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INVESTMENT REPORT Q4 2020

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Global Equities – Expectations

By Managing Director and Portfolio Manager, Bo Knudsen
C WorldWide Asset Management Fondsmaeglerselskab A/S.

We prefer what we know and can control. Covid-19 was frightening as it took control of the world and created uncertainty. It caused the most pronounced and fastest decline in economic activity since World War II - a flash recession. With previous expectations of 3% global growth in 2020, we will probably end up closer to minus 4% – a whole 7 percentage points difference – and this, despite extreme stimulus packages. In the past, recessions and bear markets have travelled in tandem. Significant intervention, where the US Federal Reserve purchased bonds for the equivalent of USD140 million per minute, lead to strong asset markets. These interventions will continue depending on the dynamics in interest rates and government policy. Politicians and central banks will probably not accept that an increase in government spending is destroyed by markedly higher interest rates. Is explicit yield curve control the next tool to be used?

We are facing a tough winter before we can claim victory over the Covid-19 virus. We think this ugly collective experience - the worst pandemic since the Spanish flu 100 years ago and the consequences of the massive stimulus packages – will have long-term effects on the world economy and on consumer behaviour that ultimately will be priced in by equity investors.

We have a strong belief that success as an equity investor comes with long-term thinking and a deep understanding and appreciation of the concept of compounding. So, let us look into some of the themes shaping not just the investment thinking of 2021 but also the decade ahead.

> **Will central banks guarantee low interest rates to maximize the impact of government spending? This will be a key question for 2021.**

The increasing importance of our home

Many of you will read this while being at home because of the pandemic. Your home has become your castle – and you need a castle these days in order to house a fully equipped office, a place to relax, a restaurant, a kindergarten and a fitness studio. Research highlights that 70% of people would prefer to work from home two days a week (despite all the additional requirements) and many of the key companies we speak to, especially those with a significant presence of knowledge workers (users of IT), are planning to make savings by reducing physical work space. The natural response and theme is therefore the aspiration towards 'home-expansion' and a better home.

Working from home and adhering to social restrictions has proved to be helpful in that we, as humans, are gaining control of the virus rather than the virus controlling us. The current pandemic has exposed us to a fear-based media offensive which risks settling in the collective consciousness. For most people, the home is associated with security – now more than ever. The increased importance of our home is a very important trend for stock markets – both in the short and long term.

The US economy is and will be the key driver for global stock markets for many years to come. The net wealth to GDP ratio in the US is now 6-fold – and has never been higher. Changes in net wealth influences GDP more than ever – and among stocks, bonds, and pensions, the dominant asset in a typical household is the home. Politicians get elected if they create jobs and better living conditions. So, in the 2020s house prices need to be stable and/or rising – especially in the US, where domestic consumption is 70% of GDP. A happy consumer is one who owns a house or apartment that rises in value over time. We are in the particular situation where a macroeconomic meltdown is caused by falling asset and home prices – not the other way around.

High indebtedness causes high interest rate sensitivity

We live in a world that is hypersensitive to changes in interest rates. Fed chair Powell tried to increase rates three years ago, though quickly changed track. Now we are even deeper into a world of low interest rates. Under the new administration, US economic policy will be run by finance minister Yellen, an experienced former Fed chair, and current Fed chair Powell. We would therefore expect more of the same – at least for the next four years. More of the same could be considering explicit yield curve control.

> **"**
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> **US economic policy will be run by finance minister Yellen, a former Fed chair, and current Fed chair Powell. We would therefore expect more of the same – at least for the next four years.**

There is desperation in the eyes of some people who pay for the privilege of parking money in the bank (especially here in Europe), while forgetting the pleasures of having near zero interest on their mortgage loan. This nurtures speculative behaviour – higher risk taking. Speculation and investing are two different disciplines, where the key difference is the time horizon.

Be careful out there at the virtual gambling tables that extend into parts of the stock market. Understand the difference between objects of speculation such as one of the 28 cryptocurrencies with more than a USD 1 billion valuation and fundamental value creators like companies, where there is a reasonable linkage between its enterprise value and future value creation.

Don't confuse price with value. And don't confuse low valuation with value, as value comes in many forms.We think it makes most sense to first understand the company behind the stock first. Understand the long-term potential of the underlying company, understand its so-called "right to win" and then consider the stock afterwards. This is especially the case in a world where capitalism is being reformed, and where Europe appears to be playing a leading role in what could be termed sustainable capitalism – the sustainable 2020's. Where governments play a bigger role, but also a world where the financial sector and companies actively take responsibility.

> **Capitalism is being reformed to what could be termed sustainable capitalism. Here Europe appears to be leading the way.**

Cheap money also fuels innovation and sustainability

There are other effects from low interest rates. Easy and cheap access to seed capital in the 2020s will continue to put pressure on the price of human labour and probably lead to continued low inflation. There are books worthy of reading that describe our world rapidly progressing into a state, where human labour becomes redundant as we underestimate the capabilities of self-programming machines and artificial intelligence (e.g. 'A World Without Work' by Daniel Susskind). Overall, we are much more optimistic on behalf of humans, but we share the view that there is an important and accelerating development in the field of robotics and automation. We are exposed to this automation theme in our portfolios. We equally see a continued need for politicians to bridge the education gap to avoid a further widening between the winners and losers of these innovations in automation.

In 1484, Columbus was unable to raise capital from the King of Portugal to finance ships to find a new trade route to East Asia. As a modern entrepreneur, he did not give up and finally obtained financing from the Spanish Queen Isabella. As history tells us, Spain thus conquered a new continent acquiring sugar, tobacco, gold and silver deposits. Financing subsequent expeditions was naturally easier thereby laying the foundation of imperialistic capitalism. Following the enormous financial success of the major digital platforms such as Amazon.com, Google and Facebook, there are many who - in quest for success like the financier of Columbus - make capital available for new products and services in the digital society. This creates a self-sustaining momentum. Data is the new valuable commodity that can be exploited. Artificial intelligence is then used to obtain more data points about what is going on in our society, creating patterns of data to develop better solutions and new products and services. Global patents are booming within this area.

This development goes together with a more sustainable agenda. Certain cities have made significant progress in terms of understanding environmental data and using technology to achieve better utilisation of scarce freshwater resources. The collection and analysis of better and larger amounts of data can help solve societal problems while at the same time create wealth and powerful new companies on the stock markets.

Smart connectivity and the emerging consumers are important growth themes

There are other growth themes. We have spent the last few years understanding smart connectivity and the 5G technology, where enormous amounts of data can be moved in an instant. New products and services will emerge, and we see a few, but clear winners.

China will continue to move forward, and growth will be driven by domestic consumption. China is advancing by ambitiously aiming to be CO2 neutral by 2060, but also by demonstrating its hegemony in Hong Kong, for example. China has a tendency to reach its goals. With size comes the desire for more influence, and here technology is key as

technology is an instrument of political and economic power. Today, China remains dependent on the western world for leading-edge technologies, and the greatest geopolitical risk, which could also affect stock markets, is the situation regarding Taiwan. This is a topic that we have analysed and covered in detail in previous articles.

Finally, we see India as the country with the greatest potential. India could benefit from geopolitical tailwinds and increased direct investment from European and US companies that now want to establish themselves in India instead of China. Generally, we see exciting investment opportunities in Emerging Markets.

Technology both destroys and creates jobs. Technology creates entertainment, joy, but also anxiety and political power battles. The world is full of dilemmas that continues to be reflected in the global stock markets creating challenges and long-term opportunities.

> **It is merely 1% of the companies in the US S&P 500 Index which have delivered more than 5% compounded annual earnings growth over rolling 10-year periods.**

Speculation or sustainable investments in the 2020s

It is difficult to imagine a more supportive investment environment for equities. With interest rates at zero, speculation is frothy, and we advocate caution, especially in the most obvious instruments, including cryptocurrencies and selective stocks, where speculation could be driven too far. We are in an environment that invites speculation, which inevitably will cause higher market volatility. However, high valuations can often be justified by low interest rates and strong long-term fundamentals for the underlying company. Do not confuse a simple cheap P/E with fundamental value creation. Understanding long term fundamental value creation is the key task for the active manager. There are just a few companies that are able to truly deliver sustained 'value added earnings' growth in the long term. Thus, according to Bernstein, it is merely 1% of the companies in the US S&P 500 Index which have delivered more than 5% compounded annual earnings growth over rolling 10-year periods. Only five companies out of 500!

There are so many listed companies that are not worth investing in. It is the few that really make a difference. The decline in interest rates has proved a historic tailwind for equity prices. The decline cannot continue and interest rate volatility is to be expected. Now is the time to be even more selective - more strategic and fundamental analysis is warranted to choose the right stocks and create good risk-adjusted returns. That is the message for the coming decade – a decade that eventually and hopefully could become known as a decade with focus on sustainability – known as the sustainable 20's.

> **We are facing the new sustainable '20s.**

Leading Edge;
Pushing the Boundaries and the Future of Compute

By Morten Springborg,
Global Thematic Specialist, C WorldWide Asset Management.

Key Takeaways

- Moore's Law has been one of the most important drivers of productivity and economic growth over the last 50 years.
- Continuation of the regular doubling of computing performance is becoming increasingly difficult and is highly dependent on a few companies we deem to be some of the most important companies in the world today.
- The eventual end of Moore's Law will not mean the end of computational progress. The future of computing is a convergence of traditional silicon-based computing and new types based on neuromorphic and quantum principles.

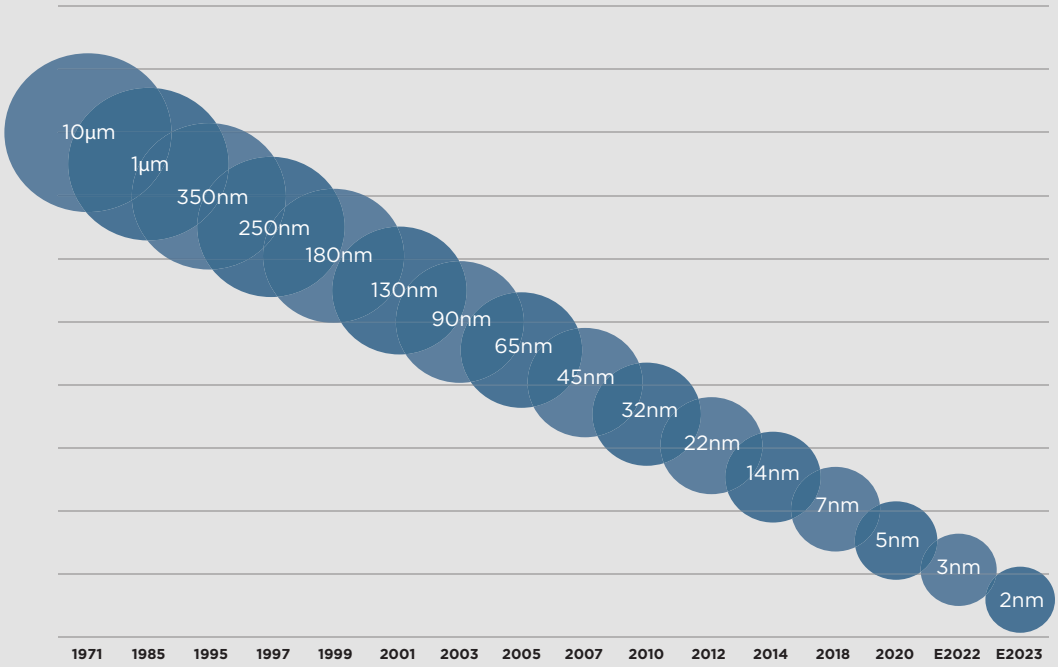
For more than 50 years the semiconductor industry has managed to develop technologies that have ensured the continuation of what has been termed Moore's Law, the periodic doubling of the number of components on an integrated circuit leading to an exponential growth in computing power. As a consequence, Moore's Law has been instrumental in driving productivity and business model development and therefore economic growth over the last half century. See also The Butterfly Effect and Taiwan as the Future IT Hotspot.

A common way to denote progress in the semiconductor ecosystem is the concept of "node" size. Nodes have become successively smaller over the past decades, as manufacturing technology has progressed, please see figure 1 on the next page. Whereas in the early 1970s, state-of-the-art process technology operated at the 10 micrometer (μm) node, the smallest features created today are in the range of 5 nanometers (nm), 2000 times smaller.

Through history, Moore's Law has been declared and predicted to be dead many times, as the industry approached sub-micron sizes. Starting from 1 μm (1.000 nm) distance between individual transistors, many people became skeptical in the law's viability and how well it would hold up. However, the industry has now reached 5 nm as Apple's newest iPad Air tablets will come equipped with the company's new A14 Bionic 5 nm processor produced by Taiwan Semiconductor Manufacturing Company (TSMC).

The ever continuation of Moore's Law is the result of many companies' work on pushing the boundaries of physics. The value chain within semiconductors covers semiconductor production equipment (SPE), with companies like ASML, LAM and Applied Materials, the photo mask producers like Hoya and AGC as well as semiconductor IP and design service companies like

Figure 1: Technology Nodes through Time



Source: Wikipedia as of Oct. 2020

ARM, Synopsys and Cadence. These companies have been the drivers of Moore's Law and as such are vital for the producers and designers of semiconductors, whether it be the independent foundries like TSMC who produce chips for fabless semiconductor design companies or integrated device manufacturers (IDM's) like Intel or Samsung, who are chip designers but also manufacture their own chips. This also includes the fabless semiconductor design companies like Apple, HiSilicon, Nvidia and Mediatek who outsource production to foundries like TSMC.

The industry has over the years developed along with Moore's Law, and as Moore's Law has been increasingly difficult to keep up with, many companies have either been acquired or simply fallen by the wayside. This has resulted in highly consolidated end-markets for the remaining players. This working paper considers how much further we can expect Moore's Law to evolve while highlighting a few of the most concentrated markets in the semiconductor value chain as well as focusing on some of the most important companies within the industry.

The Importance of Lithography

While continuous progress on all levels of the value chain has been instrumental in the continuation of Moore's Law, it is our view that a particular development within the equipment side, namely lithography, has been essential for the industry's ability to advance.

Making transistors is done by "printing" them on a silicon wafer. This is achieved by shining light through a photo mask, which penetrates the silicon and etches the pattern onto a wafer. As you decrease the size of the transistor, you must make the light source smaller and more precise. This is due to fundamental limitations, dictated by physics, that link the wavelength of light with the dimension of the features that can be etched with the light source.
Lithography equipment is defined by the type of light source, and therefore the wavelength of the light used

as the source for the exposure of the silicon wafer. In the 1990s, deep ultraviolet lithography ("DUV") was introduced, first operating at a 248 nm wavelength using krypton fluoride ("KrF") lasers and then shifted over time to argon fluoride ("ArF") lasers, operating at a wavelength of 193 nm. As semiconductor nodes have continued to shrink, ever smaller wavelengths have been required to fabricate the critical layers of an IC. That is how extreme ultraviolet or EUV lithography was born. It was the result of a large-scale industry effort spanning a period of over 20 years, with Dutch company ASML playing a leading role.

ASML is critical to Moore's Law

ASML is one of the world's leading manufacturers of semiconductor production equipment. It is the technology leader in lithography systems with a market share of over 80%. In the period up to the advent of EUV three companies supplied DUV equipment, Japanese companies Nikon and Canon as well as ASML. ASML today plays an even more critical role in the continuation of Moore's Law, as ASML's two Japanese competitors, have both abandoned efforts to develop their own technology. ASML is currently the sole supplier of EUV lithography technology.

> **It is probably fair to say that TSMC is partly responsible for the growth of most of the large semiconductor companies in the world today.**

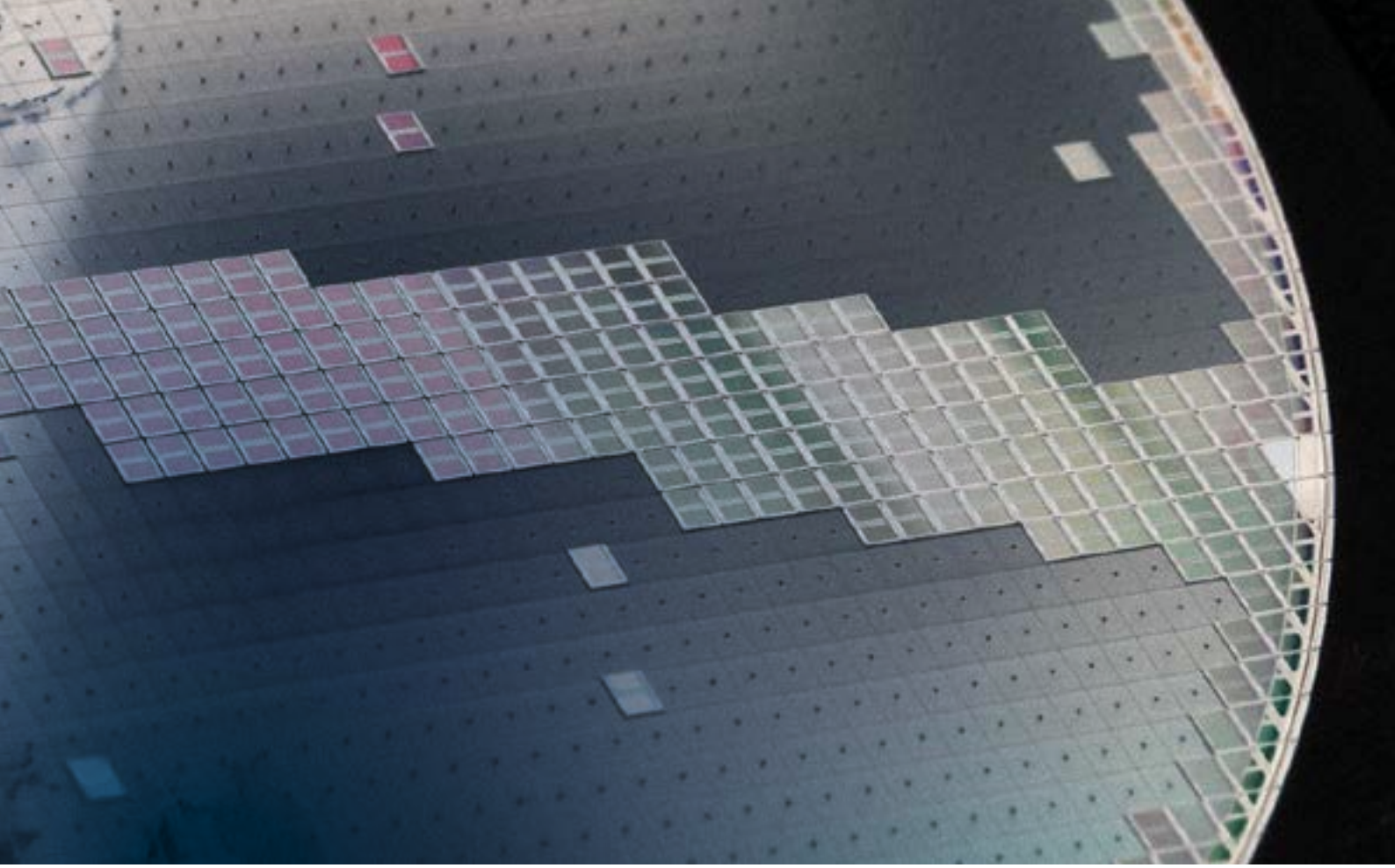
It is worth highlighting how extremely complex EUV technology is: a laser generates plasma in a vacuum chamber at a temperature of 220,000°C, which is 30-40 times hotter than temperatures on the surface of the sun. The laser is aimed at a stream of tin droplets inside the lithography system, where it strikes and flattens 50,000 of these tiny droplets every second. The laser takes two shots at each of these tin droplets, with the second hit transforming the flattened droplet into plasma that emits the EUV light. This EUV light is then directed onto the wafers after passing through numerous mirrors.

With several 100,000 components, a EUV lithography system is one of the most complex machines ever built. In total, it weighs 180 tons and consumes more than 1 MW of electrical power. First generation versions of EUV machines cost USD120 million and future versions will see price rises as their productivity increases, something which ASML is being compensated for. The importance of this huge industrial effort cannot be underestimated. If the development had failed, Moore's Law would have stopped, the chip industry would have gone ex-growth and we probably would be looking at significantly lower overall productivity growth of the world economy.

Hoya is sole supplier

Hoya is a leading Japanese technology company that operate in four main businesses with the shared commonality stemming from a deep research effort over many years into glass technology. The divisions are electro optics (semiconductor and LCD photomask/blanks, optical lenses and glass substrates for HDDs); imaging (cameras and lens modules); health care (eyeglasses and contact lenses); and life care (endoscopes). For us, the Photomasks business it the most exciting. Hoya is a dominant player, and the growth outlook is favorable as the mass adoption of EUV lithography will drive robust demand. AGC and Hoya are the two sole suppliers of EUV mask blanks which is a vital component in a lithography machine.

Although we have no precise estimates of the price of a EUV mask blank, Hoya has indicated that the price is similar to a "medium-sized car", let's say USD30,000, and roughly 10-20 times more expensive than an optical blank for DUV – the technology prior to EUV. The lithography process requires an average of five EUV mask blanks for 7 nm applications, 14 for 5 nm, and 22 for 3 nm. As EUV ramps up over the coming years there will be a significant positive mix-effect for Hoya, which today is the sole supplier of mask blanks to Samsung and TSMC. AGC is the supplier to Intel, but Intel so far has not introduced commercial EUV. Hoya can



therefore be considered the current sole supplier of mask blanks for EUV.

Consolidation in Semiconductor manufacturing

In the early days of the semiconductor industry, chips were designed and produced by the same company. However, only a handful of manufacturers, like Intel, have stuck to this business model until today. In the 1980s, chip manufacturers began separating design from production. Specialization made it possible for manufacturers to focus on developing new ways to push the physical limits and thereby keep Moore's Law alive. At the same time, a much larger number of tech companies were able to concentrate on designing chips for a staggering number of new products, including PCs, consoles, smartphones and networks.

The semiconductor industry has seen significant consolidation over the years. In 2001, nearly 30 semiconductor manufacturers produced leading-edge chips. Going forward, there will likely only be two manufacturers: TSMC and Samsung now that Intel has announced the company is considering going the foundry-route and outsourcing leading-edge manufacturing. Besides the technical complexities of producing at the atomic level, costs are also becoming prohibitively expensive for everyone except for the volume leaders. The cost of a fab is rising at around 13% a year, and is expected to reach USD16 billion or more by 2022, while the R&D going into starting a new fab can reach USD4 billion.

TSMC dominates leading edge

One can debate who belongs in the tech 'Hall of Fame' but one person for sure would be Morris Chang, founder of TSMC. Working for Texas Instrument in the 1980s, Chang identified what problems independent semiconductor companies – without their own production facilities – had getting off the ground. In those days it typically cost USD50-100 million to start a new chip company, primarily because of the cost of manufacturing. You could contract production from Intel or Texas Instruments or Motorola, but it was not reliable — and they were also your competitor!

In the mid-1980s, Chang was asked by the Taiwanese government to identify where Taiwan could invest in order to build global capabilities in technology. In an interview in 2007 Chang observed:

"When I was at TI and General Instrument, I saw a lot of Integrated Circuit designers wanting to leave and set up their own business, but the only thing, … that stopped them from leaving those companies was that they couldn't raise enough money to form their own company. Because … it was thought that every company needed manufacturing, … and that was the most capital-intensive part of a semiconductor company. And I saw all those people wanting to leave but being stopped by the lack of ability to raise a lot of money to build a wafer fab. So, I thought that maybe TSMC, a pure-play foundry, could remedy that. And as a result of us being able to remedy that then those designers would successfully form their own companies, and they will become our customers, and they will constitute a stable and growing market for us."

The rest is history. By being able to build scale through offering to produce for a very large number of fabless companies, TSMC eventually outgrew industry leader Intel. Indeed today, Intel is no longer the technology leader and will find it very hard to return to its former manufacturing glory.

> **In brief, we don't know when Moore's Law will stop working, but most likely we still have a few 'doublings' ahead of us.**

In contrast, companies like Apple, Amazon, Nvidia and AMD and others have been able to leverage the competencies of TSMC's ecosystem in manufacturing and challenge the position of Intel in overall chip performance. It is probably fair to say that TSMC is partly responsible for the growth of most of the large semiconductor companies in the world today.

The USD 65 billion foundry market is highly concentrated and TSMC holds a market share north of 50%. Samsung Electronics' foundry business holds second place with a market share of approx. 18%. Other foundries are Global Foundries, Taiwanese company UMC and Chinese foundry SMIC. TSMC and Samsung are the only companies producing at the leading edge, all other foundries have thrown in the towel years ago.

> **As a result, the future of computing will not (and cannot) be based on ever-increasing processing power (i.e. Moore's Law), but rather on understanding and drawing inferences from massive collections of data.**

It should be noted that smaller leading node chips are growing strongly which is a segment dominated by TSMC. Its sales are 3x its nearest direct competitor which produces scale advantages in the form of lower unit costs and market share gains. In the second quarter of 2020, some 36% of TSMCs sales were in the most advanced 7 nm node. This equates to approx. USD3.3 billion, equal to the total foundry sales of Samsung, SMIC and UMC, in all their nodes combined.

How long can EUV extend Moore's Law?

The next generation high-NA EUV machines promise to reduce shrink down to 2 – perhaps 1 nm before the end of this decade. Furthermore, there are several options to choose from in order to keep Moore's Law going like using innovative materials (so called doping), creating new kinds of transistors such as migrating from planar CMOS FET to FinFET and eventually to so-called Gate All around FET.

When we step below 1 nm and start measuring node size in picometers, many forces prevent transistors from becoming smaller. You can aim smaller, but you cannot break the rules of physics. However, when we do hit the limits, there is still one place where transistors can be put and that is the vertical axis. If transistors are stacked on top of each other, we can automatically double, triple or even quadruple the number of transistors per square millimeter, making the potential of this approach significant, assuming issues with excessive heat can be resolved.

In brief, we don't know when Moore's Law will stop working, but most likely we still have a few 'doublings' ahead of us. Today's most advanced chips have more than 50bn transistors, and going from 7 to potentially 1 nm will mean that we can multiply this by 8 by perhaps 2030 to 400bn transistors without moving to the 3rd dimension. Added to this, there is the potential for better optimized software and faster code.

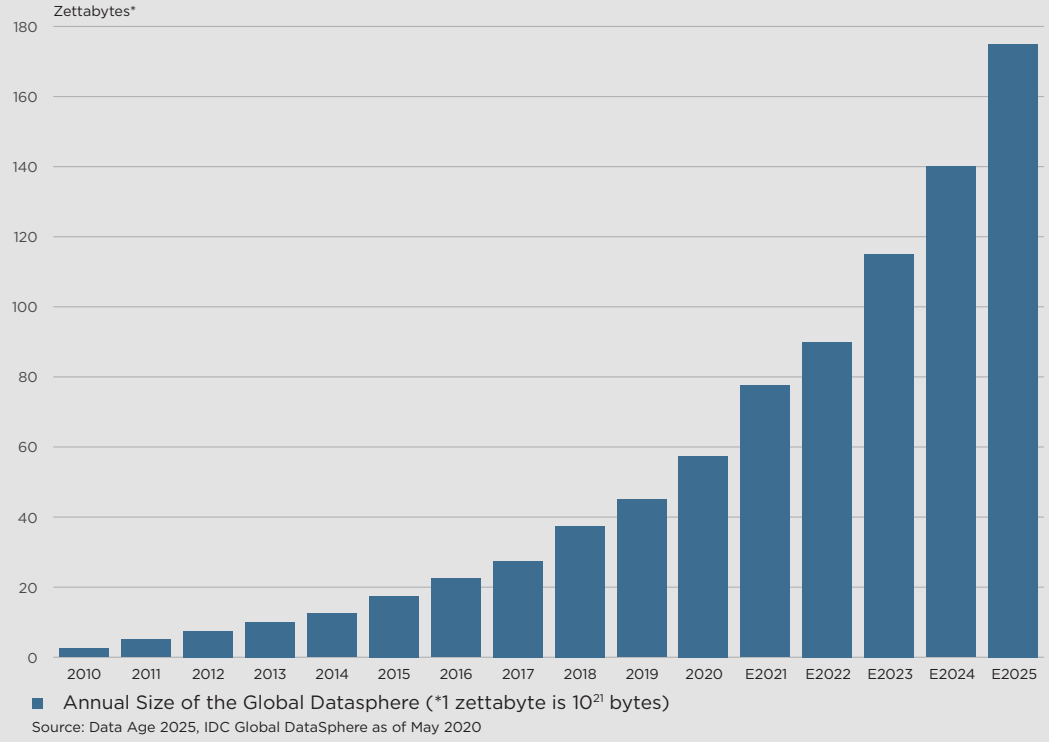
Even if chipmakers are able to squeeze out a few more generations of even more advanced microchips, the days when you could reliably count on faster, cheaper chips every couple of years are clearly over. That doesn't, however, mean the end of computational progress. In fact, we need a new regime for computing in order to reap the potential from the age of edge computing.

Edge Computing and the Data Era

The future of computing is centred on making sense of 'dark' data – see figure 2. Around 90% of the world's data is 'dark', meaning humans and computers do not have the ability to use it in any meaningful way, and by 2025 more than 460 exabytes of data (equivalent to 213 million DVDs) will be created every day. However, that data has the potential to be extremely valuable, and new data-centric computing methods such as machine learning are increasingly being used to harness such data.

To manage data requires a lot of power and extracting

Figure 2: Data Explosion



Source: Data Age 2025, IDC Global DataSphere as of May 2020

insights to drive the Data Era requires a significant amount of computational power – but current CPU architectures are not optimal. Therefore, specialized chips that are designed to accelerate specific types of computation in data centres with a focus on data analysis and machine learning have taken market share over recent years. These are graphics processors that perform many similar calculations in parallel. Parallel processing in multi-core processors can still increase performance, but these gains come at a cost when all cores on the processor communicate with one another, as this consumes a lot of energy – so much so that the communication between chips is now responsible for more than half of the total power consumption of the computer.

The Future of Compute

As a result, the future of computing will not (and cannot) be based on ever-increasing processing power (i.e. Moore's Law), but rather on understanding and drawing inferences from massive collections of data. There are multiple ways to continue the exponential growth of computing performance – not by using the traditional architecture but by redefining computing itself. Breakthroughs in physics and the biological sciences are the new tools that will drive artificial intelligence, the Internet of Things, robotics, and autonomy. When Moore's Law eventually comes to a stop, neuromorphic and quantum computing will together with traditional silicon-based computing be the harbingers of a whole new era in computing, something we will explore in future White Papers.

Mythology and Fundamentalism in the Investment World

By Morten Springborg
Global Thematic Specialist, C WorldWide Asset Management.

Key Takeaway

- "Reversion to the mean" is viewed by many as a natural law. But the story of humanity is one of long-term progress – evolution. This will be reflected clearly in the select few companies that help drive this process. Here at C WorldWide, we believe that the distinction between value and growth is imprecise and will become more and more irrelevant in the coming years. Some talk about "Value v Growth" as though it were a boxing match between two wildly different opponents. It's not. In reality, a good investment is about finding both value and growth. At least, it is for us at C WorldWide. We think it better to spend less time on these theoretical discussions and focus instead on identifying the small cohort of companies that are capable of growing profitably over time – what we like to call compounders. One of the wryest but most telling quotes we've run across comes from Wall Street legend and value investor James Grant: "A bubble is a bull market in which the user of the derogatory term has failed to participate" Listening to many market commentators on the seemingly crazy pricing of stocks and markets, it's worth keeping Grant's words in mind when assessing the validity of these claims. The message could well be coming from a place of emotion rather than a place of reason.

> **A bubble is a bull market in which the user of the derogatory term has failed to participate.**

Investment is big business, and repeated bad decisions and persistent underperformance have major consequences, which is why some are so quick to explain away things when caught out by the market. They might argue that the market is behaving irrationally and that investors will soon see the light and find the right pricing. Or that the market is being driven by momentum and that factors (such as growth or quality) currently dominating the market don't fit with their investment philosophy. Both of these excuses reflect an underlying notion that is one of the greatest myths in the investment world – that of reversion to the mean. In other words, if prices rise or fall significantly, there will be a natural tendency for an equal and opposite reaction, with the trend reversing and prices returning to the "correct" level. There is no greater danger to one's long-term economic wellbeing than subscribing to the dogma of mean reversion. Let's take a few examples:

Myth 1: Interest rates have fallen so far that they can only rise as the economy recovers.

The reality is that interest rates very often continue to fall after the economy comes out of a recession. Interest rates are not mean-reverting in either the short or the medium term. There are many structural reasons for this, including demographics and technology, but perhaps the

most important is that recessions lead to higher levels of debt, and increased debt is deflationary, which will push interest rates down even further. Rates are currently close to zero, making it hard for them to fall further, but they are likely to remain extremely low by historical standards for many years to come. For reasons of space, we would refer you here to Dr Lacy Hunt "Hoisington Quarterly Review and Outlook, Third Quarter 2020" who has probably explained this best.

> **There is no greater danger to one's long-term economic wellbeing than subscribing to the dogma of mean reversion.**

Myth 2: Europe will now finally outperform the US as it has been lagging so far behind.

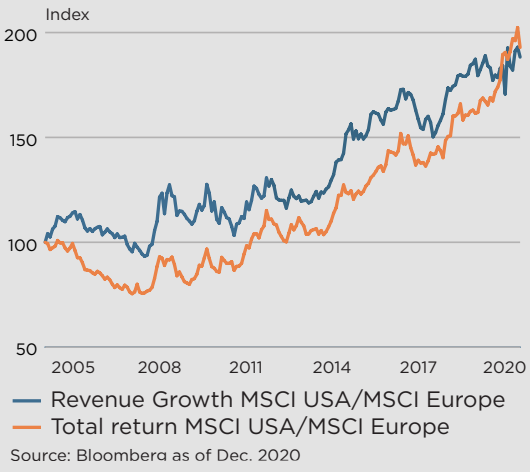
The reality is that Europe's historical returns say nothing about the future. This myth is like claiming that sales of Nokia phones will outperform sales of iPhones just because Nokia has historically sold much less well. The reality is that the only thing that could make Europe's stock markets outperform the US would be for companies' revenue growth to be structurally higher here than on the other side of the Atlantic.

As the graph illustrates, there is no mean reversion in this – it would require Europe to suddenly reverse the ageing of its population and simultaneously become a dynamic and business-friendly continent.

Myth 3: Value has underperformed significantly for many years and so will now outperform growth again.

The reality is that this is a classic that has been trotted out by value investors every year since value stocks started to underperform growth stocks in 2007. There have been sporadic attempts to change this trend since, but every time value stocks (a very hazily defined concept in itself) have tried to get back in the game, they've quickly found themselves knocked back out.

Figure 1: Relative revenue growth drives outperformance



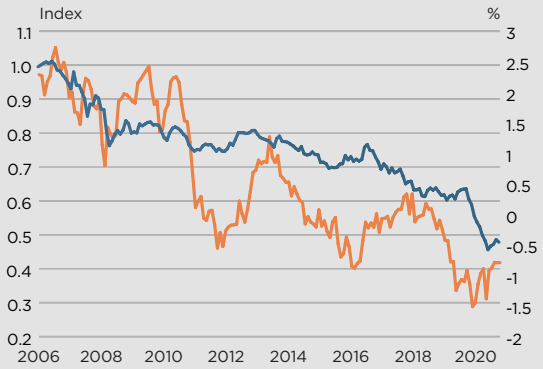
Source: Bloomberg as of Dec. 2020

There are many reasons for this. For one thing, we live in an age where money doesn't cost anything. Central banks have created excess liquidity in our economies, which has reduced interest rates to historically low levels and pushed up the value of future cash flows, which has favoured growth stocks over value stocks, please see the graph on the next page.

Meanwhile, economic growth has been disappointing, and when growth in general is low, areas where there is growth will be worth much more. This has supported a rerating of growth stocks.

Finally, our economies are undergoing major structural changes. Digitalisation is accelerating and increasing the value of intangible assets at the expense of tangible assets, something which is not captured well by traditional value analysis. In very general terms, the greatest problem with traditional value analysis is that there is too much focus on valuation measures and not enough on the actual business model. Traditional value stocks are like melting ice cubes as a result of structural challenges to their business models either from developments in the economy, such as low interest rates, which are making banks less and less profitable, or from the trend towards more sustainable investment, which is fundamentally testing companies in energy, transport and tobacco – the most important value categories.

Figure 2: Value has underperformed growth driven by falling interest rates



Source: Bloomberg as of Dec. 2020

To believe in any reversion to the mean when it comes to the relationship between value and growth stocks is to believe in a sea-change in the underlying fundamentals in our economies. You would have to believe in a persistent rise in interest rates fuelled by mounting inflation, accelerating growth and employment, and investors downplaying the importance of ESG risks and sustainable investment. It is likely that the rollout of Covid vaccines in 2021 could bring something of a sugar rush, but what awaits us on the other side of the pandemic? Do we really believe that the crisis will usher in better economic conditions for structural growth in the years ahead, and that ESG and sustainability will be less important in the future?

Mean reversion is viewed by many as a natural law. But the story of humanity is one of long-term progress – evolution. This will be reflected clearly in the select few companies that help drive this process. Here at C World-Wide, we believe that the distinction between value and growth is imprecise and will become more and more irrelevant in the coming years. Some talk about "Value v. Growth" as though it were a boxing match between two wildly different opponents. It's not. In reality, a good investment is about finding both value and growth. At least, it is for us at C WorldWide. We think it is better to spend less time on these theoretical discussions and focus instead on identifying the small cohort of companies that are capable of growing profitably over time – what we like to call compounders.

Renaissance of the Subscription **Model** in a Digital Era

By the Investment Team
C WorldWide Asset Management Fondsmaeglerselskab A/S.

In today's cloud and streaming based world, the subscription model has attracted ever more attention over the past few years, from both consumers as well as businesses.

The subscription model is far from new. It dates back to the emergence of a more organized and formal diffusion of journals and books in Europe during the 18th century. It occurs, and has been found, in many different examples of analogue and print publications – newspapers and journals, but also concert series, health clubs, razors, pet food, and many more. Not to mention book clubs that were so popular a few decades ago.

Digital subscriptions

As a result of the digitalization and the Covid-19 pandemic, the demand for digital subscriptions has almost exploded, and it is the digital subscription model that we are focusing on here. This is where the service that is subscribed to is also delivered digitally. The background to the rapid growth is, of course, technological progress,with increased bandwidth, faster transmission speeds, new devices such as smartphones and tablets, and storage moving to the cloud.

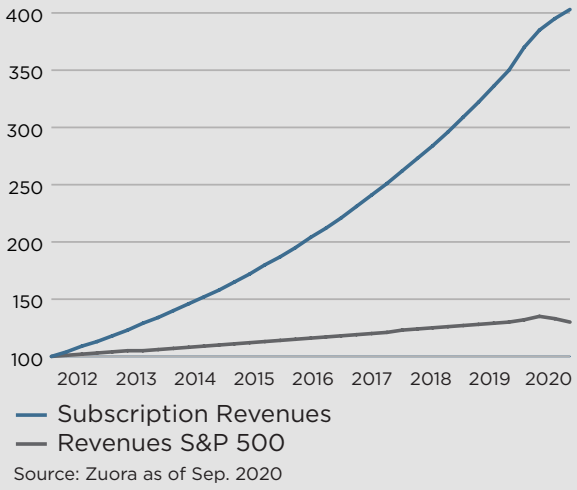
Added to this is the Covid-19 pandemic which has led to many people spending more time at home, while social and physical distancing requirements have also meant that they have opted for more individual activities.

According to DataReportal, 16 to 64 year-olds in a large number of countries around the world that they surveyed, 57% said they had spent more time watching films and other material via streaming services, and 39% said they listened more to streamed music and podcasts between March and April when the pandemic accelerated, compared to before. This benefitted services based on the subscription model.

It is not difficult to see why companies and investors are attracted by subscription-based models. Their repetitive, predictive, and typically stable pre-paid cash flows are a source of significant value, and result in higher margins. Zoura, a software company, has shown that earnings for US companies with a subscription-based business grew five times faster than the S&P 500 index companies between 2012 and 2019 (see figure 1). In turn, European subscription companies grew twice as fast as their American peers, according to Zoura.

Furthermore, an advantage of the subscription model is that it also leads to stronger customer loyalty over time, and thus brand-building. It allows for the collection of long time series customer data and it also provides opportunities to understand consumers' needs and behaviour which, among other things, can be used for personalisation and more targeted marketing purposes. (There is, however, an integrity aspect here that can be discussed.)

Figure 1: Subscription Company Earnings Grow Faster



Source: Zuora as of Sep. 2020

Customer Acqusition Cost (CAC) in today's digitally driven market becomes ever higher against the backdrop of intense competition, low barriers to entry, increasing transparency, and last, but not least, the 'freemium model', i.e. where a form of free subscription is offered initially, with the aim of converting it into a paid subscription over time. Therefore, it becomes even more important to look at the value of a customer relation over time (Customer Lifetime Value (CLV)). Long-term engagement and loyalty thus become critical to the success of a subscription-based business model. The subscription economy is growing fast. In the US, the market increased more than 100 percent annually between 2013 and 2018 according to McKinsey, and the share of the US population having at least one streaming-based subscription was 46% 2018. There is no reason this figure should be lower in, say, Scandinavia; in fact, rather the opposite.

The main reasons for a consumer to sign up for a new, paid subscription seems to be that the customer typically experiences value in buying something at a discount (as compared to buying single units) combined with a curiosity and willingness to try something new.

The primary motive to continue with a subscription according to McKinsey is not financial, however, but personalized customer experience, i.e. being able to tailor the service to one's own needs and desires, receive recommendations based on taste and interest, ability to share profiles with others e.g. in social media, special offers based on user history, etc.

> **Furthermore, an advantage of the subscription model is that it also leads to stronger customer loyalty over time, and thus brand-building.**

Subscription-based services

What types of subscription-based services are there available? Simply put: two. On the one hand, streaming-based services which provide content – Spotify, Netflix, Storytel and so on – where the rights belong to either the provider ('Originals') or the originator. This type is mainly directed towards consumers. The pandemic has, as stated above, strengthened this trend further.

On the other, software companies providing infrastructure, operations and maintenance, and business-critical applications but where the client provides content – ERP systems, CRM systems, software of various kinds (Software as a Service (SaaS), and similar cloud-based services and acronyms). A company such as Lime Technologies, to name but one example, provides sophisticated subscription-based CRM systems but ultimately it is the clients themselves that own and control the data. This type of service, naturally, is targeted towards businesses.

The big challenge for both types of service is to overcome the potential hurdle after initial subscription. The so-called churn rate, i.e. loss of customers, is very high in the early stages of a subscription-based customer relation. The customer is more aware and open to critical scrutiny of the

service or product after signing up for a new subscription, and to terminate it is often just one click away. According to McKinsey, more than a third of all new subscriptions are cancelled within the first three months, and more than half within the first six months.

Adding to that is the payment. Obsolete or inaccurate credit card details can endanger not only a single transaction but an entire customer relation. Payment industry resource PYMNTS estimates that approximately 7% of a subscriber base is, on average, at risk every month due to payment issues.

> **The big challenge for both types of service is to overcome the potential hurdle after initial subscription. The so-called churn rate, i.e. loss of customers, is very high in the early stages of a subscription-based customer relation.**

The good news? The longer the relationship keeps running, the lesser the likelihood of the customer cancelling his or her subscription. This is part due to force of habit - and also partly due to the fact that a customer typically becomes more satisfied with a product or service over time, when he/she has learnt how to get the most out of it – but also, when people simply forget that they have signed up to automatically renew subscriptions.

At C WorldWide, we are monitoring companies with subscription-based models closely and with great interest. There are several examples of businesses benefitting from the increasing importance of the model. One example is audible book company Storytel. Another example could be Amazon, which has benefitted from lower customer churn by signing up consumers to its Amazon Prime subscription service. Software companies such as SAP and Microsoft have increased the stickiness of its offerings by switching its customers to pure subscription services – and the market has rewarded the increased stability of cashflows by assigning them higher valuation multiples.

The India Wide Web
The World's Fourth Internet

By Morten Springborg
Global Thematic Specialist, C WorldWide Asset Management Fondsmaeglerselskab A/S.

The World Wide Web spread like wildfire in the early 1990s. It was originally decentralised, and no central regulators or monopolies had control of the online activity. The naive vision back then was for the Web to be a commons based community-run, bottom-up space that would serve as a tool to democratise the world. Today, it is clear that that did not happen. Instead, we are seeing mounting regulation, control and fragmentation. One example is the "Chinese Firewall" which was established in 1998 to give the Communist Party control of online activity in China while also blocking foreign Internet providers from entering China. Through censorship and control, the Chinese government has managed both to protect its monopoly on control and to shield its domestic companies from international competition. That led to the creation of behemoths like Baidu, Alibaba and Tencent. Today, they are the only players large enough to match the US Internet providers in terms of business volume and technological prowess. According to former Google CEO Eric Schmidt, the Chinese Firewall has created two separate Internets: one for Western economies dominated by the United States, and one run by China that will come to dominate Asia. While this observation might have been correct a few years ago, it does not reflect the current situation. Several models have emerged that could see the Internet fragment even further than was the case just a few years ago.

The US model has demonstrated its effectiveness, being only lightly regulated. For years, the technology sector, and with it the Internet platform providers, has been a major driver of the US economy, and US corporations currently dominate the list of the world's largest companies. These are companies that have been able to grow in a profitable domestic market before using their position to expand globally.

Europe never managed to develop companies capable of challenging the US giants, even though it could have, given its market size. The reasons for this are complex, but suffice it to say that the individual nation states favoured their domestic companies, which were therefore unable to build pan-European critical mass; the diversity of languages was a factor, and much stronger regulation in Europe also made it difficult for companies to grow. You might say that Europe is currently causing the Internet to splinter even more due to growing regulation, including, for example, GDPR and the Digital Services Act.

There is no guarantee that Europe will benefit from any of this. Stronger regulation will help to consolidate existing market structures, making it more difficult for smaller players to be compliant with tougher regulatory requirements. On the other hand, it is no challenge for the US mega operators; they will just hire more lawyers and other experts in order to stay compliant. Regulation such as data protection may be good for European consumers, but it does not support the creation of jobs, a tax base or indeed an attractive environment for business development. In fact, it will have the opposite of the intended effect: it will protect the largest US companies' dominant market positions in Europe.

Jio – the world's fourth Internet

We believe that a fourth Internet – Jio – is currently emerging in India. The Indian authorities probably took inspiration from the developments in Europe and China when devising a way to control the Internet giants while at the same time leapfrogging technological developments.

Thanks to the potential based on its population of 1.4 billion people and a rapidly growing economy, the Indian market has for years been a battleground for the largest Chinese and American tech giants. Facebook, Google, TikTok and Amazon all have a huge presence in India, but the regulatory restraints on their operations have had the general effect of preventing them from making direct investments in areas like e-commerce and logistics, even though they dominate in terms of social media and search engines.

Chaos has always been a central characteristic of India, including when it comes to mobile telephony. Until only a few years ago, India had ten mobile operators, none of them having reached critical mass. Today, this market has consolidated into three national operators. A big surprise in this process was the emergence of Reliance Industries' mobile operator, Jio, with more than 400 million users. With just four years in operation and therefore running the latest 4G data technology, the company has had an edge over the competition and their older speech-based and non-data-based networks. Jio invested USD 32 billion to build a nation-wide network without having a user base. The idea was that once the network was up and running, the users would follow, because the lower unit costs of a databased network would enable Jio to offer free talk time and low-priced data. That drove massive market expansion, especially to the country's low-income groups, and today, Jio has become India's largest mobile operator. It has also made Jio a highly courted company. Since March 2020, a number of private equity companies, sovereign wealth funds as well as Intel, Qualcomm, Facebook and Google have invested a total of USD 32 billion in Jio in return for an aggregate ownership interest of approximately 30 per cent. In other words, Reliance Industries has recovered its entire investment costs while retaining two-thirds ownership of the company. This is all due to the company's vision, which covers not only data networks but also extends to digital platforms. In today's world, the company is considered to offer a direct route to India's digital consumer, thanks to platforms in finance, e-commerce, healthcare, etc. that Jio intends to develop in the years ahead. The global Internet giants have concluded that in order to gain access to India's consumers, who will gradually be monopolised by Jio over the coming years, it is better to invest rather than compete with Jio.

> **Jio is considered to offer a direct route to India's digital consumer, thanks to platforms in finance, e-commerce, health-care ect., that Jio intends to develop in the years ahead.**

Facebook is looking to expand into e-commerce in India by teaming up with Jio in a market dominated by Amazon and where Facebook has had little success in the rest of the world. Facebook also wants to add a payment solution to its WhatsApp channel in India. Google is working with Jio to develop cheap 4G and 5G handsets for the Indian and other low-income markets while also developing an Android 5G app ecosystem for the Indian market. Qualcomm and Intel both invested in Jio, because Jio has successfully developed an advanced 5G network on top of the existing 4G network based on a technology named Open RAN. Open RAN is a cheap alternative to the solutions offered by Ericsson, Nokia and Huawei and therefore a means of breaking the monopoly which these companies have had building advanced 5G networks of the future. Once its 5G network has been deployed in a few years' time, Jio will be strongly positioned as a supplier of networks to other developing economies, which could disrupt the formerly exclusive group of mobile network equipment suppliers. Jio will be able to capitalise on the very difficult situation which Huawei has found itself in after the

US government banned the sale of advanced technology to that company, making it virtually impossible for Huawei to supply 5G networks to its existing customers in Europe and in developing economies. That could pave the way for the Open RAN technology and for Jio.

Digitalisation will turbocharge the economic standing of India, paving the way for new digital business models.

Unlike the situation in Europe, there appears to be many winners in India. Hundreds of millions of people in the country will get access to the Internet and to advanced services much sooner than expected. Thanks to Jio, the Indian government will have a much larger tax base at the expense of lower earnings for the Internet giants than if it had employed a solution like the European, which does not tax the big Internet players, and, lastly, the Jio solution raises the hope that the model can be exported and thereby project Indian power and exert influence on the world.

The US giants will have to sacrifice a bit of their profits in return for access to a new growth market at a time when their Chinese competitors are being kicked out due to geopolitical tensions between China and India. Digitalisation will turbocharge the economic standing of India, paving the way for new digital business models.

C WorldWide Global Equities ex. Tobacco

Quarterly comment

Strong vaccine results and the beginning of inoculations supported a broad surge in equity markets around the world. Extraordinary monetary and fiscal support should sustain a robust economic recovery in 2021. A reopening of the economy will allow pent-up consumer savings to be directed towards the service sector and significant political support for green investments should be the centre of economic growth. The Brexit deal and greater clarity after the US presidential election are also positive developments.

In the quarter, the strategy's return was 5.0%, thereby trailing the MSCI AC World Index somewhat, which returned 6.5%. The main reason for the underperformance can be attributed to a sharp comeback in more economically sensitive sectors, where the strategy has low exposure. In addition, several defensive holdings (e.g. American Tower, Nestlé and Unilever) trailed the strong markets. We witnessed good contributions from the Indian mortgage bank, HDFC and technology companies like Sony, TSMC and Samsung Electronics. Conversely, German business software developer SAP lowered their earnings expectations as they accelerated investments into their cloud offerings. For the whole of 2020, the strategy did well with a return of 14.7% versus the benchmark up 5.9%. A key driver of this outperformance has been the strategy's exposure to companies like Amazon.com, Thermo Fisher and TSMC, but also avoiding negatively affected industries like travel and lodging. Structural shifts arising from the pandemic have clearly benefitted the adoption of digital technologies like e-commerce, cloud computing and working from home – and looks set to drive growth further for portfolio companies like Microsoft, ASML, Samsung Electronics and Home Depot.

Investment strategy and portfolio changes

We continue to focus on investing in leading companies with strong balance sheets, high returns on capital and a compounding growth outlook. In the quarter, we sold **Siemens Energy**, which was recently spun-out of Siemens. Although the company has the interesting renewable business of Siemens Gamesa, it also has exposure to less interesting businesses exposed to the fossil fuel industry. In addition, we decided to reduce sensor-maker Keyence after strong share price performance (up 250% over 5 years). Instead, we added to our recently purchased holdings of S&P Global and Samsung Electronics.

C WORLDWIDE GLOBAL EQUITIES EX. TOBACCO COMPOSITE

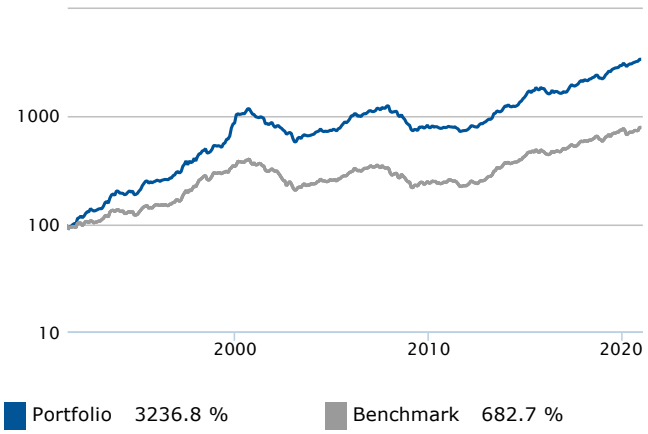
GROSS OF FEES IN AUD AS OF 31 DEC 2020

INVESTMENT PHILOSOPHY

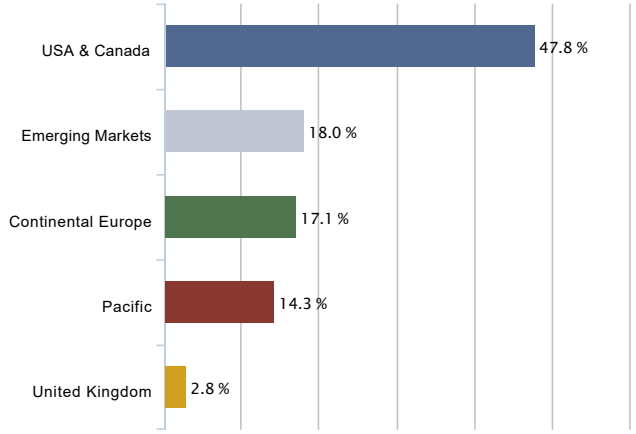
Strategy	C WorldWide Global Equities Ex Tobacco Composite
Launch Date	31 May 1991
Benchmark	MSCI All Country World incl. net dividends

The strategy aims to achieve long-term capital growth exceeding the return of the market with a moderate risk profile as measured by standard deviation. The portfolio consists of 25 to 30 high conviction global large cap stock picks that ensure a sufficiently high-risk diversification. There are no geographic or sector restrictions in the strategy.

INVESTMENT RETURNS



GEOGRAPHIC DIVERSIFICATION



RETURN & RISK

	Q4	YTD	1 Y	3 Y	5 Y	10 Y	Lifetime
Portfolio (%)	5.0	14.7	14.7	17.1	13.3	15.5	12.6
Benchmark (%)	6.5	5.9	5.9	10.6	10.9	12.3	7.2
Relative performance (%)	-1.5	8.8	8.8	6.5	2.3	3.3	5.4

	3 Y	5 Y	10 Y	Lifetime
Std. dev. portfolio (%)	9.5	10.5	10.4	13.7
Std. dev. benchmark (%)	11.6	10.6	10.2	12.1
Beta	0.7	0.9	0.9	1.0

Periods longer than 1 year are shown annualized

TOP 10 HOLDINGS

	Share in %
HDFC	7.2%
Visa	6.4%
Amazon.com	5.2%
Alphabet	4.9%
Thermo Fisher Scientific	4.8%
Microsoft	4.7%
Sony	4.3%
The Home Depot	4.1%
Novo Nordisk	3.5%
Hoya	3.5%

CONTRIBUTION

Top 5	Contribution	Return
HDFC	2.1	37.9
Samsung Electronics	0.9	39.5
Sony	0.8	21.5
ASML	0.6	22.8
TSMC	0.5	17.6

Bottom 5	Contribution	Return
SAP SE	-0.6	-21.7
The Home Depot	-0.5	-10.7
American Tower	-0.4	-13.3
S&P Global	-0.4	-15.2
Nestle	-0.2	-7.9

All figures are based on past performance. Past performance is not a reliable indicator of future performance. The return may increase or decrease as a result of currency fluctuations. The figures are based on a composite. The figures are gross of investment management fee and performance fee, if any. Other fees, incurred by the investor, such as custodian fee and transaction costs, are not included.

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