max-50 basis point discount on the loan margin is not a hugely material give-up for the sustainable investor. It is a *distinct* incentive for a company to achieve the agreed societal impact.

In 2022, we will continue to assess and work in cooperation with impact borrowers in to help them enhance for financial impact results.

Eden Futures
Impact Measurement and Reporting

SDG	4 QUALITY EDUCATION; 10 REDUCED INEQUALITIES; 8 DECENT WORK AND ECONOMIC GROWTH
Impact KPI Proposals	KPI 1 : Voluntary employee turnover KPI 2 : Certification of care facilities

Source: Eden Futures & Kartesia

Can sustainable bonds have an impact?

Céline Deroux
Senior Fixed Income
Strategist, Global Bonds

Debtholders are the major source of financing for new projects and growth. Shareholders may vote, but debtors can facilitate new projects – or choke them by demanding higher rates for poor uses of funds.

Challenging Times, Challenging Capital Needs

Collective action is needed to tackle the Environmental **and Social** challenges we face. Long-term investments must begin now, with capital required this decade.

Consider some examples:
• On the Environmental side, the EU targets emissions reductions of at least 55% by 2030, reaching net zero by 2050. The US has also announced emission reduction targets for 2030, a zero-carbon electricity sector target by 2035, and carbon net neutrality by 2050.
• Social challenges are increasingly coming to the attention of the investment community. Fewer than half of the global population was covered by essential health services as of 2017, before Covid-19. Education, too, needs investment. Roughly 258 million children were not in school in 2018, nearly one-fifth of the global school-age population.

Fixed Income Markets Play a Key Role

International capital markets are indispensable in the decarbonisation of the global economy and the reduction of social inequality. The fixed income market is the largest asset class in the global financial landscape, offering a steady source of new capital.

The Sustainable bond category, which aims to finance environmental or social projects or to demonstrate sustainability objectives, is growing rapidly. Following strong issuance and investor interest in 2021, the Sustainable bond category has grown to $1.9 trillion, and could exceed $5 trillion by 2025.

A Record Year

Issuance of Sustainable bonds -- including Green, Social, Sustainability, and Sustainability-linked categories -- reached $886 billion through November of this year, a 115% over the full-year 2020 supply. Green bonds from corporates, and especially from governments, rose 95%. Social Bonds saw an increase of 57% with the EU and organizations such as CADES and UNEDIC remaining solid contributors to the category.

While Green bonds continue to dominate the Sustainable bond category with a 60% share of outstanding, Social and Sustainability bonds are making impressive progress. Emerging sovereign issuers led the way in the 142% increase in Sustainability bonds, including Chile, Peru, Benin, and Malaysia, joined by issuance from development banks.

Sustainability-linked bonds were first introduced in 2020, with $7 billion issued. In 2021, $112 billion of these bonds were issued, with interest rates linked to specific Key Performance Indicators, or KPIs. A number of High Yield issuers have tapped the Sustainability-linked market, such as Rexel, Teva, Verallia, and Faurecia.

On average, green and sustainable bonds were more oversubscribed than conventional bonds, reflecting strong investor appetite. The 'greenium', or green premium, is slightly negative; that is, green bonds are currently offering spreads between 2 and 5 basis points below conventional bonds. Since September, the pace has accelerated; as year-end approaches, half of the overall new debt issuance at the moment is in the sustainable bonds categories.

The EU Carries the Banner

The EU Next Generation post-Covid-19 Recovery Plan, supporting green and digital activities, expects to raise 30% of its program funds through the issuance of green bonds. With potentially €250 billion to be issued from 2021 through 2026, the EU will be one of the largest green issuers worldwide.

The EU issued €12 billion in October 2021 alone, with strong success. We expect a further €40 billion of EU issuance in 2022. The Next-Gen Green Bond Framework, unveiled in September 2021, is consistent with the Commission's global ESG strategy, aligned with ICMA Green Bond Principles, and meets all but one of the conditions of the EU Taxonomy (the mention of NACE-defined industry codes). The proceeds

A little nomenclature

The Sustainable Bonds asset class, itself quite new, consisted solely of Green Bonds until very recently. Now, the Sustainable Bonds asset class encompasses four categories:

- **Green Bonds** – financing projects with specific green impacts
- **Social Bonds** – financing projects with Social impacts
- **Sustainability Bonds** – projects with a mix of Green and Social projects
- **Sustainability-Linked Bonds** – these do not finance specific projects; however their *coupons* are linked to ESG topics and the interest rate paid depends on meeting pre-defined Key Performance Indicators

ICMA – International Capital Market Association
NACE – Statistical Classification of Economic Activities / Industries in EU

Data Sources: all market and issuance data from Bloomberg.

are earmarked for research and innovation, along with digital technologies supporting the green transition, energy efficiency, clean energy, climate change adaptation, water and wastewater management, clean transport, nature protection, rehabilitation and biodiversity.

"The Sustainable bond market already offers depth, diversification as well as opportunities. We expect it to continue to grow into a substantial asset class."

More than $1 Trillion New Sustainable Financing for 2022?

We forecast more than $1 trillion in Sustainable debt issuance of all four types in 2022, with $500 billion in green bonds as corporates seek greener solutions. Nations have a strong interest in financing their green transitions.

Volume expected for sustainability bonds could be around $250 billion. Emerging issuers particularly will continue to explore this segment. Sustainability linked bonds will continue to attract strong interest particularly from high yield issuers and sectors such as capital goods or consumer non cyclicals. We forecast around $200 billion in the usage of Sustainability-Linked Bonds. Social bonds will continue on their trajectory but the market needs more clarification about Social taxonomy before getting a 'push'.

Increasingly Meticulous Investors

Investors are becoming increasingly particular, detailed, and demanding when it comes to Environmental, Social, and Governance (ESG) claims and investments. One advantage for debt investors is that debt instruments can be restricted to particular assets or projects. As investor demand for ESG clarity and impact increases, issuers recognize that instruments financing definable impact are easier to sell, and are offering more transparency.

Growing Opportunities !

The Sustainable bond market already offers depth, diversification as well as opportunities. We expect it to continue to grow into a substantial asset class. By investing in instruments with objectives such as aiding in decarbonisation and supporting the other UN Sustainable Development Goals, investors have additional options for responsible fixed income investing beyond ESG integration.

Regulation, supply and investor behaviour will drive the trend. As the asset class grows in size and complexity, more options are available, and more skill and selectivity is necessary.

How should investors engage for impact in fixed income?

Benjamin Chekroun
Stewardship Analyst

"As Fixed Income investors, when engaging with companies we look at their capability to mitigate climate risk."

New China is here. Truth or a joke?

Jan Boudewijns
Co-Head of Emerging Market Equities

Paulo Salazar
Co-Head of Emerging Market Equities

JPMorgan's CEO, Jamie Dimon, had to issue a long public apology for his "joke" during a recent trip to Hong Kong. "The Chinese Communist Party is celebrating its 100th year this year. So is JPMorgan," he said, referring to the centenary of the bank's operations in China. "And I'll make a bet we last longer", he concluded.

Jack Ma, Alibaba's founder and one of Asia's richest people, could have forewarned Mr. Dimon that China's communist leadership does not like being treated as a joke. Only a year previously, one of the largest IPO's ever, Alibaba's Ant Finance, was suddenly cancelled at the last minute by the Chinese authorities. There were official reasons of course but the move came after a speech given by Jack Ma criticising the Party for being too conservative and holding back innovation.

This IPO cancellation was the start of a very important and seemingly surprising shift in policy direction by Beijing. The government used anti-trust and anti-monopoly legislation against the increasingly important internet sector, which has seen strong expansion due to low barriers of entry. We believe it was designed to remind the new class of multi-billionaires and other potential opponents who was really in charge in China – namely, the Communist Party and Xi. Jack Ma, who even disappeared for a while after this, was probably the primary target. Other internet moguls quickly reacted to demonstrate their Party's directions.

The government's domestically-driven regulatory actions also targeted private education and on-line gaming, property sector among others.

As a result, with a growth environment already slowing down, Chinese equities had one of their worst years of performance on record. Investors' concerns over the reasons for Beijing's actions led to over USD 1 trillion in market value of China-listed companies being wiped out[1]. There was also a big divergence in returns between sectors and stocks that were impacted in different ways by various government initiatives.

1 https://www.wsj.com/articles/china-corporate-crackdown-tech-markets-investors-11628182971

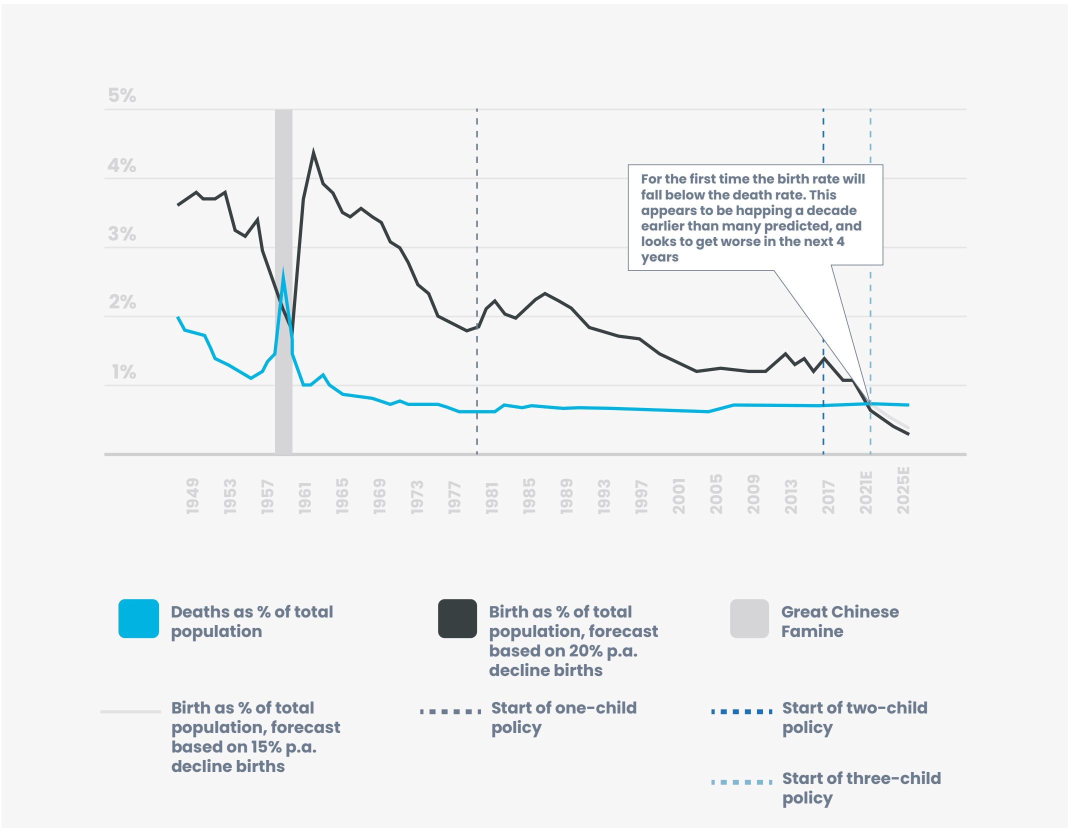
Prosperity by decree...

The reasons for all this policy 'tsunami' can be found in two big concerns for Beijing: a ticking demographic time-bomb, and the power positioning by Xi Jinping ahead of the 20th CCP Congress taking place next year. The government took action to mitigate any potential threats to its "Common Prosperity" agenda and to demonstrate that the Chinese leadership is firmly in control, to reaffirm social values over economic growth and maintain "social stability".

The 2021 Census revealed a clearly deteriorating demographic evolution, resulting in one of the slowest population growth rates since the 1950s. A series of measures followed quickly: an announcement of a "three-child" policy (despite the currently un-successful "two-child" policy), together with incentives for couples to marry and have children.

The government also said it wants to reduce the costs associated with raising a family,- which explain the measures to limit the expensive commercially-provided "after-school-tutoring", to lower the constant pressure on children to perform, and to mitigate the high cost of housing and health care.

Figure 1:
China birth and death rates
1949-2025



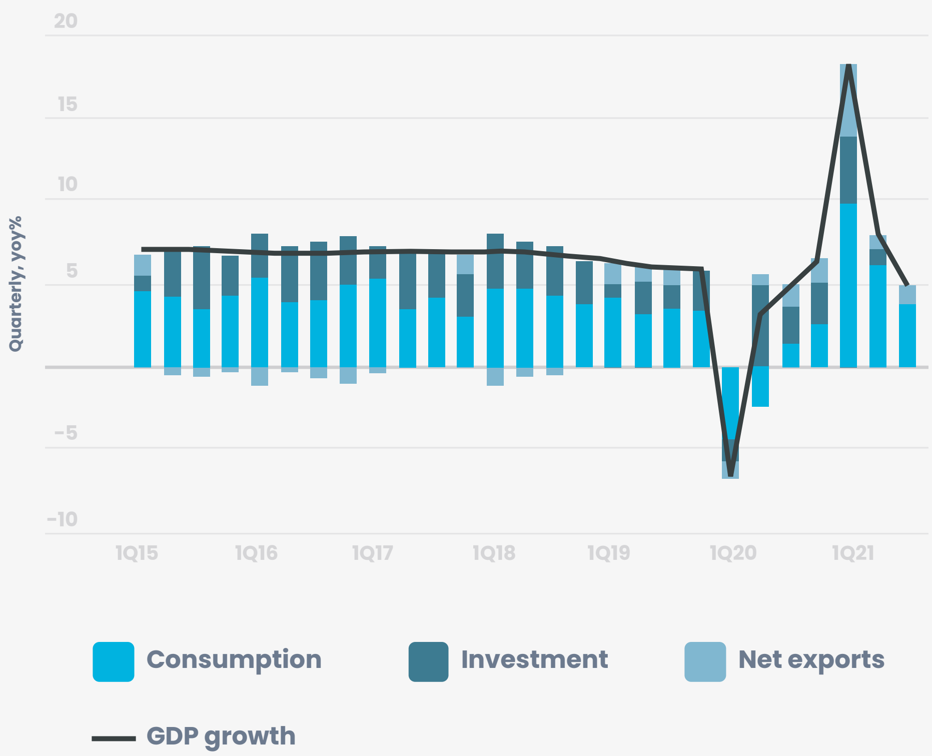
Source: Jefferies, CEIC. Note: 2021-2025 death rate assumed to be the same as 2020.

...while the economy is slowing down.

In the meantime, the Chinese economy has been slowing down, weighed down by the now familiar problems stemming from the (debt) crisis of the all-important real estate sector, high local government debt as well as a tight credit policy. The economy was also impacted by recent floods, a short but severe power shortage and the zero-tolerance policy towards COVID (which by the way resulted in zero cases in megacities like Shanghai, and which will at least be continued until after the Beijing Winter Olympics). If no supporting actions are taken quickly, growth is expected to fall to under the psychologically sensitive threshold of 5%. The planned economic meetings in December will be closely monitored.

There have been many new negative factors too, which may not be so easy for Beijing to mitigate. Among them are increasing calls for action from Western political leaders in connection with security threats posed by China, which include its (potential but not likely if not forced) military intentions towards Taiwan, offensive cyber capabilities and accusations of serious intelligence presence in the West. There is also the issue of the financial burden for several developing countries from the Chinese 'Belt and Road' investments.

Figure 2:
GDP Composition



Source: NBS, WIND, Macquarie Macro Strategy, December 2021

"Investors have the choice to decide whether or not to invest in the Chinese economy or markets, but they at least have the possibility to vote with their feet by their investment decisions to keep pressure on the Chinese government to develop a sustainable economy and society."

Grave concerns remain over human rights, suppression of political expression (particularly in Hong Kong), and Beijing's repression of Uyghurs in the Xinjiang province. There were new "disappearances" of high profile figures - artist Ai Wei Wei or tennis player Peng Shuai, which also did not help improve the image of China abroad.

Rule forever?

The 20th Congress of the Chinese Communist Party will take place in 2022 to elect the new power structure. While being in office, Xi Jinping managed to stifle most of the opposition and even prolong his term as paramount leader, but he is clearly opting for an indefinite leadership, putting himself in the same league as his predecessors Mao Zedong and Deng Xiaoping.

In 2021, investors in China faced an unusual degree of uncertainty around the increasingly un-predictable policy shifts and growing centralised party control at all levels of public and private activity. And while the market environment generally has been disappointing, the combination of these headwinds will challenge how both domestic and foreign investors approach the Chinese market.

Investors have the choice to decide whether or not to invest in the Chinese economy or markets, but they at least have the possibility to vote with their feet by their investment decisions to keep pressure on the Chinese government to develop a sustainable economy and society. Institutional investors and international companies working in China, like JP Morgan, can't run every time something happens they do not like but they have an important role to play. Whether they will outlive the Chinese Communist Party for another 100 years remains to be seen. In any case, none of us will be around to witness it.

Risk Arbitrage – What are the Return Drivers in 2022?

Stéphane Dieudonne
Senior Fund Manager

By all means, forecast the number of M&A deals if you want to forecast bankers' bonuses, Wall Street profits, or new debt issuance. As for Risk Arbitrage, we have more interesting things to think about for 2022.

Where are we in the M&A cycle?

Like the economy as a whole, mergers and acquisitions have experienced a tremendous rebound since the summer of 2020. This new wave of M&A activity has encompassed most economic sectors, but as usual, there has been a greater number of deals in healthcare and technology. Regionally, North America continues to lead the M&A recovery in terms of deals over $10 billion in value. A healthy number of deals have also been announced in Europe and Asia. Since the beginning of this year's fourth quarter, M&A activity appears to be stabilizing at mid-cycle levels. Indeed, with the appointment of the new Chairman of the US Federal Trade Commission (FTC) last June, M&A market participants fear increased vigilance from competition authorities, particularly on large deals that could negatively impact the American consumer. While activity in the United States remains good, there is a virtual absence of transactions over $10 billion in size. In Europe, however, M&A activity remains very satisfactory.

How do you see M&A activity in 2022?

Senior bankers confirm that many M&A projects remain on the back burner for the time being due to uncertainties regarding potential pro-consumer changes in FTC policy. We believe that once these doubts are resolved, presumably during 2022, the number of M&A deals in the US should start to normalize.

During 2021, M&A activity has proven to be quite resilient to the successive waves of the Covid-19 epidemic and its new variants. Indeed, merger agreements have been adapted to take these new risk factors into account. All in all, we are rather optimistic about the M&A activity for the coming year.

What will drive returns in risk arbitrage in 2022?

M&A activity is an easy figure to chart, but perhaps not the only source of return in a risk arbitrage strategy. We do not have a particular expectation for the number of M&A deals in 2022, but less headline-grabbing performance drivers can be equally useful. Investors interested in Risk Arbitrage might be better served to consider spread levels, deal failure rates and the number of overbids.

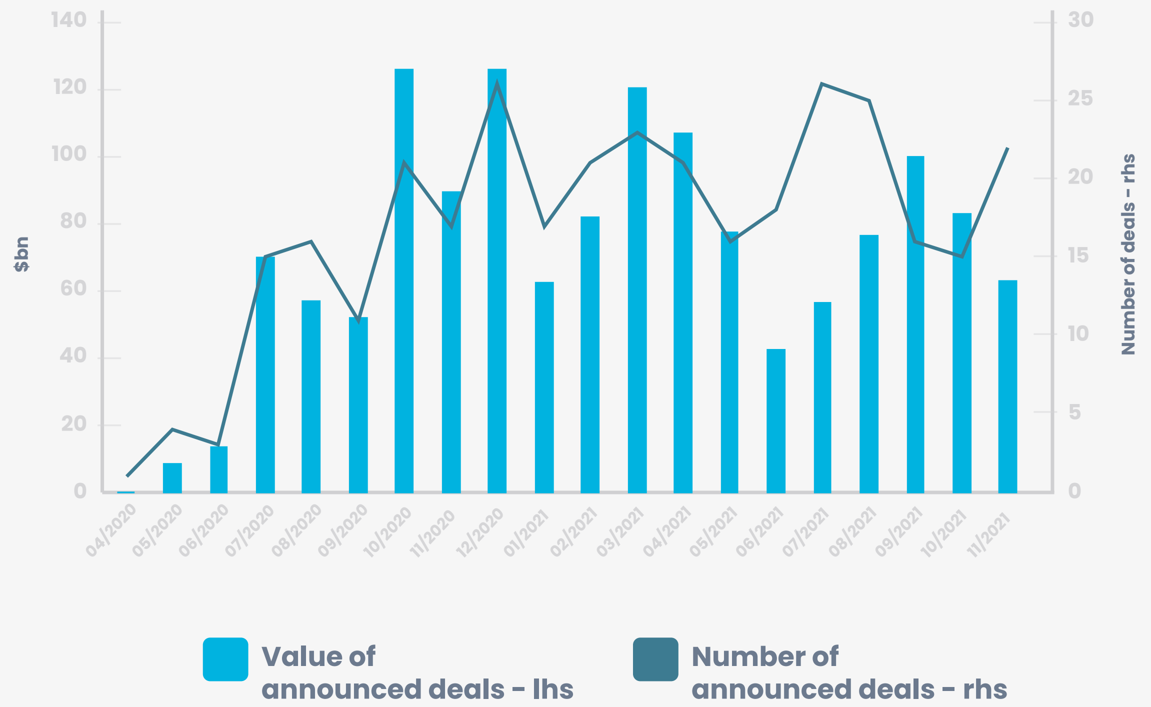
We see a green light ahead in 2022 for both spread levels and deal completion rates. **Indeed, risk arbitrage spreads are now 2 to 3 times higher than before the Covid crisis for an equivalent level of risk.** Failure rates remain at historically low levels – or should we say, completion levels are high. The number of bid improvements, or bidding wars, has moderated from the very eventful early months of 2021. But keep an eye on spread levels and completion rates. "Two out of three ain't bad."

By all means, plot out the number M&A deals if you wish to forecast bankers' bonuses. But if you want to understand where Risk Arb opportunities are today, watch the spreads.

"If you want to understand where Risk Arb opportunities are today, watch the spreads."

Figure 1:

M&A Activity in North American since 2020



Source : Bloomberg

“Investors are increasingly demanding responsibility and accountability from the companies in which we invest. Businesses actually founded with the intention of making a societal impact, whether environmental or social, are the purest form.”

Equity market neutral strategies: supporting passive investing growth?

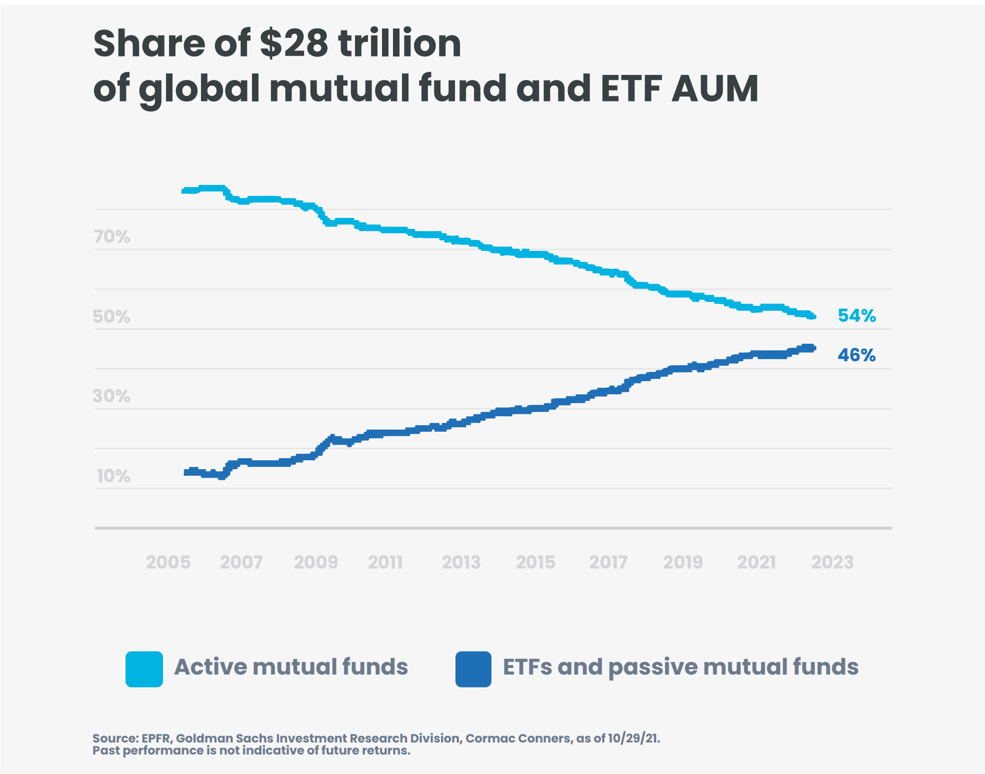
Sébastien de Gendre
Fund Manager, Equity Market Neutral strategies

Index investing continues its "unstoppable" rise and is expected to overtake active investing by 2026 at the latest, according to Bloomberg[1]. This trend can be utilised by some equity market neutral strategies to generate returns uncorrelated either to bonds or equities.

Index funds have become increasingly popular with investors who want to have a cost-effective exposure to a specific market. They have a particularly significant presence in the most efficient equity markets – they make up over a half of fund assets investing in the US, for example[2]. Most equity index funds aim to replicate a particular equity index.

Index funds have become a hugely important force in financial markets. Because of the enormous size of assets under their management, their trading activity can have measurable effect on stock prices.

Figure 1:
Global equities: Passive vs Active



Always catching up to be instep

Index funds' key objective is to replicate their underlying indices as closely as possible. To achieve that, they tend to rebalance their funds at particular times to coincide with the regular changes in the composition of their underlying indexes.

As we mentioned before, the funds' large trades often affect equity prices, particularly at times when liquidity is limited. We believe that market neutral strategies have the ability to generate lowly correlated returns by providing liquidity to index funds.

Index funds have had huge success evidenced by impressive asset growth and yet, given their very specific objectives, their ways of operation remain unchanged. They are governed by very strict rules as to what securities they can buy, how many and when. This means that they have the same trading schedule and constraints but with more assets to trade. That is why they increasingly require other market participants to accompany them in their growth.

The importance of liquidity

For any major equity index, there are several very large index funds that aim to replicate it. This means that every time a constituent company leaves an index, or a new company enters it, it triggers a number of large simultaneous trades by all those index funds - either all to buy, or all to sell.

Typically index funds need to complete their transactions within a limited period of time, usually during the day of the effective addition. For example, when the index admits a new constituent stock, buy instructions issued by index funds that replicate it create a local and strong demand pressure. In turn, this often leads to a significant increase in the stock's share price if buyers cannot easily find available shares to buy. Similarly, when a stock has to exit an index, large sell orders executed around the same time can result in a significant, albeit temporary, drop in the price of that stock.

How can equity market neutral strategies profit?

Depending on the market and the timing of the index change, a market neutral strategy can provide liquidity by taking specific positions by the day of the effective change in the index. The aim of the exercise is to dispose of the maximum capacity to match the trading flows of index funds on the "D-day".

For an illustration, we took a case study of a recent addition to the S&P 500. As the addition of the stock is effective on 19 March, most of the passive funds that replicate the S&P 500 had to buy the stock on the same day. Investors providing liquidity sold the stock to meet that demand. An equity market neutral strategy utilised this in two ways. First, it unwound its long position and, second, opened a short position on the same date. This ensured that equity market neutral strategy was able to balance the pressure that index funds were exercising on the stock.

Market neutral strategies will always neutralise their market exposure by maintaining an appropriate hedge either against a whole index or particular stocks. This way they are able to benefit from their specific long or short positions without being dependent on market direction.

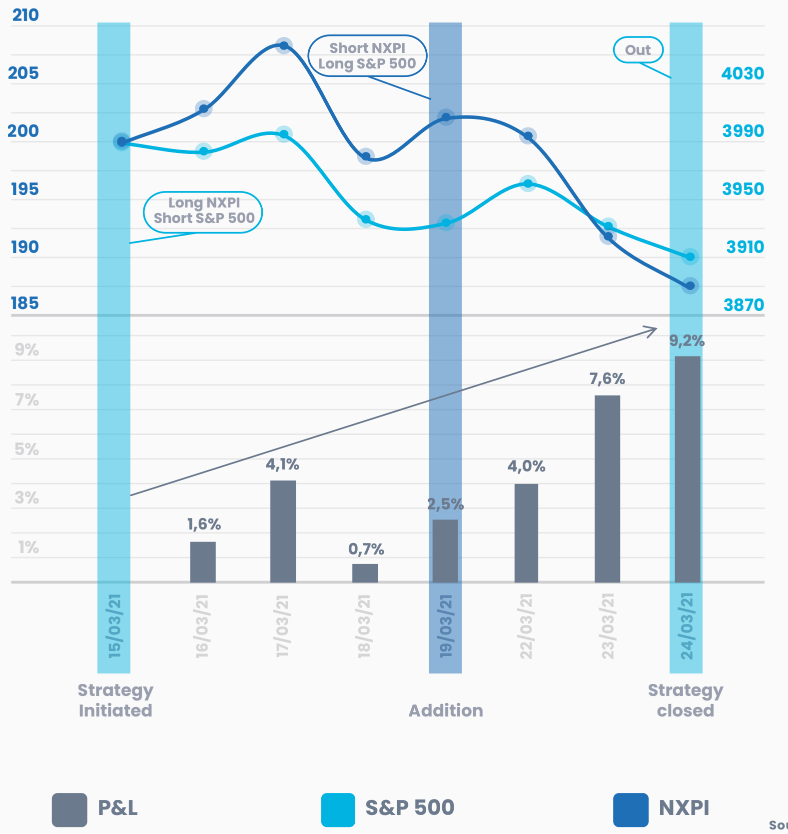
Case study

Announcement of NXP Semiconductors© addition in the S&P© 500 on 12 March 2021
Effective addition on 19th March 2021

Example of strategy implementation

March 15th: long NXPI© / short S&P 500©
March 19th: short NXPI© / long S&P 500©
March 24th: strategy closed

Figure 2:
Index Rebalancing Strategies



Source: Bloomberg©, Candriam© 2020

The stock we used as an illustration in this case study is a typical example of the kind of market situations that we see throughout the year, involving different types of companies from every sector. Hence, in the course of a full year, our strategies would have typically had a broad and diversified exposure across our different markets and sectors.

Over the coming years, we expect index investing continue to growth and so we are confident that equity market neutral strategies will retain their relevance for investors.

1 https://www.bloomberg.com/professional/blog/passive-likely-overtakes-active-by-2026-earlier-if-bear-market/

2 https://www.bloomberg.com/news/articles/2021-11-24/active-v-passive-why-it-s-not-that-simple-anymore-quicktake

EM credit market: where are the returns to be found?

Christopher Mey
Senior Fund Manager

Technicals, rates, geopolitics, China – anything new in the EM credit markets? Well, yes. Fundamentals are rather surprising. And the rising importance of Environmental, Social, and Governance factors to issuers has been a breath of fresh air.

EM Corporate Credit Landscape

The global economic environment for 2022 will present a challenge for EM corporate credit investors. Rising consumer prices, supply bottlenecks, and commodity prices set the scene for rising rates. The relative calm provided by developed market vaccine rollouts has recently been shaken by the new Omicron variant - a stark reminder that the pandemic is not yet over. Investors must be prepared for potential Covid-19 tail risks, with effects to linger for years.

The Green Scene

Overall, we expect Technicals to remain favourable. Issuance, which had been growing strongly for several years, should plateau at $500bn in new deals in 2022, with around $100bn in net new financing after repayments of coupons and redemptions. Investor demand for EM Corporates as a stand-alone asset class is likely to grow, while the absolute level of issuance is sufficient to provide strong diversification opportunities.

Sustainability bonds should account for almost a fifth of new issuance, about half of which is expected in green bonds. This could attract a new group of investors to the asset class.

Valuation Scenario

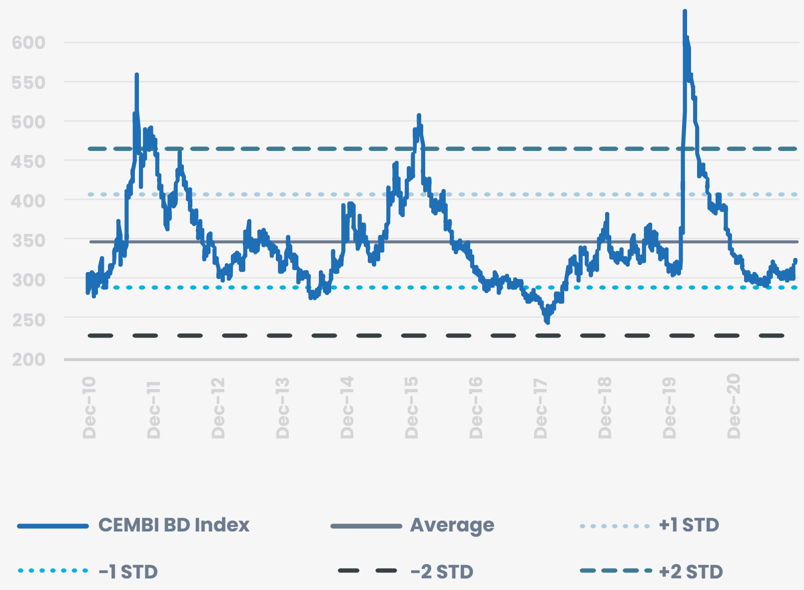
Our core scenario is for a 3%-6% return over 12 months (in dollar terms). The realised absolute return will heavily depend on the path of US Treasury yields. We are assuming global EM corporate default rates of 3-4% in 2022, for a CEMBI BD Index 'fair value' of roughly 250bps, implying around 60-70bps of best-case spread-tightening potential, mostly in the-lower rated segment.

Whilst the absolute spread of the EM Corporate market is below the historic average we acknowledge that fundamentals are pricing the credit improvements we have observed in the last few quarters.

Figure 1:

CEMBI Broad Index Spreads

in bps



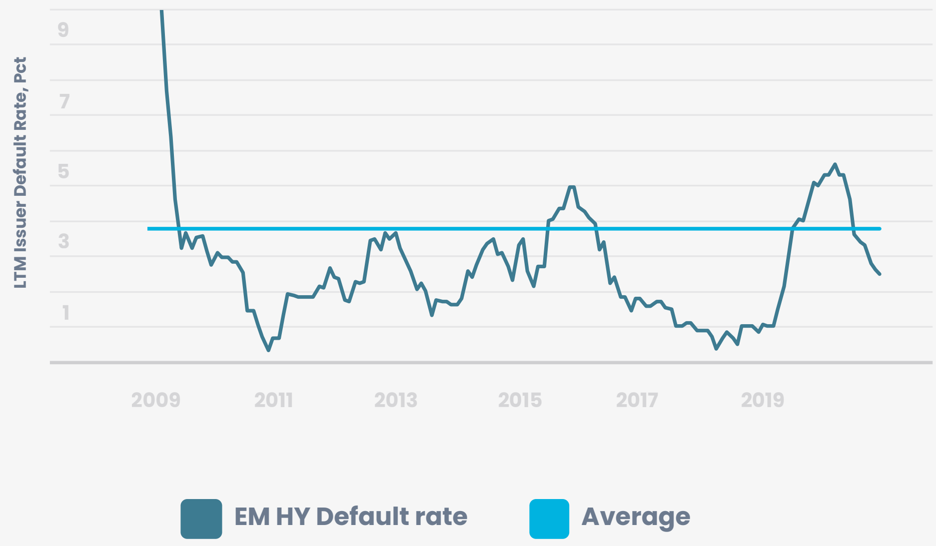
Source: Candriam, JP Morgan

What Doesn't Sink You Makes You Stronger

Fundamentally, Emerging Market corporations pass the health check with flying colours. Whilst base effects have contributed to strong year-over-year comparisons, we are impressed with the proactive balance sheet and liquidity management we witnessed. In many instances, EM corporate issuers have already returned to 2019 EBITDA levels, with expanding EBITDA margins. Net leverage improved from an average of around 2.3x to 1.7x in 2021, with interest coverage up. Cash liquidity is at very comfortable levels across most sectors.

Improving credit trends are visible in declining default rates. Default rates spiked during the peak of the Covid-19 outbreak in 2020, breaching the 5% level for the first time since the commodity slump in 2015-2016 and only for the second time since the Great Financial Crisis of 2007-2008. Since the depths of the financial market downturn caused by the Covid-19 outbreak at the end of 1Q 2020, we have witnessed a sharp improvement in defaults as the pandemic progressed, economies re-opened and vaccines were rolled out. While we expect default rates to rise again in early 2022, we expect events to be concentrated in the Chinese real estate sector where elevated uncertainty together with a number of high profile defaults will have knock-on effects. Some weaker-rated Chinese developers have heavy maturities in Q1 2022, and are likely to face funding difficulties.

Figure 2:
Emerging Market Corporate Default Rates



Source: Candriam, BofA Merrill Lynch

Issuers Recognizing Sustainability

For ESG-focused investors the landscape is changing dramatically. While the specifics of European SFDR regulations primarily concern European asset managers, the topic is gathering pace across financial intermediaries and EM Corporate issuers. Encouragingly, we are witnessing greater transparency from Investor Relations departments, more active dialogue and more serious discussions. This progress is leading to a significant increase in sustainability-linked bonds, while a new investor base is being attracted by these opportunities.

Elections Calendar

The elections calendar is a frequent source of volatility in Emerging Markets, and 2022 looks to be a big year. Two presidential elections are scheduled in May, in Colombia and the Philippines. The most important will be the Brazilian elections in October. It is highly likely that the ebb and flow of the political cycle in these large EM economies will drive corporate sector spreads around the elections dates as investors weigh-up the candidates and the impacts of their manifestos.

Macro Trends

The Federal Reserve taper, the path of core yields, and the pace of their adjustment will have a meaningful impact on returns. Commodities are at relatively high levels aiding the balance sheet health of commodity-oriented issuers.

Geopolitics will be a further important return driver as Chinese territorial ambitions collide with US Asia-Pacific interests, whilst Russia-Ukraine tensions are heating up.

Spreads on **China Property sector** bonds have now reached extremely attractive levels. The sector now accounts for 22bps, or 7%, of the benchmark CEMBI Broad Diversified spread with an index weight of only 1.6%.

Where are the Surprises?

It should be no surprise if the Chinese property sector, geo-political tensions, elections, and the path of US interest rates keep analysts busy this year..

Yet, *despite the pandemic*, surprisingly strong credit metrics and technicals combine for an attractive outlook for Emerging Market Corporate Bonds. The expected issuance of sustainability-linked bonds, which are new even to mature markets, is a pleasant surprise which should attract a new group of investors. Something to look forward to!

Having said that, 2022 will be a challenging year for investors who wish to diversify their portfolios in EM credit. Selectivity and ESG integration might be the watchwords in implementing these strategies.

"2022 will be a challenging year for investors who wish to diversify their portfolios in EM credit. Selectivity and ESG integration might be the watchwords in implementing these strategies."

Private Real Estate – Desperately seeking Diversification?

Simon Martin
Chief Investment Strategist and Head of Research & Investment Strategy

It's clear that private real estate has been in focus with allocators for some time. For much of the last five years, institutional investors have been keen to build private markets allocations to augment performance. Real estate has been a major part of that shift.

The attractive blend of current yield allied with the potential to grow income and create value through active management continues to appeal to investors who have been starved of yield and concerned with record high equity valuation.

Indeed, the relative attractiveness of real estate looks set to grow, as in recent months, the surge in CPI has re-invigorated the sectors appeal as a potential source of diversification during periods of rising inflation expectations. In Europe, the correlation between inflation and property returns has historically been driven by the nature of real estate cashflows. European leases are generally index-linked, creating a direct pass-through effect from CPI to rents. Equally, the ability to grow rents by exploiting demand and supply imbalances is also central to the appeal of the sector when prices rise.

We believe it is possible to boost the benefit of this effect by focussing on sectors where there are strong cyclical and secular demand tailwinds and where supply is likely to remain constrained due to low vacancy and limited development activity. There are a handful of sectors where such demand/supply imbalances are likely to persist. The most scalable opportunities include:

"Such diversification may prove to be increasingly valuable over the coming five years."

Last-mile urban logistics assets

Demand from ecommerce users for last mile sites continues to massively outstrip the supply of good quality logistics assets located close to the consumer. Rents are rising dramatically, and the shortages are so acute that demand is spilling over, fuelling significant repurposing activity in uses such as retail parks.

High quality ESG oriented office in innovation centres

The return to the office in Europe has been more positive than many expected. Although the effects of the pandemic-induced demand shock are still visible in elevated vacancy rates, this is concentrated among lower quality stock – grade A space remains in short supply. In fact, we think capacity constraints and rising costs in the construction sector mean that Covid's shock to supply, not demand, will be the defining feature of European office markets in the coming years.

In the key innovation hubs where demand is growing rapidly and supply is constrained, this has the potential to drive rental growth for well located, properly amenitised assets with high energy ratings. We can already see evidence of this in our portfolio in London, Birmingham, Dublin, and Barcelona. Increasingly, it also seems likely that, given the lack of new supply and less construction activity, rising demand will spill-over from Grade A into a broader range of good quality, certified ESG assets.

Living strategies focussed on key demographic niches

Across a range of different sub-sectors, we observe a continuing mismatch between demand and supply in the living sector: multi-family remains under-supplied across Europe and rents continue to track ahead of inflation; the aged living sector is poorly provisioned, and the demographic and wealth dynamics are extremely compelling; the student housing sector remains highly fragmented and is primed for significant growth.

We believe that by balancing these strategies carefully, an investor looking to maximise risk adjusted returns during a period of rising inflation risk will be well placed. Building allocation to these tailwind-oriented themes at a point of acute supply constraint while the cost of fixed rate debt remains low, seems like an attractive and simple way to maximise diversification, and reduce correlation to other asset classes. Such diversification may prove to be increasingly valuable over the coming five years.

Emerging Markets: Climate Opportunities?

Galina Besedina
Portfolio Manager,
Emerging Market Equities

Paulo Salazar
Co-Head of Emerging
Market Equities

Emerging nations face a dilemma. On the one hand, they have a strong understanding of the need to protect the climate for future generations. Yet the imperatives of today are to improve their societies and living standards, which requires increased energy and electricity at affordable cost.

EM Nations are Willing

Emerging nations have joined climate change initiatives, particularly net-zero greenhouse gas (GHG) emissions accords, notably by signing Paris Agreement. Back in 2015, the Paris Agreement called for Developed countries to take the lead by providing financial assistance to countries, in recognition of the greater challenges that EMs must conquer to reach the "net zero carbon". Most Emerging countries are designing and implementing low-emission development strategies (LEDS).

At the same time, emerging markets are viewed as one of the bottlenecks in climate actions. COP26, the most recent annual UN Climate Change Conference, demonstrated that emerging markets are committed to de-carbonization but highlighted their greater challenges.

A Reminder of the Challenges

We have no doubt that de-carbonization in emerging markets will be challenging.

- **Investment needs are enormous.** Energy transition is a costly exercise, estimated by the International Energy Association (IEA) at $150 trillion over 30 years. Emerging Markets represent around 20% of this.

- **Funding is not guaranteed.** These countries are already highly indebted, financial markets currently favour lower-carbon investments; our research suggests roughly 37% of Emerging Markets investors plan to cut fossil exposure; and carbon taxes are difficult to impose.

- **Access to certain technologies is limited**, although available in developed markets such as Europe and US.

- **Critical raw materials may become scarce**, such as lithium or nickel.

- **Availability of specialized personnel** may be a challenge

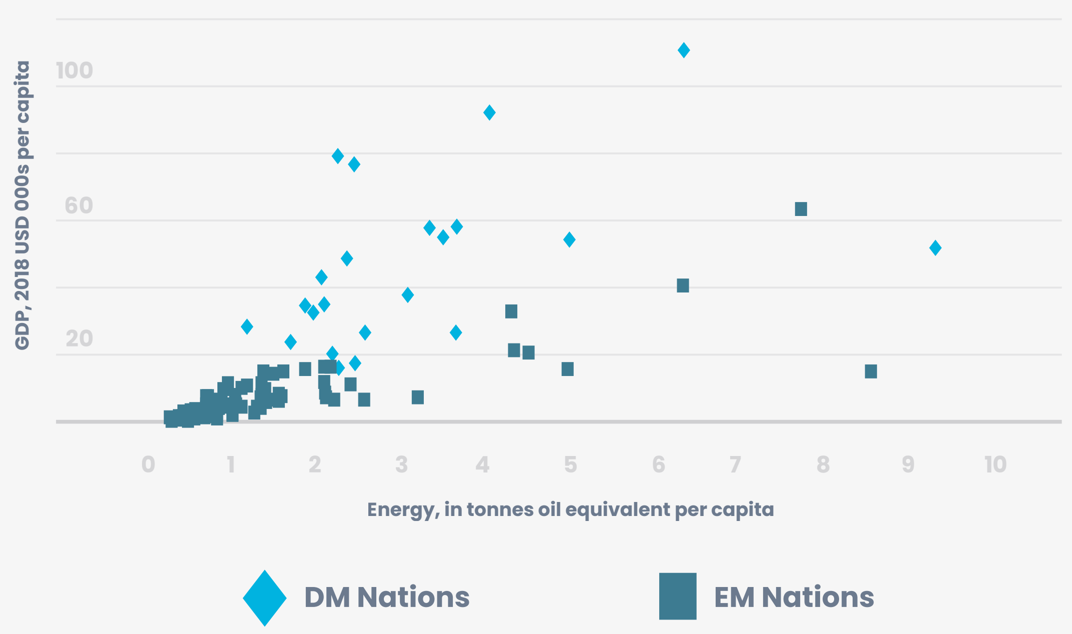
- **Pressure from Developed Markets** is rising for EMs to commit to more substantial pledges. For example, their is pressure on Ems to phase out low-cost coal-fired power plants.

More Energy is Needed for Living Standards

Growing populations and the need to improve living standards are priorities Emerging Nations dare not sacrifice. These require greater supply of electricity in emerging markets. Today, almost 800 million people have no access to electricity at all. Critically, there is a clear correlation between GDP per capita and energy. And economic growth does not cause energy consumption – *it is the other way around.*

According to BloombergNEF's New Energy Outlook 20202 estimates by 2050, emerging economies will account for 68% of global power demand. In other words, developed markets are dealing with sacrificing their growth in favour of de-carbonization without adequate means and sufficient resources.

Figure 1:
Energy Consumption vs GDP
Per Capita, 2018



Source: World Bank, IEA, Candriam Sovereign Model

Opportunities

Some Emerging Markets are nevertheless making good progress on decarbonisation. Emerging economies accounted for 58% of the $249 billion asset finance invested in clean energy worldwide in 2019[1]. China and India continue to be the biggest markets for clean energy investment, with China the largest by far. Other Asian countries are leaders in electric vehicles components, with South Korea producing almost a third of global EV batteries.

Further, Emerging Markets possess substantial natural resources necessary for the green energy transition, such as nickel and copper. They also refine necessary raw materials, such as lithium and cobalt. Refining of both materials is currently dominated by China.

Employment opportunities are created by the net-zero transition. According to the IFC (International Finance Corporation) analysis of 21 major Emerging Market economies, representing 62% of the world's population and 48% of global emissions, green investments in select sectors between 2020 and 2030 could generate 213.4 million cumulative new direct jobs. In regions such as East Asia and the Pacific (China, Indonesia, Philippines, and Vietnam) and South Asia (Bangladesh and India), the potential for cumulative new jobs is 98.8 million and 52.3 million, respectively. Smart city infrastructure to address climate change creates employment, and improves underdeveloped emerging market infrastructure. Of course, EMs and DMs face the same challenge of creating a "Just Transition" in which a nation's full society benefits, and pockets of new unemployment are prevented.

Conclusion

De-carbonization in Emerging Markets can create investment opportunities in sectors such as solar and wind energy; green energy-related raw materials production and refining; and the electric vehicles supply chain.

Renewable energy has take a foothold in the EM nations, yet coal remains the cheapest source of energy. The challenge for investors, who allocate capital, and for the globe as a whole, is to help these nations increase energy consumption in a way which is both cost-effective and emissions-constrained. EM nations face the dual imperatives of reducing emissions and simultaneously closing their gap with DM standards of living.

"De-carbonization in Emerging Markets can create investment opportunities in sectors such as solar and wind energy."

1 Climatescope Emerging Markets Outlook 2020, Bloomberg Finance L.P.2020

Sovereign Analysis: How Did We Survive This Long?

Kroum Sourov
Lead ESG Analyst – Sovereign Research

Humans are not the apex predator, although we act that way. Nature may fight back and demonstrate how weak we really are. Our Sovereign Sustainability model, designed for investment analysis, also offers holistic insights as well as numerical. Perhaps both our investments, and our future, come down to something quite simple - Don't fight Mother Nature.

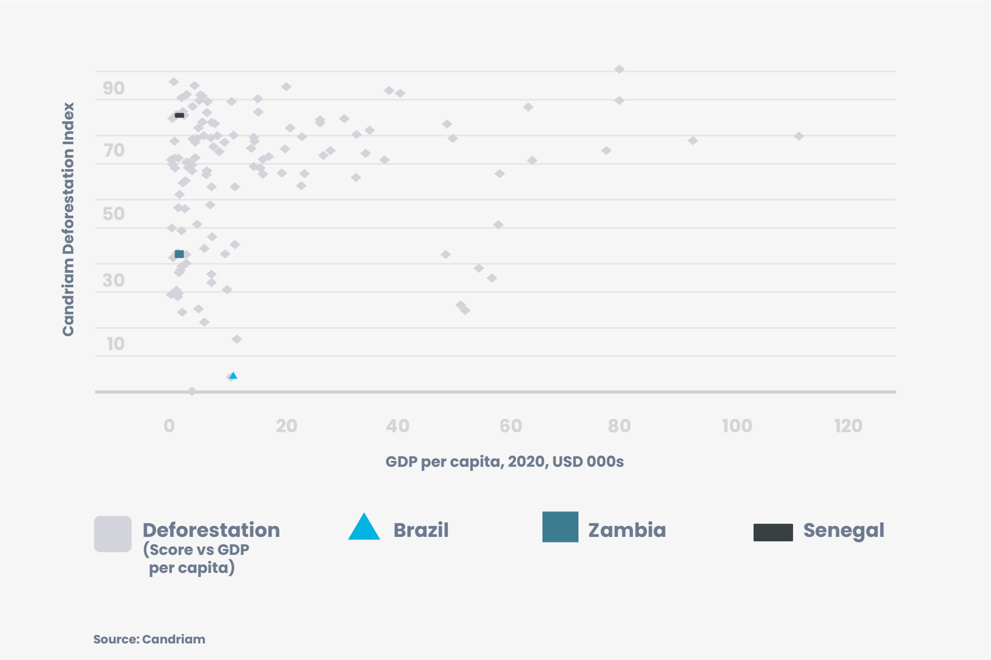
Holiday Gifts for an Apex Predator

'Tis the season for gift-giving -- and perhaps the occasional charity campaign. Recently, $650,000 real dollars were spent to purchase a mega-yacht that can only be used in a videogame[1] - the Metaverse, or virtual reality of sorts, attracts more and more capital. Many put their faith in cryptocurrencies with no backing in the real world, as the imaginary *Matrix* –seems designed to be more attractive than the grim reality around us. (Hope you enjoy the most recent opus, released just in time for Christmas 2021!)

And charity? For the same money[2], it is estimated we could restore and plant forests several times the area of New York's Central Park – in the real world.

As the ability to distinguish oneself in a virtual video game becomes astronomically expensive, one cannot help but wonder about our place on the planet. Are we so powerful that the (virtual) pleasure for one is more important than the (physical) well-being of many?

Figure 1:
Candriam Deforestation Index versus GDP



How Have We Survived ?

Actually, human beings have never been on top of the food chain. Indeed, studies show we are on the same level as anchovies[3], although this is hardly a concern in a modern-day society. In the times when being eaten by the local apex predator was a real possibility for us, hominids had one very powerful ability that set us apart. This was our ability to communicate complex concepts and thus to coordinate large numbers of adults towards the achievement of a common goal – overcoming dangerous circumstances, and ultimately survival. Strength in numbers.

In the aftermath of COP26, with anti-vax protests turning violent and armed resistance to wearing face masks in some countries, the question remains – do we still have what it takes? Ultimately, we are running against the natural limitations of the environment. These take multiple forms -- the hurricanes, scorching heat, forest fires, and the current virus are just different consequences of the harm we have caused to our environment. The planet Earth can be the bubble that protects us from the Sun, but can it can become the apex predator very suddenly, and irreversibly, if we hit the wrong tipping point. There are no (real) greener pastures, this is 'all we got'.

Can We Continue to Survive?

Like our ancient pre-industrial ancestors, all we have is the ability to communicate and coordinate action – and strength in numbers. This has become both easier than ever before, but also maybe the hardest it's ever been. We celebrate individual achievement – without much tax burden to weigh them down, billionaires are staging their own space race.

Millions are disenfranchised and doubts about fairness of elections are sowed by private interests. Many are looking for a saviour to offer simple solutions to complex problems. Razor-thin voting margins give power to populist leaders who are ready to embrace autocracy.

Our Conviction

Our future is in our hands. Both global pandemics and the climate crisis could be solved if we work together, rather than protecting our own perceived self-interests. This applies on every scale – from the donation to your local charity this holiday season, to getting vaccinated to protect yourself and everyone with whom you come in contact, to voting for political parties that are guided by scientific consensus and collaboration, to strengthening international organisations and cooperation on a global level.

Investors and others are making efforts, but we all need to make more. Investors are increasingly realizing we must work in numbers, such as the Investor Policy Dialogue on Deforestation (IPDD), and the Net Zero Asset Managers Initiative. At Candriam, we leverage our ability to analyse the details of these sorts of initiatives not only for a clearer investment view, but also to guide the philanthropic efforts of the **Candriam Institute**. We are participants in these, and co-sponsor regeneration and afforestation projects in Brazil, Zambia, and Senegal with **WeForest**.

Finding solutions that work for all requires compromise, and compromise requires humility and compassion. What better gift for this holiday season?

1 Tech Times. *Virtual Metaverse Yacht Sold for $650K in The Sandbox*. Available at https://www.techtimes.com/articles/268685/20211129/virtual-metaverse-yacht-sold-for-650k-in-the-sandbox.htm, accessed on 6 December 2021

2 According to our afforestation partner, We Forest

3 Sylvain Bonhommeau, Laurent Dubroca, Olivier Le Pape, Julien Barde, David M. Kaplan, Emmanuel Chassot, Anne-Elise Nieblas. *Eating up the world's food web*. Proceedings of the National Academy of Sciences Dec 2013, 110 (51) 20617-20620; DOI: 10.1073/pnas.1305827110.
Available at https://www.pnas.org/content/110/51/20617, accessed on 2 December 2021

Our Candriam *Deforestation Score* employs a variety of sources, including satellite imagery, to gauge forest cover loss, total biomass loss, and land use change. Our model also estimates of the emissions impact as a result of land use change.

Climate policy in credit portfolios

Nicolas Forest
Global Head of Fixed Income

Philippe Noyard
Global Head of Credit

Bondholders are the suppliers of new capital for investment and growth. Shareholders can vote, but the supply of retained earnings or new equity issuances is small in comparison with debt funding. Investors must behave Responsibly in their capital allocation. And we, at Candriam, have the Conviction that including Climate in the decision improves risk-adjusted returns.

Risk-Adjusted Returns are the Objective

It is always worth remembering that Fixed Income returns are asymmetric. Risks take on a different colouring in this light.

It seems so long ago – yet was so recently – that Environmental, Social, and Governance (ESG) analysis in fixed income was a sort of additional 'check', to identify and clarify downside risks. Governance has long been a central element in credit analysis. The more complex the corporate structure, the more critical the Governance factors are to the risk profile. At Candriam, we have evolved from the 'G' being central to our analysis, to the 'E' and the 'S' being integral factors in our analysis. *We also expect that the integration of ESG factors into Fixed Income processes across the investment industry will help allocate capital in more efficient ways!*

ESG Integration in Corporate Credit Analysis – A Process, not a Result

When analysing corporate credits, we integrate ESG factors in our basic fundamental corporate analysis of the issuers' business profiles, alongside other basic elements such as the level of capital intensity, cyclicality, and sector concentration and market shares. We do not limit ourselves to historical data, we use a forward-looking approach to assess how Environmental/Climate and Social risks are likely to change the future credit outlook.

Next: Energy Transition

'Transitioning' to a low-carbon, more resource-efficient and sustainable global economy sounds smooth. 'Transition' is such an easy-sounding word for change, but change can be difficult to predict, difficult to achieve, and expensive to implement. It is increasingly important to understand each company's exposure to the transition risks to which each company is exposed, based on its activities and geographic mix, and the way it manages these risks.

Assessing the degree to which companies are managing transition risks well or insufficiently, improves the ability to determine not only the most 'virtuous' issuers, but also to aid in determining which are likely to be the most credit-worthy on a long-term view. It also helps target Engagement efforts towards issuers who have not yet made sufficient progress but have a likelihood of improvement. At Candriam, we exclude companies from our investment universe if we determine that that their management of transition risk management "very insufficient", in order to avoid issuers facing the highest climate risks. Companies whose management is deemed "insufficient" may become priority targets for Engagement. (Listen to our **video on Fixed Income Engagement**.)

All the actors are intertwined. We all know the current trends in national emissions are lagging the targets (and we can visualize how much – see **our Outlook article**). This could become a significant credit issue. For example, the EU Green Deal's 'carbon border adjustment mechanism' means that corporates based in high-emitting nations could lose their exports to the EU.

Don't fret, *act!* Integrating Climate Policy in Portfolio Construction

The systemic investment risks are tremendous. Swiss Re warns[1] that *even if the Paris agreement targets are met*, climate change could wipe more than 11% off world GDP through 2050. Under a 3.2°C scenario, climate change could cost 18% of global output.

The next step could be to integrate climate policy into portfolio construction. For some managers, the process of constructing a portfolio includes calculating the effect of a security purchase or sale on the overall volatility, or other measures, of a portfolio. Why not the same for climate risks?

Many managers report carbon footprints of their portfolios, usually as a result. Why not take additional steps? Why not temperature scenarios of a portfolio? The goal could be to report whether the portfolio in line with the Paris Agreement, and/or how far ahead or behind. Today, at Candriam we integrate ESG factors in our credit analysis. Climate mitigation and adaptation are firmly embedded in our ESG analyses.

While Responsible Investors may feel a moral imperative, it is our Conviction that including climate change in credit analysis has become a necessary input in the generation of risk-adjusted returns for *all* investors.

1 World Economic Forum. https://www.weforum.org/agenda/2021/06/impact-climate-change-global-gdp/#:~:text=The%20largest%20impact%20of%20climate,the%20Swiss%20Re%20Institute%20warns, accessed 8 December, 2021.

Can we make the last call for Net Zero Carbon Path?

Alix Chosson
Senior ESG Analyst,
Climate & Environment
Specialist

"We need emissions to peak as soon as possible if we want to keep this tiny chance of achieving the Paris goals."

Greenflation: a fair cost or an obstacle?

Wim Van Hyfte, PhD
Global Head of ESG
Investments and Research

The rise of inflation has brought up once again the question of costs and benefits relating to addressing climate change. Consumers, companies, investors and governments are weighing pros and cons of paying more today for a more sustainable tomorrow. As debates rage on, there is no escape from the fact that by avoiding the costs of action, inaction will come with much greater costs, human as well as financial.

The latest report from the Intergovernmental Panel on Climate Change (IGPP), which over the years have provided conclusive evidence that climate change causes more extreme events, has stressed the urgency of making drastic cuts to our greenhouse gas emissions[1]. This would require a move from fossil fuels to renewable sources of energy, and to a materials-based economy build on a circular model[2]. And this change will not only need to involve all the sectors, but it will have to happen very fast.

Over the past year, as inflation has picked up, market pundits have tried to see how much of it was due to the expense of a "greener" world. Various inflation drivers were considered and weighed, and the subjects of "greenflation" and "greenium" have come up again and again. Questions were asked about the price we are all expected to pay for the transition to a different, more sustainable economy and a new way of living. And whether that cost was too much.

What is it?

To quote Bill Gates from his recent book "How to Avoid a Climate Disaster", green premium (or "greenium" for short) is "[the] difference in cost between a product that involves emitting carbon and an alternative that doesn't." The theory goes that the transition from coal, oil and gas (fossil fuels) to renewable energy, the rolling out of electric vehicles and hydrogen trains and ships, and new types of building insulations will add up to significant costs. In turn, that extra expenditure aiming at meeting carbon-zero goals, according to this school of thought, is bound to lead to higher inflation.

Is greenflation to blame for rising inflation now?

That is a complex question but "greenflation" is not the main driver.

The COVID-related disruption in supply chains has led to price increases across a wide variety of commodities and consumer goods. Although predicting the inflation trajectory is difficult given how unpredictable is the evolution of COVID-19, we think that inflation will fall back as supply bottle necks gradually disappear, physical markets as well as supply and demand adapt, and prices come down to reflect that.

If we consider a more long-term picture of the energy transition, it will inevitably involve spikes in some commodity prices. These may include rare materials needed for various equipment, machinery and infrastructure required for the electrification of the economy. This type of inflation will fundamentally be due to early "teething" problems – as the move to a more circular and energy efficient economy is likely to be challenging due to time constraints.

Why? If environmental regulation and policy is planned and appropriately communicated well-ahead of implementation, we wouldn't expect these disruptions to have a lasting impact on prices of raw materials and finished goods as a whole. It's important to note that these shifts are relative, so demand for one commodity may have an adverse impact on the pricing of others. The jump in copper prices is due to a clear trend towards electrification. This same trend makes the long-term outlook of oil pretty bleak.

However, it has become clear, particularly at the COP26 conference in Glasgow, that so far governments and companies have not been moving fast enough. And, if we are to catch up, there won't be the time for waiting around for commodities supply to pick up so it can comfortably meet our required demand, or for everyone to agree a beautifully designed roadmap, or for legislators and regulators to come up with carefully weighted framework covering all aspects of the new economy. The world will need to move fast if we are to prevent the changes to our climate before they become truly catastrophic and irreversible. And that means that we will need to manage our expectations of how comfortable our journey is going to be.

What's the alternative?

The costs of inaction will fall due mostly for the next generation but they are difficult to contemplate. Partly because the changing climate will inevitably claim a huge human cost. Even today extreme weather events come at an enormous financial and economic cost to governments around the world. Over the past few years, we have already seen some of the worst examples in California, Australia, Canada, Alaska and just recently the result of the deadly tornadoes that swept across the United States. The costs of such events already amount to hundreds to hundreds billions dollars of costs, insured and uninsured.

The worst case future scenarios include huge parts of our planet becoming uninhabitable due to heat and the destruction of flora and fauna. That will lead to mass immigration of those who manage to survive to already overpopulated "safe spots", which will mean more conflict, war and destruction.

Is the road to Net Zero only paved by costs?

Despite all the challenges ahead if we do act in time, we must not forget that the move to a circular, more energy efficient economy will create a wide range of positive developments. They will encompass regulation, societal trends and changing consumer behavior, and will present clear long-term investment opportunities for portfolio managers, and have many positive ramifications across all sectors of the global economy.

A high greenflation inevitability?

The example of renewable energy makes us seriously doubt that greenflation will become an unresolvable challenge. When, in the years after the global financial crisis, institutions like the International Energy Agency (IEA), outlined their forecasts for renewable energy achieving grid parity, their assessment pointed to 2025-2030. However the reality proved quite different. In many regions of the world renewable energy reached grid parity just five years later. This was because governments' incentives allowed fast scaling – while the change had impacted fossil fuel prices and pushed inflation up in some parts of the economy, in other parts it led to a fall in inflation. And the overall result can easily be no overall rise in inflation at all.

1 https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/

2 https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview

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