Health & Wealth

Who Wants to Live Forever?
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People who were part of the alternative culture in the 1960s wanted one thing above all else: to be different. The alternative scene remains committed to this goal to this day. It pursues an approach to life which – while it sets itself apart from the mainstream – frequently provides inspiration for those who belong to orthodox culture to look at things differently and move forward. There are clear parallels with alternatives as an asset class. Yet alternative investments also encompass very tangible assets such as real estate or commodities.

Investments in alternative products offer a suitable way to optimize a portfolio’s overall performance and align it more closely with a client’s investment requirements. This demands plenty of experience, systematic risk management, and effective control mechanisms. In the interview on page 10, Bill Johnson, Deputy Global and Americas Head of Asset Management, gives us a very clear outline of what this entails.

Insurance Linked Strategies, European healthcare properties and currency management solutions are other interesting investment segments beyond the mainstream categories of equities and bonds. We have devoted articles to all three of these subjects in this edition of Scope. The pieces explain how we are utilizing the potential of changing circumstances and market mechanisms to develop and implement alternative investment solutions. This is giving investors straightforward access to markets that demand specialist expertise.

Health & wealth, the main focus of this issue, is meanwhile right on trend. In fact, it constitutes a megatrend. Demographic change, digital health, retirement savings, and the general challenges posed by aging societies are issues that raise complex questions. The answers are not always simple either. For this very reason, they are worthy of in-depth analysis. Our main message is this: There are always alternatives. We just have to identify and adopt them in good time.

I have no alternative but to wish you a stimulating read.

Eric Varvel
Thematic Investing

Digital Health

The digitalization of healthcare stands to alleviate the cost problem and offer attractive prospects for investors with a long-term horizon.

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The Scope Interview

Bill Johnson
Deputy Global and Americas Head of Asset Management

Not only do alternative investments continue to this day to be frequently underestimated but they are still all too often underweighted in the asset allocation. In our Scope interview, Bill Johnson spells out why this is a shortsighted approach.

Investment Solutions

Insurance Risks as Investment Opportunities
Insurance Linked Strategies

As returns on ILS are based on insurance events, they are largely independent of financial markets. Life insurance risks in particular merit closer examination.

Balanced Solutions

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Given the demographic shift and the funding of pensions, new investment solutions are needed – including unconventional ones.

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Lead Story

Who Wants to Live Forever?

Mankind has been chasing the dream of immortality since time immemorial. Directly or indirectly, an entire industry invests in this dream. Thanks to the internet, you don’t need to be a medical expert to obtain information about your current state of health and the likelihood of contracting a disease. Still, reliable medical findings from online sources are few and far between. And such offerings definitely do nothing to enhance the quality of life.

Lifespan online calculators like ubble (ubble.co.uk) predict an individual’s risk of dying within the next five years. My predictive score of 1.7% at least provides me with the motivation to take a closer look at the analysis. In a next step, you can generate an individual health/disease profile based on genetic tests that are commercially available to anyone. The risks of developing specific diseases identified in this way are intended to help the individual user take responsive steps to positively influence his fate and/or his life expectancy.

My results were rather confusing. I am predicted to have an 18% risk of developing cardiovascular disease, a 32% probability of suffering from future musculoskeletal disorders and a 12% chance of ending up with a malignant tumor.

The figures don’t come with any explanatory notes so I’m at a loss to make any sense of them while at the same time trying to figure out how to adapt my behavior going forward.

So, what now? The figures don’t come with any explanatory notes so I’m at a loss to make any sense of them while at the same time trying to figure out how to adapt my behavior going forward.

The first port of call is Dr. Google, but even a trained physician such as myself will quickly discover that information obtained online is not much help. Not only is the content not annotated but it is too generic to be of any practical use, and most of the information is not backed scientifically. It is also obvious that most of what is propagated on the web tends to be negative rather than positive.

Picture of health – or poor patient examination?
Further research up to and including in-depth talks with professional colleagues does little if anything to broaden my horizon. Confusion mounts, my fears are stoked and, being a latent hypochondriac, I am occasionally jolted awake in the middle of the night by the vision of succumbing to my 18% predictive risk.

Dr. med. Daniel Herren
Departmental Head of Hand Surgery
and Chief Medical Officer (CMO)
at the Schulthess Clinic, Zurich
Nefertiti, the first of wife of Pharaoh Akhenaten, lived in the 14th century B.C. and remains to this day the symbol of everlasting beauty. Her portrait bust is over 3,000 years old and is on display at the Egyptian Museum in Berlin’s Neues Museum.
of contracting a cardiovascular disorder. Should I be taking cholesterol medication prophylactically, knowing full well that the side effects could be significant? Is aspirin really the wonder drug guaranteed to add a couple of years to my life? Or is it too late and there’s nothing I can do anyway? Questions heaped upon questions, with nary an answer in sight.

Robin Haring’s 2014 book “Der überfor-derte Patient: Gesundbleiben im Zeitalter der Hightech Medizin” (The overwhelmed patient: staying healthy in the era of high-tech medicine) raises the provocative question of whether high-tech medicine is actually making us healthier or sicker. Lab results that were normal yesterday are now indicative of disease, and residual risks are, once detected, addressed through overtreatment and overdoctoring. We all want to live longer – but no one wants to be old.

New vision of personalized medicine
We inevitably come to realize that true progress lies not only in the expanded possibilities of diagnostics but first and foremost in the interpretation of laboratory findings. So the future lies mainly in better information processing and interpretation. The new vision of personalized medicine can be implemented only if the information gleaned can be successfully contextualized. This in turn is predicated on meticulous data analysis and interpretation.

In greatest demand are big data management with a meaningful interpretation of these findings, and a viable implementation in our daily lives. The real wealth in the healthcare world resides in this very data and its analysis. There is tremendous potential here for improvement and progress. A dialogue not only between scientists and physicians but also ethicists is needed in order to evaluate and contextualize all of the findings obtained.

Health technology assessment
The radical economization of the healthcare market has long been a reality. In our daily practice, we physicians are required to sift through and prioritize the purported new findings and methods we are bombarded with by the medical industry on a weekly basis. In the difficult realm between appearances and reality, we apply our efforts to filtering out which approaches warrant pursuing and which “new” ideas are just more of the same. Standardized procedures, so-called health technology assessments, help to separate the chaff from the wheat. Countries like the United Kingdom and Germany have their own institutes to perform these evaluations and subsequently exert an influence on approvals and payments. Such processes are ineluctable in order to get a handle on the growing divide between what is technically feasible and what is economically viable. Cost/benefit analyses are intended to determine at what price and at what exchange value money should be spent in medical care.

We don’t want to live forever. We want to enjoy a good quality of life for as long as possible.

The discussion surrounding immortality is more of a philosophico-religious rather than a scientific one. In the field of medical information technology, the main aim is to find meaningful ways to promise a lifetime of optimal, not maximum, duration. We don’t want to live forever. We want to enjoy a good quality of life for as long as possible.

Bearing all this in mind, a reinterpretation of my genetic analysis backed by more reputable sources (bfs.admin.ch) paints a more comforting picture: The risks identified merely reflect the average risk for a Swiss man of my age falling ill on the basis of these diagnoses. I have been sleeping much better since realizing this.

Dr. med. Daniel Herren
Dr. med. Daniel Herren has been Departmental Head of Hand Surgery at the Schulthess Clinic since 2009 and Chief Medical Officer (CMO) and representative of physicians on the Board since 2017. In addition to a dual medical degree in orthopaedics and hand surgery, he holds a Master of Health Administration and has completed a further post-graduate course in medical physics at the ETH Zurich. Dr. Herren’s scientific focus is on medical quality management, as well as joint replacements in the hand. Among his other commitments, he sits on various healthcare boards, where his main interest lies in specific quality issues and health services research.

Schulthess Clinic
The Schulthess Clinic in Zurich is one of Europe’s leading orthopedic centers in the treatment of musculoskeletal disorders. The Schulthess Clinic’s mission is to ensure sustainable treatment success through a combination of highly specialized medicine, innovation and expertise. The Clinic works closely with selected partners in its commitment to teaching, research and development with the aim of improving the treatment of musculoskeletal pain.
The demand for therapeutics against neurodegenerative diseases is rapidly increasing in today's aging society. Now, new technologies and assays based on human cells are needed to obtain more elaborate test results – faster and more efficiently.

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Bill Johnson

Bill Johnson is a Managing Director, based in New York. He is the Deputy Global and Americas Head of Asset Management. Prior to joining Credit Suisse in 2013, Bill worked as a Partner at Perella Weinberg Partners. Before that, he was an MD at J.P. Morgan, where he served first as the Head of Tax-Exempt Capital Markets and then later as the Head of Proprietary Trading. Previously, Bill worked as the President of Paloma Partners. Prior to that, Bill worked at UBS, last serving on the IB Divisional Management Committee. He started his career at O’Connor & Associates, where he was a Partner at the time of the acquisition by Swiss Bank Corp, a predecessor firm to UBS. UBS Asset Management has kept the O’Connor brand for their multi-strategy hedge fund. Bill received a B.S. from the Wharton School of the University of Pennsylvania and an M.B.A. from the University of Chicago, Booth School of Business.
Mr. Johnson, you joined Credit Suisse Asset Management in New York in 2013. How has the business environment changed in this period? Bill Johnson: Undoubtedly the business environment has become more challenging for our industry over the last few years. Given the low-yield environment we’ve been operating in, investors are becoming more discriminating and are also increasingly focused on the value their asset managers can provide.

Historically, investors have focused primarily on Investment Due Diligence (IDD), and this means deep assessment of what I call ‘the four Ps’ – Process, Philosophy, Performance, and People. This last P includes track record, consistency of strategy, and experience. Investment due diligence remains the bedrock of any investor decision and focuses mainly on the portfolio management team.

In recent years, Operational Due Diligence (ODD) has taken on a significantly more important role for investors and requires managers to demonstrate an ‘institutionalized’ business platform. Key to being credible on this front are capabilities such as Risk Management. Risk control is at the core of Credit Suisse’s investment philosophy and culture, and we demonstrate this to investors through the extensive resources we devote to risk management. Other important areas for ODD include Legal, Internal Controls, Compliance, Service Provider Oversight, and Information Security.

The beauty of Alternatives is that they can deliver an array of attributes, improving the overall performance of a portfolio or better aligning it with clients’ investment needs.

How has Credit Suisse Asset Management been able to adapt to these requirements? In Asset Management, we are fortunate to have top-notch teams in dedicated support areas – Risk, Compliance, Legal, IT, and others to help us meet investor requirements. And these are capabilities that, as a bank-affiliated asset manager, we can highlight as strengths and areas of differentiation relative to boutique and standalone players.

How can alternative investments help clients to achieve an adequate yield without taking inadequate risks? ‘Alternatives’ is a term that refers to assets that are not traditional equity or fixed income and/or investment vehicles that are not long-only. Naturally, this covers a large part of the industry landscape. I don’t think of Alternatives in isolation. Rather, Alternatives can be employed as part of a solution for our clients’ portfolio needs. The beauty of Alternatives is that they can deliver an array of attributes, improving the overall performance of a portfolio or better aligning it with clients’ investment needs. But as with all that we do in asset management, our end goal is to help clients meet their investment needs. For many, this represents individuals saving for personal retirement, or pension funds saving on behalf of their institutions’ current and future retirees. It may be for an insurance company seeking to ensure it can fund its long-term liabilities. In any case, our work is vitally important.
“Risk control is at the core of Credit Suisse’s investment philosophy and culture, and we demonstrate this to investors through the extensive resources we devote to risk management.”

Could you give us some examples in this context?
Yes, of course. For instance, our insurance-linked products have historically delivered attractive risk-adjusted returns with low correlation to other asset classes. Our Credit Investment Group employs some strategies that provide returns in a floating-rate form, thus reducing exposure to interest rate risk. The Multi-alternative product in Quantitative Investment Strategies delivers risks and returns consistent with a diversified universe of hedge funds but at much lower fees than investing through traditional hedge funds.

Importantly, our Alternatives businesses meet the high diligence standards I mentioned previously (IDD and ODD). This allows Credit Suisse to deliver truly differentiated capabilities, positioning us well to compete in this intensely competitive environment.

What role does Credit Suisse Asset Management play within International Wealth Management and the broader bank?
Credit Suisse Asset Management has become an increasingly important contributor to overall Credit Suisse group results, and has been especially impactful in International Wealth Management (IWM). At year-end 2016, we made up 26% of IWM total adjusted pre-tax income. Part of that is attributed to our collaboration efforts with IWM and across multiple Credit Suisse divisions, where we provide institutional-quality products to some of the most sophisticated investors in the world.

Foundationally, our efforts are supported by a bank-wide platform with a robust governance and controls framework. There are several key channels. Asset Management acts as a key investment solutions partner to the Private Bank as well as other global clients, including U/HNWI and institutions. We also work with the Global Markets and Investment Banking and Capital Markets divisions to provide solutions to investors, typically institutional clients.

We leverage this global reach across the bank to provide innovative and differentiated solutions to our clients.

Could you share an example of a recent collaboration that you’re particularly proud of?
For example, in order to meet client demand for lower risk, floating-rate yield, the Credit Investments Group collaborated with our Asset Management and Private Bank in Asia Pacific (APAC) to launch a new loan product in January 2017. Combining the leading capabilities across these different groups allowed for the design and structure of a proprietary solution to meet our clients’ needs. The teams were able to raise USD 1.4 billion in just five weeks.

What are some of the strategic priorities for Credit Suisse Asset Management?
Our objective is to be a global asset manager that uniquely capitalizes on synergies with the rest of the firm. We focus on markets where we have a distinct competitive advantage and can be a leading provider to our clients. Supported by a regionally empowered business model, our strategy is demonstrating clear progress in scaling our existing business. We’ve accomplished this through meaningful AuM growth, our ability to provide unique and differentiated products, and a focused distribution model.

My regional partners across our global platform play a key role in implementing this strategy. Mike Levin in APAC, Michel Degen in Switzerland and EMEA, and myself in the Americas are responsible for key strategic initiatives, tracking to regional targets and performance, as well as local product development, distribution, and client expertise.

Can you provide an overview of the size and scale of some of your businesses?
We are a leader in alternatives, with ~USD 44 billion in AuM in our Credit Investments Group (CIG), ~USD 44 billion in AuM in Global Real Estate (GRE), and ~USD 8 billion in AuM in our Commodity businesses, to name a few. Our private equity and hedge fund businesses, such as Insurance Linked Strategies and our Securitized Products Hedge Fund, continue to be very competitive in the space.

We continue to extend these capabilities through the development of unique and differentiated products in line with investor demand. An example of a recent success would be the launch of a Mexican real estate offering, which had a first close of USD 320 million. This is another instance of our ability to leverage our global capabilities to deliver differentiated solutions to our clients.
Insurance Linked Strategies

Insurance Risks as Investment Opportunities

The problem is old hat by now: low interest rates, low returns and accentuated correlation among traditional and in some cases also alternative asset classes. Insurance-linked strategies offer a possible way out. Their returns are based on insurance events and are thus independent of financial markets. Life insurance risks in particular merit a closer examination.

:: Calculated risks
Extreme mortality events triggered by natural disasters such as hurricanes are among the typical risks to which life insurance companies are exposed.
There is a growing tendency among insurers and reinsurers to transfer life insurance risks such as excess mortality and longevity to capital markets. Life insurance risks are part of the larger Insurance Linked Strategies (ILS) asset class. ILS investments involve a role reversal between investors and insurers.

ILS investors take on the role of insurers, covering risks in exchange for attractive premiums in the form of interest payments and/or capital repayments. The amount paid will depend on the occurrence or magnitude of a corresponding insurance event. Thanks to the ILS asset class, insurance companies are able to transfer risks to third parties (investors), paying them a premium in return.

The market for life insurance risks as a capital investment has evolved in tandem with the catastrophe or cat bond market. The market including OTC derivatives and longevity risks currently has an aggregate volume of more than USD 200 billion, with the participation rate of ILS investors relatively low compared to the market for non-life ILS risks. Moreover, the life ILS market is characterized by relatively few deals at higher volumes.

**Returns with low volatility**
Credit Suisse is a highly experienced investment manager whose aim is to consistently spot the most attractive investments in the insurance-linked space across all instruments, countries and counterparties. Good examples are life insurance risk-linked funds, which feature the profile of an alternative investment and aim to achieve attractive returns with low volatility. Past experience shows that these structured funds have only a low correlation to traditional and alternative investments as well as to other ILS strategies focused on natural-catastrophe risks.

This type of fund invests in a diversified portfolio of life insurance-related transactions covering longevity and excess mortality risks (e.g. as a result of a pandemic). The fund aims to maximize absolute returns by diversifying investments across risk classes, regions, maturities and underlying structures. The fund benefits from the natural hedge between excess mortality and longevity risk (see “Natural hedge” chart). The natural hedge limits loss risk without sacrificing return potential.

**Natural hedge**
The natural hedge between extreme mortality and longevity

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**Extreme mortality event**
(e.g. pandemic, terrorist attack, heatwave)

**Longevity increasing beyond actuarial expectation**
(e.g. due to cancer cure)

---

**Impact on extreme mortality investment**

**Impact on longevity investment**

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**Extreme mortality risk**
Risk of a shock event significantly lowering the average life expectancy of a population

→ **Event risk** (unlikely but severe, i.e. heavy tails)

**Longevity risk**
Risk of the life expectancy of a population improving beyond the actuarial expectation

→ **Trend risk** (developing over longer periods of time)

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Source: Credit Suisse Insurance Linked Strategies, March 2017
Insurance Linked Strategies (ILS) enjoy the great advantage that their opportunities and risks are virtually independent of financial markets.

**Opportunities**
- Attractive access to the ILS universe thanks to diversification and active management
- Fund performance largely independent of remaining financial markets
- Market leadership and successful track record of Credit Suisse in ILS investments
- ILS team's longstanding experience in the insurance and reinsurance sector

**Risks**
- Risk of invested capital loss as a result of insurance events
- Failure to achieve investment objectives
- Market risks including currency risks
- Concentration risks
- Regulatory risks
- Incomplete or faulty models and/or assumptions

No one knows what financial markets will look like in 80 or 90 years. But the demographic trend is not hard to forecast, facilitating the assessment of longevity risks.
Focus on private ILS transactions
Investments may be made in private ILS transactions or bonds (life insurance-linked bonds). The portfolio allocation to various ILS instruments will vary depending on their relative attractiveness. The focus of Credit Suisse’s ILS team is on private ILS transactions, which offer better opportunities both for diversification and for customized solutions. The ILS transactions are negotiated, structured and executed in the traditional part of the life insurance market, where Credit Suisse specialists are able to draw on an established network and longstanding experience.

Life settlement funds typically invest in a few hundred separate life insurance policies, which entails significant individual risk. By contrast, Credit Suisse focuses on transactions with insurance and reinsurance companies whose underlyings are population indices or broadly diversified portfolios. These transactions are based on tens of thousands or even millions of individual risks. Consequently, individual risks are virtually eliminated, and only significant events and trends may have a major impact.

Asset class with high growth potential
Thanks to a broad network of close relationships that Credit Suisse has established with reinsurers and brokers, funds under management that are invested in life insurance-based strategies have increased significantly over the past four years. Growth has been buoyed by the Solvency II regulatory regime, which has induced many companies across Europe to restructure their capital, potentially resulting in new reinsurance transactions.

So-called Triple-X deals, which are shaking up the regulatory landscape also in the US, could significantly improve the profitability of these investments.

220 years’ combined experience
The Credit Suisse ILS team is 19 strong and the world’s second largest manager of insurance-related investment solutions, with assets under management exceeding USD 8 billion in 2017. The team boasts over 220 years of combined experience, partly acquired from working for leading reinsurance and insurance companies.

Definitions
Excess mortality risk
Excess mortality risk is the risk that the mortality rate of a given population will exceed both the average historical mortality and expected normal mortality rates in any given year. Such a deviation might be triggered by a shock mortality event such as a global pandemic or a major hurricane in densely populated regions.

Longevity risk
Longevity risk is the risk that the life expectancy of a given population will effectively exceed current actuarial projections. Factors that contribute to increased life expectancy are medical care quality and pharmaceutical advances.
Life insurance –
a market worth more than
USD 2,600 billion

In most major and developed markets, life insurance – whether term life insurance or pension solutions – constitutes the most important insurance segment of all. In 2016 alone, the life insurance segment generated premiums of USD 2,617 billion worldwide, of which developed markets accounted for USD 2,110 billion according to Swiss Re Institute’s Sigma Report No. 3/2017. The strongest growth was reported by emerging markets, as in previous years.

In industrialized nations, the market is benefiting from an aging population, preferential tax treatment and shrinking social security payments. Accordingly, pension solutions also boast the highest growth rates. At the same time, the catch-up potential of emerging markets is enormous.
Silver Economy
Investing for Population Aging

We expect the unrelenting and seismic shift in the age composition of populations to impact consumer goods, healthcare, real estate and financial services markets. Besides some inevitable challenges, there will also be great opportunities for companies catering to a senior population that we expect to grow to more than 2 billion people by 2050.

Lorenzo Biasio, CFA
Equity Analyst Healthcare

Population aging in numbers
In many countries across the globe, prominently including Europe and parts of Asia, fertility rates have been declining for decades and are already at or below the replacement level of 2.1, which over time causes a tilt in the demographic composition of these societies towards the elderly. This, coupled with an increase in life expectancy by one year every five years, will lead to a rise in the global population aged 60+ from 900 million today to 2.1 billion by 2050. Inevitably, aging will prove to be a powerful societal and economic driver that will re-set consumer markets, as well as transform healthcare and property markets. Nevertheless, there will also be challenges, most notably in funding the Silver Economy. We expect the dependency ratio – a measure of working population to retirees – to halve in the short time out to 2030, likely rendering public old-age programs insufficient and thus creating demand for private funding products.

The healthcare boon
The most obvious beneficiary of an aging population is the healthcare sector. Many chronic diseases increase with age, and hence a higher proportion of the elderly population is tied to a disproportionate rise in healthcare expenditure. Frequent comorbidities (concomitantly occurring diseases) among the elderly compound the effect. The US Centers for Medicare and Medicaid Services estimates that the annual healthcare expenditure for a person over 85 is more than three times the annual expenditure for an individual in the 45–64 age group. Some of the most common diseases affecting the elderly are arthritis, heart disease, cancer and Alzheimer’s disease. The US Centers for Disease Control and Prevention (CDC) estimates that just under 50% of 65+ adults in the US have been diagnosed with a form of arthritis. The chronic nature of the disease, which causes patients to stay on drugs for prolonged periods, leads to a significant

1 https://www.cdc.gov/arthritis/data_stats/arthritis-related-stats.html#Prevalence
in our view. Similarly, there is a high unmet need in Alzheimer’s disease, which has a disappointing clinical research history. Given a relatively high prevalence of Alzheimer’s, lack of effective treatment options and increasing understanding of biotechnology, we believe it will be an interesting field to follow over a longer term.

Senior lifestyle and consumption
Seniors are the fastest-growing consumer age group around the world. They have a rising share of income compared with other demographic groups, and an increasingly high spending power, especially in the developed world. As of today, baby boomers (aged 50+) already represent 50%–60% of developed market consumer spending.

Over the typical lifespan, we observe a slowdown in spending on apparel and restaurants, coupled with a larger allocation towards leisure and tourism in later stages of life. Particularly, cruise liners are set to benefit as
over two-thirds of demand comes from older people. Similarly, gaming and casino companies also generate around 65% of their revenues from the 55+ cohort in the US. Further, an increasing emphasis on healthy living means stronger sales growth in vitamins and dietary supplements and we also expect aesthetic desires to drive higher spending on personal care and beauty products (especially anti-aging products). Lastly, vision impairment is common as a growing senior population provides a large opportunity for prescription glasses and contact lens manufacturers.

Senior housing
Today, seniors remain independent and healthier for longer than in the past, which pushes out the admittance into the stereotypical retirement home. However, we also observe more diverse senior living solutions in the market than in the past.

Senior housing typically starts with barrier-free apartments that are easily accessible by public transport and are close to medical care, dining, shopping and recreation facilities, which – importantly – supports social contacts. Slightly more advanced on the continuum of care are assisted living services (e.g. ambulatory care, household assistance, emergency service), which support a household’s independence and delays relocation to care or nursing homes. Senior housing close to care homes, hospitals or medical centers can also generate considerable synergies. Furthermore, senior living operators increasingly run facilities that consist of multiple units and allow residents to “age in place.”

As governments will find it challenging to design innovative policies that guarantee housing for the elderly, it might present an attractive opportunity for investors. The private sector will play a vital role as rapid growth is likely to overstrain public sector finances in many countries. Economies of scale and optimization of processes in care, nursing and dementia homes are likely to open up promising investment opportunities. Another area with momentous growth potential covers service providers for assisted living. Such companies benefit from the desire of an increasing number of households to stay independent as long as possible as well as fast increasing care costs that demand more efficient care systems. Services such as ambulatory care, physiotherapy, household assistance and entertainment as well as provision of automated safety equipment are likely to face high demand in the future.

Financing the silver economy
The rising longevity and an aging population are likely to raise demand for life insurance products, with growth

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**Figure 2: Healthcare spending per capita and age band**

Total healthcare spending per capita in USD (2012)

Sources: Centers for Medicare and Medicaid Services, Credit Suisse
likely to be driven by life annuities, which are the only permitted retirement payout option in some regions.

In countries where social security benefits are not sufficiently generous, longer life spans could increase demand for precautionary private savings and liquid assets to cover out-of-pocket health expenses in retirement age. Hence, we expect life insurers to increasingly expand toward so-called unit-linked products on the savings side and focus more on protection products, particularly health insurance.

In most developed countries, eligible individuals receive public pension benefits after reaching the retirement age. These schemes are often administered by the government, which bears the associated cost and risks. The aging population is likely to increase public pension expenditure and, combined with falling dependency ratios, exert pressure on government budgets. To sustain public pension systems, the retirement age could be raised, which will translate into more savings and increase demand for (capital-protected) financial products.

Low interest rates and a growing number of pensioners are putting pressure on retirement benefit levels and corporate pension funds. Hence, the transition from defined benefit (collective risk sharing) to defined contribution (individual risk bearing) plans will continue. This transition is already progressing well in the US and UK and we expect a growing market for bulk transactions, where insurance companies take on the pension plan management of large corporates.

As reliance shifts from public and corporate pension plans, we expect households to increasingly save privately for retirement so that a part of future pension income comes from accumulated assets and savings. With the shift toward defined contribution plans, there will be opportunities for supplementary advisory services in structuring of retirement plans/products and asset-liability management.

**Conclusion**

Although there is a general agreement on the trends unfolding in aging, we are ill-equipped to grasp its magnitude in terms of the shift in societal composition given the acceleration in the aging trajectory (refer to first chart in the intro). We expect the addition of more than a billion seniors by 2050 and an associated drop in the dependency ratio to pose immense challenges, but also present opportunities. In our view, investors positioned along the continuum of senior wants and needs — such as senior-centric consumer goods, healthcare services, senior housing, as well as wealth management and pension solutions — are likely to witness attractive returns.

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**Figure 3: Dependency ratio**

Dependency ratio of workers (15–64) to retired (65+)

![Dependency ratio chart](chart.png)

Sources: United Nations/CitiBank, Credit Suisse

- **World**: 7.9 (2015) 15.9 (2050)
- **Africa**: 3.9 (2015) 10.5 (2050)
- **China**: 2.1 (2015) 7.7 (2050)
- **Japan**: 2.3 (2015) 2.3 (2050)
- **Europe**: 1.4 (2015) 3.8 (2050)
- **US**: 2.1 (2015) 4.5 (2050)

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Digital Health Technologies with Broad-spectrum Efficacy

The tremendous surge in healthcare costs urgently calls for counteractive innovation. The digitalization of healthcare offers a promisingly effective approach. It opens up attractive prospects for investors with long-term horizons.

Christian Schmid
Portfolio Manager

Healthcare spending has grown much faster than the rest of the economy in recent decades. Healthcare expenditure for the period 1960–2010 increased nearly 5 times faster than gross domestic product and more than 50 times faster than wages.

Data adjusted for inflation and population growth

+818%  
National health expenditures 1960–2010

+ 168%  
Gross domestic product 1960–2010

+ 16%  
Wages 1960–2010
New perspectives

Digitalization will impact research and development, medical treatment, and efficiency in the healthcare sector.
As a result of growing prosperity, coupled with rapid advances in the healthcare industry, we have seen a significant rise in the aging population over the last 30 years. This trend will not only continue in the years ahead but will very likely accelerate further.

As illustrated in the chart using the US as an example, the aging population is causing healthcare costs to spiral. According to the Alliance for Regenerative Medicine (ARM), average annual healthcare costs for people between the ages of 44 and 54 amount to approximately USD 5,000. However, average per capita costs for the 74–84 age group are already at around USD 17,000. For people age 84 and over, average annual healthcare costs are higher still at USD 25,000, or five times that of the first group. In 2016, US healthcare spending reached an astonishing 18% of the country’s gross domestic product (GDP). A similar situation can be observed in many other countries. In Switzerland, this trend has led to average annual increases in health insurance premiums of 4% over the past few years.

This diverging trend is impressively demonstrated by a chart from consulting firm McKinsey, which shows that healthcare costs in the US have skyrocketed by 818% since 1960. This contrasts with GDP growth of 168% and wage increases of just 16%. A continuation of this trend will soon prove unsustainable. New solutions are needed.

The digitalization of healthcare looks to be one of the most compelling solutions at present. In the past, only the costs for research and development increased dramatically, whereas services remained unchanged. Digitalization could reverse this trend. A number of industries have already benefited from this effect over the past 20 years. Industries that have successfully implemented digitalization (including automation) have also reduced their production costs – in some cases dramatically – while materially improving and extending their product and service offerings.

Healthcare is behind the digitalization curve

The healthcare sector is at least a decade behind the digitalization curve. According to an article in "The Economist", around one-fifth of today’s healthcare spending is unnecessary. Typical avoidable cost sinks include incorrect or unnecessary treatments, which Swiss health insurers’ association Santésuisse recently cited as partly responsible for steadily rising health costs.

The contributing factors underlying the hold-up in revolutionizing the healthcare sector through new technologies are diverse. One of them is uncertainty about the legality of collecting and using health-related patient data in a digitized world. However, there are indications that the legal framework for handling sensitive patient data will become more clear-cut and stringent in the years ahead.
Far-reaching implications
The digitalization of the healthcare sector will have far-reaching implications, which can be subdivided into three areas: research & development, treatments and efficiency. The area of research & development includes among other things life science tools and services, diagnostics based on molecular biology and artificial intelligence (AI), and high-precision genetic sequencing. One example of genetic sequencing is the Human Genome Project, which was founded as far back as 1990 with the aim of deciphering the complete sequence of human DNA. According to the National Human Genome Research Institute, in recent years the cost of sequencing a human genome has dropped from an estimated USD 100 million to currently around USD 1,000 thanks to advancements in computing capacity. This opens the way to a better understanding of diseases and the development of new treatments in the future.

It is in the area of medical treatments that the implications of digitalization will conceivably be the most far-reaching, affecting areas ranging from e.g. biotechnology, medical technology and surgical robots to personalized medicines and state-of-the-art implants. The possibility of genetic modification allows for personalized cancer therapy. According to current estimates, it is now possible to increase the treatment success rate for specific forms of cancer from roughly 7% to around 70%. This means that follow-up treatment costs can be reduced enormously.

Another widely known example is robot-assisted surgery. The da Vinci surgical robot for instance enables surgeons to minimize blood loss and risk of infection thanks to enhanced lighting and more accurate instrument tracking (see Scope Q1/2017). Smaller incisions with minimal scarring and consequently faster wound healing, lower complication rates and notably shorter hospital stays all contribute to reducing healthcare costs.

The third area specifically includes those areas in which efficiency can be enhanced through technological innovations. This applies for example to technologies that organize administrative and operative processes in hospitals more effectively and economically, to innovative health status monitoring devices (e.g. fitness trackers), and to healthcare-relevant big data analytics.

Digitalization notably facilitates more efficient and reliable implementation of the so-called care continuum, a system landscape in which all stakeholders of an examination procedure are embedded. Since the system makes all previously recorded information and data available to the parties involved, duplicative testing can be avoided. In current practice, patients are examined by various specialists, whereby routine patient tests are not infrequently duplicated, either because it is unclear whether they have already been performed or else because the results from

Opportunities and risks
The technological revolution in healthcare may be an interesting opportunity for investment. The following points are worth considering

First, we are only just in the early stages of a development that is expected to take a very long time. This means that investors stand to benefit from investment opportunities over a considerable period. However, pioneer investors probably need a longer investment horizon to really benefit from any added value.

Second, it is foreseeable that digitalization will lead to high cost savings if for no other reason than the currently huge amount of healthcare spending and the inefficiencies that still prevail to this day. The price/performance ratio of digitalization is expected to be very strong in most cases, providing a solid foundation for attractive long-term returns.

At the same time, the general public stands to benefit from lower healthcare costs as well as improved services and products.

Third, companies that operate in the area of healthcare technologies exhibit higher-than-average growth potential. They tend to be relatively small, very entrepreneurially managed firms that boast streamlined structures and short decision-making channels. This facilitates proximity to patients while reducing the development time for further innovations.

Risks
• In the case of equity investments, investors may lose all or part of their invested capital.
• Political developments may have significant unforeseen effects on the Digital Health sector.
• As this sector is focused on highly innovative and fast growing firms, greater volatility must also be expected.
Demographic Tailwind European Healthcare Properties

In Europe the number of people age 65+ is projected to grow by 40 million by 2030, a trend that will also impact the real estate sector. Demand for healthcare properties in particular is on the rise.

Zoltan Szelyes
Head Global Real Estate Research

“My name is Zora… …and I am here to accompany and assist you and also keep you entertained whenever your heart desires.” This clever little robot named Zora is the brainchild of Zora Robotics NV in Oostende, Belgium. And she lives up to her promises in the healthcare sector, for example, bringing comfort to the residents at a nursing home pictured here near Bordeaux – to the utmost satisfaction of the nursing staff as well. Pepper, Zora’s brother, functions and behaves as a humanoid buddy, not only providing people with individual assistance but also – thanks to facial recognition – greeting customers and patients by name.
The European healthcare sector is a growth industry. Between 2011 and 2016, real revenue growth in the healthcare sector (adjusted for purchasing power) was 5.0% in the UK, 4.2% in Switzerland, 2.2% in Germany and 1.2% in France (source: OECD). The ratio of healthcare spending to total gross domestic product currently exceeds 10% in all of these countries. These ratios are expected to increase even further in the decades ahead. The trend is mainly driven by medical advances and the accelerating aging process. According to UN forecasts, in Europe the number of people age 65 or older will increase from currently 130 million to 170 million by 2030 (see chart “Aging process in Europe”) – a 30% increase – with this age group’s share of the total population rising from 17.6% to 23.1%.

This trend is driving demand for healthcare properties. Although the impact of technological trends such as robotization and online diagnostics will also play a role in shaping the healthcare sector, a substantial portion of healthcare services will in the future also be provided in specialist properties, e.g. medical practices, outpatient centers, hospitals, and retirement and nursing homes. These must be optimally designed to facilitate physical interaction between patient and medical staff. Healthcare offerings are also expected to be more tightly integrated into daily living environments. Felix von Braun, Engineer (Dipl.-Ing.) and Chairman of the Board of Management at DPF AG, Berlin, which specializes in senior living: “In 2035, Germany will have the world’s oldest population, yet only very few suitable residential areas are available to date. Today’s generation of retirees already remains healthy and active for longer. Future-proof sustainable housing concepts for the elderly will need to address this trend and at the same time cater to specific individual requirements – be it in the form of support services or medical care.”

The special nature of healthcare real estate
Healthcare real estate differs in many respects from conventional residential, office and commercial properties.

First, healthcare real estate consists of operator properties. As a rule, the real estate investor signs a lease with a specialist provider of medical services in the respective building. From an investor’s point of view, the long-term nature of these leases is important for amortizing the investments over as long a time period as possible. Consequently, the real estate investor’s income will also depend to a significant extent on the operator’s medium- to long-term business growth as lease servicing will materially contribute to his overall return. So investors in healthcare real estate must be in a position not only to perform an analysis of the real estate asset, its location, costs and market prospects but also to evaluate the operator’s business model’s chances of success. This calls for specialized professional skills and expertise.

Second, healthcare properties may substantially differ among themselves and fall roughly into two groups: hospitals and nursing/retirement homes. A more detailed breakdown of properties by degree of operational complexity is shown in the “Healthcare real estate categories” chart.

Examples of properties with a low degree of medical complexity include office buildings that house a medical practice, as well as apartment complexes that offer...
Netherlands and notably Germany have gained significant traction. The nursing care facilities market in Germany saw a record year in 2016, with transaction volumes of around EUR 3 billion compared to a historical annual transaction volume of EUR 650 million since 2005. In the United Kingdom, the healthcare property transaction volume suffered a steep decline in 2016, the year of the Brexit vote. Nevertheless, healthcare was still the strongest real estate segment with a total return of 7.9%, significantly outperforming the overall market, which returned 3.9% (source: MSCI IPD).

This trend has relied both on investor interest and on demand trends in the healthcare sector. Investors are increasingly tapping new sources of returns as a result of the longstanding investment plight (negative interest rates). As shown in the chart on page 29, top-quality German nursing care properties with long-term fixed leases boast net income yields of just under 5.5%. This corresponds to a yield spread of around 200 basis points over core real estate investments. The spread over 10-year German government bonds is 500 basis points, even though absolute yield levels have fallen sharply in recent years.

The healthcare real estate sector in Europe has to date been more or less overlooked due to its operational complexity. However, recent years have witnessed a renewed upsurge of interest in this sector. The European transaction volume for healthcare properties totalled EUR 6.7 billion in 2016. Investment markets in France, the

Healthcare real estate categories
Healthcare properties are broken down into different categories depending on their operational complexity. Commercial buildings with lesable medical office space are not very complex. Public hospitals and specialist nursing homes are particularly complex.

Source: Credit Suisse
Structural transformation in Germany and Switzerland

The healthcare sector in Switzerland and Germany is undergoing a structural transformation. Cost pressure in the public sector coupled with rising healthcare costs has forced hospitals and nursing homes to strengthen their financial autonomy and sustainability. At the same time, postponed investments have resulted in high investment needs, which are now being assessed more on the basis of financial criteria. For Switzerland, Credit Suisse Research has projected an investment volume of CHF 16 billion in hospitals and CHF 13 billion in nursing care facilities by 2040. The RWI – Leibniz Institute for Economic Research has estimated that demand for care places in Germany will grow one-third by 2030, which roughly corresponds to an investment need of EUR 80 billion.

Owing to high investment and capital acquisition needs, real estate outsourcing to investors may make sense from a healthcare provider’s point of view.

- Sale and rent-back transactions have thus grown in popularity. For transactions of this type, a hospital company may sell its property to an investor and then rent it back for the long term.

- In the event that new properties are to be constructed, a construct and rent-back transaction represents an additional option.

Intact potential in Europe

There are many reasons for investing in European healthcare properties. There is a high investment need in Switzerland and Germany for specialist nursing care facilities or hospitals that are equally suitable for public-private partnerships. Given the need for consolidation among hospitals as well as the varying financial sustainability of business models, however, it is important to be selective regarding assets and medical operators. It is imperative that investors have specialist expertise and an up-to-date market network.

Credit Suisse Asset Management has been operating in this segment for a number of years and offers investors a wide range of vehicles for investing in hospitals and nursing and retirement homes in Switzerland. In portfolios of internationally focussed real estate investment vehicles, too, healthcare properties are expected to play a more prominent role in the future.

Above-average yields for German healthcare properties

Net initial real estate yields in Germany and government bond yields (in percent)

- Prime nursing homes
- Prime office real estate (top 7 cities)
- Prime retail properties, A1 locations (top 4 cities)
- 10-year German government bonds

Source: CBRE, PMA, Credit Suisse
Meeting Your Objectives by Planning Well
Individual Retirement Savings in Switzerland
Swiss citizens of working age can expect the retirement age to be raised. At the same time, the pension promises from the first and second pillars of social welfare insurance will likely fall. Those affected should view these foreseeable developments as an opportunity to take a detailed look at their retirement goals and suitable investment strategies as soon as possible.

Christoph Christen
Balanced Solutions
Asking a young adult how they imagine their retirement is a bit like asking a child what they would like to be when they grow up. There will be no shortage of creative responses. But when it comes to retirement provision, there is a lot of truth in that old maxim: “Life is a journey, not a destination.” And this journey can be a very long one full of opportunities, while the destination changes in line with individual wishes.

Since October 1, 2017, pension schemes have been able to offer the supplementary element of occupational pension provision as part of a 1e retirement plan.

Equilibrium in the AHV under threat
The 2020 reform of Swiss retirement provision was rejected by the Swiss people in a referendum on September 24, 2017. Once again, the Swiss Federal Council and parliament failed to reach a consensus on reforming state and occupational pension provision that was acceptable to a majority. But solutions have to be found. The clock is ticking. The balance between income and expenditure in the Swiss statutory occupational retirement and survivors’ pension system (AHV) is at risk because age cohorts with high birth rates will be switching from active contributors to pension recipients over the next few years. In addition, the current low interest rate environment is creating a major challenge for pension funds. This is because investment income makes an important contribution to the performance of retirement assets. For all those of working age, this situation gives rise to various scenarios that need to be taken into account in personal retirement planning. Not only can the retirement age be expected to increase sooner or later, the pension promises under the first and second pillars of social welfare insurance will likely prove to be overly optimistic.

Saving capital to combat falling pensions
For those wishing to maintain their usual standard of living in retirement, it makes sense to build up tax-deductible capital savings under the second and third pillars in addition to personal assets. Depending on their financial situation, Swiss employees and the self-employed can make a tax-exempt annual contribution to their retirement savings under pillar 3a (ring-fenced retirement provision) in order to meet their personal savings goals. At present, the maximum annual contribution for employees is capped at CHF 6,768. The self-employed can pay in a maximum of CHF 33,840 per year.

Employees who have other liquid assets at their disposal can close any gaps in their retirement provision by making additional tax-exempt payments into the second pillar.

Investment strategies available in the second pillar
New and detailed regulations on implementing what are known as 1e plans in the second pillar have been in place since October 1, 2017. These plans give employees a choice of various investment strategies within the supplementary element of occupational pension provision. This relates to insurance above and beyond the maximum insured salary under the BVG (Swiss federal law on occupational retirement, survivors’ and disability pension plans). The relevant ordinance allows pension schemes to offer their policyholders up to ten investment strategies covering a wide range of risk/return profiles. The options available range from so-called low-risk strategies through to mixed-asset investments with an equity ratio of 75%. Policyholders can then select the option from within the range specified by the pension fund’s foundation board that is suited to their requirements, enabling them to benefit directly from the investment opportunities. However, they are also exposed to the attendant investment risks.

It’s important for clients to choose an investment strategy that is aligned with their individual retirement planning. They then need to make regular payments into a broadly diversified mixed-asset scheme.

Diversified mixed assets instead of account solutions
KGAST is the umbrella organization of Swiss investment foundations. In this capacity it produces performance comparisons at regular intervals. According to the KGAST comparison, diversified mixed-asset funds outperformed account solutions in the long term.

“Clients often wait too long before switching from a bank account to a securities solution. Effectively, this means they are underinvested for extended periods,” comments René Küffer, Head Balanced Solutions at Credit Suisse Asset Management (Switzerland) Ltd.
“It’s important for clients to choose an investment strategy that is aligned with their individual retirement planning. They then need to make regular payments into a broadly diversified mixed-asset scheme.”

**So which investment strategy is right for me?**

The Credit Suisse Investment Foundation (CSA) launched its first actively managed mixed-asset investment group way back in 1974. It has featured an average equity allocation of 35%. Since then the CS Investment Foundations have launched various mixed-asset investment groups for the second and third pillars. One active and one passively managed mixed-asset investment group with an average equity allocation of 75% will soon be added to the range. Of course, an investment strategy with such a high risk tolerance must be aligned with an investor’s personal retirement planning, which requires an in-depth analysis of his or her personal objectives. But these products have great potential for investors with a long investment horizon.

Nevertheless, most investors will probably continue to favor mixed-asset investment groups with equity allocations of 25% to 50%. This is because a globally invested portfolio encompassing bonds, equities and real estate investments has proved to be relatively resistant to crises in the past, while generating attractive returns over the long term. As the need to invest does not come to an end when people reach pensionable age, similar mixed-asset investment groups for retirement provision are also offered as fund solutions. This enables investors to stick with their investment strategy even after they retire. However, the tax benefits reserved for retirement savers no longer apply in this case.

To sum up, it is well worth setting your goals for retirement provision as early as you can. This makes it far more likely that you will reach your destination in good time and on target.

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*For illustrative purposes only. Only pension funds domiciled in Switzerland that are not subject to tax are permitted as direct investors.*
Underlying demographic conditions have undergone a sweeping change, a trend that is set to continue – also on an international scale. Estimates put the ratio of wage earners to pensioners in Europe, the US and China at a mere 2.1 by the year 2050 (current ratio: 7.7 in China, 3.8 in Europe). This will create huge financial challenges. The bulk of public spending in OECD countries will soon be earmarked for pensions – a development that will give rise to politically polarizing positions and result in backlashes.

In industrialized countries, 60% of all income earners that are pulling in more than USD 200,000 a year are in the 50+ age group. Their savings too are three times higher than those of people in the 25–50 age group. We will see a shift in these percentages in that the average life expectancy of most today’s millennials is projected to exceed 80 years while their wealth accumulation is hampered by the financial repression occurring at present.

High time for corrections
Given that we are now living longer and having fewer children than actuaries once projected based on their linear thinking, our pension funds are in a tough predicament. They often have to pay higher pensions to more pensioners for longer than originally planned. Actuarial models dating from the 1980s put the investment behavior of pension funds on the wrong track. Now a reality check is calling for corrections.

Whatever the challenges demographics present us with, they never fail to produce winners and losers. Which group we fall into will depend on a multitude of factors. If we look at pensions in Switzerland, for example, the elderly stand to benefit from a system that disadvantages younger generations. Never before has it been so evident that we are heading for an intergenerational conflict, one that will be waged against a backdrop vulnerable to a broad range of macroeconomic and social changes. Fortunately, these transformations also promote new technologies and related investment opportunities.

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Burkhard Varnholt
Chief Investment Officer (CIO) Switzerland of Credit Suisse, Deputy Global CIO and Vice-Chairman of the Investment Committee of Credit Suisse
The biggest demographic upheaval is still to come
Ratio of population by age (number of people age 65+ / 20–64 age group)

Source: Avenir Suisse
Lower for longer
What does this new demographic backdrop mean for investors? A general principle accepted across all countries is that investments and liabilities must more or less balance out in terms of both duration and risk profile. As life expectancy rises, the duration of pension fund liabilities increases. Consequently, investments likewise must become longer term. This explains why since the early 1980s, when the demographic wave of baby boomers started to turn, demand for long-dated government bonds consistently outstripped supply. Primarily responsible for this excess demand was structural ancillary demand on the part of Western pension schemes.

That might sound surprising given that many investors hold the view that governments issued a far greater volume of bonds in the last 10 years. True enough. It’s just that life expectancy – when multiplied by an increased population size – lengthened even more rapidly, so pension funds were demographically forced to purchase more long-dated government bonds. The longer our lifespan, the greater the institutional demand for long-term bonds. I’ve been calling for lower-for-longer interest rates for a good 10 years now. Longer may even mean 100 years, as evidenced by bonds recently issued by Austria, Belgium, Japan and Argentina.

Alongside extending the duration of their government bonds, pension funds have to assume more risk. This is because if government bonds are held to maturity, the redemption rate will at most be 100% – too low. Pension funds not only must be able to achieve higher returns but to this end must also increase their risk appetite. In fact, the average equity allocation of Swiss, European and US pension funds is currently around 30%, well below the long-term average of 41% between 1960 and the financial crisis of 2008.

Chronic profits
Conversely, just as the global population of people age 60 and over will more than double from 900 million at present to more than 2.1 billion by 2050, so too will their political weight. Conceivably 80% of the elderly population, which accounts for 75% of total health expenditure, will experience at least one chronic illness. So it is also no coincidence that, barring a few restrictions, the pharmaceutical industry pipeline represents a mirror image of the leading diseases and causes of death.

The fact is that China has more world-class universities offering science degrees than any other country today.

Statistically viable morbidity rates among the elderly are a sure-bet business for the pharmaceutical industry, for biotechnology and for medical technology. The leading causes of death such as cancer and cardiovascular disease constitute the biggest cost sinks. The Novartis cancer drug, with a CHF 470,000-per-therapy sticker price, sets a whole new benchmark in this sector. The risks are high but so are the returns because the law of large numbers always wins out in the end. And when a pharmaceutical company manages to gain a foothold, the prospects of long-term stable returns are good.

Providers of vacation travel, leisure activities, anti-aging packages, fitness, wellness, beauty cosmetics, vitamin preparations, dietary supplements, body care products and affordable retirement housing also stand to benefit from the growing demand among senior citizens. Getting old is expensive – and wanting to stay young equally so.

Technological turbulence
Demographic trends are providing fresh tailwind and stirring up local turbulence also in the areas of science, research and development. Here are just a few examples:

1. The work being done in mapping out the human genome gives us an early idea of a development that is only just in the making. Considering the long road in the medical industry from research to regulatory approval and ultimately market launch of a drug, it is clear that an exponential takeoff of genetically based biotechnology will have to remain no more than a pipedream for now.

2. The era of biotechnological achievements will also usher in the end of US domination in this sector. The US typically ranks at the absolute forefront of research yet does not have the clout to cut a broad swath with its advances. China, on the other hand, is making tremendous headway. China is the world champion in patents, including in the fields of biotechnology and genetics. It is still too early to gauge the impact of this trend. The fact is, though, that China has more world-class universities offering science degrees than any other country today.

3. Process automation, which is spreading across all economic sectors and spheres of life, will make inroads into the medical sector as well. Although it will be only cautiously welcomed by the medical industry as most physicians are not keen on getting bogged down in technology and administration, there is no getting around the fact that hospitals must professionalize their workflows and optimize their costs. This becomes all too apparent
when considering the fact that additional new jobs created in the Swiss healthcare sector are mainly confined to hospital and health insurance administration. We have seen little if any increase in the number of physicians and caregivers.

4. In Singapore, no less than 90% of all surgical interventions are completed with the assistance of da Vinci robots (see Scope Q1/2017). This contrasts with only around 10% in Switzerland, but the direction the trend is taking is clear. So our aging is both a blessing and a curse. It accelerates new technology development while creating new sales markets and investment opportunities. At the same time, risks are on the rise – risks that should be framed in relative terms, however: "Those who never take the smallest risk run the greatest risk in life," said Bertrand Russell, British philosopher, mathematician and Literature Nobel Prize recipient (1950).

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**Boom for 60+**

In 2017, there are an estimated 962 million people age 60 or over in the world, comprising 13% of the global population. The population age 60+ is growing at a rate of about 3% per year. Currently, Europe has the highest percentage of population age 60+ (25%). Rapid aging will occur in other parts of the world as well, so that by 2050 all regions of the world except Africa will have nearly a quarter or more of their populations at ages 60 and above.

The number of older persons in the world is projected to be 1.4 billion in 2030 and 2.1 billion in 2050, and could rise to 3.1 billion in 2100. Over the next few decades, a further increase in the population of older persons is almost inevitable given the size of the cohorts born in recent decades.

A potential support ratio can be defined as the number of persons age 20 to 64 divided by the number age 65 or over. In 2017, Africa has 12.9 persons age 20 to 64 for each person age 65 or above. This ratio is 7.4 for Asia, 7.3 for Latin America and the Caribbean, 4.6 for Oceania, 3.8 for Northern America, and 3.3 for Europe. At 2.1, Japan in 2017 has the lowest potential support ratio in the world, while those of nine European countries are also below 3.

By 2050, seven countries in Asia, 24 in Europe, and five in Latin America and the Caribbean are expected to have potential support ratios below 2.

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**Age ratios by region**

- **12.9** Africa
- **7.4** Asia
- **7.3** Latin America and Caribbean
- **4.6** Oceania
- **3.8** North America
- **3.3** Europe

Efficient Currency Management
More Important Than Ever

Markus Kramer
Director, Currency Specialist

Henrik Pedersen
Director, Currency Specialist

**: Levelling the wobbles out**
When currencies are pressed, they start to wobble. Such movements can be largely neutralized with the help of professional currency hedging such as offered by Credit Suisse Asset Management.
Currency management solutions

Currency trading and the requirements in terms of currency hedging have been undergoing structural changes for a number of years now. Efficient, reliable and regulatory-compliant solutions are needed.

Demand for currency hedging is rising constantly, driven by the increasing globalization of investment portfolios and by exchange rate shifts resulting from central banks’ uneven monetary policies. At the same time, the number of banks active in currency trading has diminished, a development that has been accelerated by tighter regulatory standards – in Europe notably MiFID II – coupled with the associated requirements and risks, among others things.

In such an environment, it is particularly important for investors to be able to rely on experienced currency specialists at a globally active financial services provider like Credit Suisse Asset Management.

Analysis of client needs

Designing and building an effective currency management solution begins with a diligent analysis of the client’s needs. Questions like the following need to be considered:

• Which portfolios and positions should the mandate cover?
• What are the positions’ characteristics (valuations, currency allocation, liquidity)?
• Which currency positions should be directly or indirectly hedged?
• What are the client’s risk profile and hedging needs?
• Which hedging strategy is best suited to meet the client’s needs?

The responses to the above questions form the basis for deciding on a passive or active currency hedging approach. The passive variant involves hedging the currencies in keeping with the clients’ specifications and the currency exposure of the underlying assets. MiFID II-compliant trading and reporting criteria should ensure competitive execution tailored to clients’ needs.

Active currency hedging that minimizes risks or generates returns can be linked to various parameters. In rules-based hedging, exchange rates were affected by factors such as valuation and hedging cost in the past. Since 2000, Credit Suisse Asset Management has been managing active currency mandates on the basis of a discretionary strategy that incorporates four scores: the fair value of all major currencies (as an anchor), the behavior of exchange rates throughout the economic cycle, flow and sentiment models, as well as chart analyses.

MiFID II creates new framework conditions

The introduction of the EU Markets in Financial Instruments Directive (MiFID II) from January 2018 onward will have repercussions for currency management. For example, the fulfillment of best execution obligations will have to be verified through pre- and post-trade transaction cost analyses.

The tighter transparency and documentation requirements are expected to be a boon for electronic trading systems. This could lead to lower bid/ask spreads amid stable market conditions, or to reduced risk absorption capacity during down markets.

Traditional mechanisms and customs in the currency market could soon prove to be obsolete. The foreseeable consequence of this change is that the ability to track a currency market with a daily turnover of more than USD 5 trillion and the efficient access to this market will become of even greater importance.

Asset Management’s Currency Management Solutions team is ideally situated to respond to the changes looming ahead while offering its clients top-quality advisory and implementation services.
Currency Management Solutions by Credit Suisse Asset Management

**Systematic client focus**
- Designing and building solutions and implementation models tailored to clients’ individual needs
- Fine-tuned, highly automated currency risk and transaction management with minimal execution risk
- Attractive fee structure and low minimum investment
- Client proximity thanks to international presence

**Professional execution**
- Execution in keeping with the client’s individual specifications (including choice of broker)
- Documentation fully compliant with the client’s specifications
- Independent transaction cost analysis to ensure continuous improvements
- Cost savings from decoupling currency hedging from underlying mandates
- Cost reduction thanks to specialist skills for rebalancing strategies, tenor and cash flow management

**Integrated services**
- Package solutions combining currency management with other asset management services such as custody or mandate and fund solutions
- Manageable and continuously updated overview of all positions to which the hedging mandate relates

Source: Currency Management Solutions, Credit Suisse Asset Management (Switzerland) Ltd., 2017

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**Currency Management Solutions in Figures**

- **2002**
  - The year of our first external overlay mandate

- **USD 27 bn**
  - In currency exposures under management

- **17**
  - Average amount of experience (in years) in our dedicated Currency Management team

- **7**
  - Total number of currency specialists

Source: Credit Suisse, data as at 30.06.2017
Volatility of currency market since 1971
annualized volatility (in percent)

Growth in currency market trading volume by instrument
Daily FX volume (in USD bn)

Growth in currency market trading volume by market participant

Source: Currency Management Solutions, Overlay White Paper, Credit Suisse Asset Management (Switzerland) Ltd., 2017
Attentive and diligent

Smartphones have a multitude of sensors to adapt to user behavior. The device can also capture and evaluate user health data.

- Proximity sensor
- Fingerprint
- Near field communication (NFC)
- Bluetooth
- Front camera
- Barometer
- Touchscreen
- Gyroscope
- Mobile phone antennas
- WiFi
- Acceleration sensor
- Heart rate monitor
- Magnetometer
- Light sensor
- Rear camera
- Microphone
- GPS

Guest View
Hotspots within the Health Megatrend

Digital Health

While sociodemographic change and an aging population raise the specter of cost avalanches hitting the healthcare sector, futurologists are talking about the healthcare megatrend. They predict that this will give rise to a diverse, buoyant economy encompassing numerous services and consumer environments. Digitalization has a significant part to play in this.

Karen Heidl
Prime Public Media AG, Zurich

The healthcare megatrend is emerging against the backdrop of changing demographics, a shift in societal values and technological progress. German trend researcher Matthias Horx captured this phenomenon in a nutshell: “Changes always take place in contexts.” A defining feature of a megatrend is that it affects all aspects of life. While in the past health was seen as the absence of illness, today it refers to lifestyle, self-realization, and status. This new idea of health creates fertile ground for countless products – from mindfulness seminars to supplementary health insurance.

Now that the internet offers easy access to research and health information, patients are making fresh demands on participation, advice, care, and healthcare provision. Digital developments are creating a new framework to meet these emerging patient requirements. At the same time, increasingly rapid technological advances are enabling revolutionary progress in research. The healthcare megatrend also entails the race for global technological leadership.

Digital pills and chatbots
Behavioral digital health interventions are one of the digital healthcare management hotspots. At the interface between IT and psychology, interdisciplinary researchers and insurance companies are examining how apps, mobile coaches and sensors integrated into hardware that we use every day can measure vital signs and feed them back to users as a form of intervention.

Psychotherapeutic internet interventions in cases of depression, anxiety, burnout or addiction have already been tested.

successfully over many years in some countries. Chatbots (digital artificial intelligence with which users can exchange messages in natural language) are deployed in areas such as post-operative care, asking patients how they feel, transmitting measurements of vital signs or reminding patients to take their medication. An approval granted by the US Food and Drug Administration (FDA) in November 2017 is being viewed as a milestone for intelligent pills. Once they have been taken and made initial contact with stomach acid, the smart pills use a chip the size of a grain of sand to transmit this information to a receiver worn as a plaster on the patient’s body. The signal is then forwarded to a smartphone. This technology enables practitioners to check that patients are taking their medication at regular intervals, which can be especially useful for certain diagnoses such as mental or cognitive illnesses. The ingestible sensor itself was actually approved back in 2012, when it met with some critical reactions from physicians. These “digital pills” are no substitute for a physician, but studies show that they do improve therapies’ effectiveness.

**Hotspot of research**
The mobile apps on what will be more than five billion smartphones by 2020 will provide a vast quantity of data for predictive modeling and artificial intelligence-supported diagnosis in self-learning systems. This will require technical infrastructure able to process huge volumes of data. Healthbank is one such example. Healthbank is a cooperative project in which volunteers use a smartphone app to transmit their health data to the project from various sources such as electronic medical records or wearables like a fitness tracker or Apple Watch. The anonymized data are then used for research purposes.

**Hotspot of diagnostics**
IBM’s Watson artificial intelligence software is a well-known example of big data applications. Watson collects thousands of radiological images as well as related diagnoses and data. Watson uses this store of knowledge to generate its own diagnoses and analyses, which are then presented to clinicians. The automation of diagnostics is one of the visionary aims for the deployment of big data.

Watson also operates in the field of personalized medicine. Its services are offered for evaluations of genetic data, which can draw conclusions about the effectiveness of, and a patient’s receptiveness to, pharmacological treatments. So artificial intelligence and big data are triggering revolutionary developments in areas such as research into cancer or mental illness.

As part of the Human Brain Project, medics, neuroscientists, and information technologists are investigating the complexity of the brain and its diseases. The human brain contains more than one million neurons with trillions of neuronal connections. The majority of mental illnesses cannot be traced back to singular causes. Research into causes creates challenges in terms of the combinations involved. The Human Brain Project blends two approaches in its research: First, a realistic model of the brain is constructed based on in-depth neuroscientific and genetic data. Computer simulations are carried out with the aim of permitting detailed predictions of neurophysiological processes relating to genetic expression, molecular interactions, and neuronal activity. Second, huge datasets covering multiple aspects of a disease are captured in a standardized data format. This combined methodology links complex genetic and neurophysiological causes of mental illnesses with the related, complex manifestations in the brain, generating totally new explanatory approaches.

**Hotspot of data integrity**
The health megatrend may sound visionary, but it also brings with it some serious stumbling blocks. Data protection is one example. Of course, humanity can worry about data protection issues and store its data in silos. But one alternative is to make data available for research purposes or to optimize treatment programs. If the latter option is chosen, measures must be in place to ensure that the data is not misused.

Given the multitude of open and uncontrolled interfaces between data capture systems in the private and public spheres, who can truly guarantee the integrity of individuals’ data?

Information overload necessitates evaluation systems. These systems filter evidence, identify reliable sources and re-examine dogmas. Correlation and causality are frequently revealed to be an ill-matched pairing. Who determines what constitutes evidence, who re-examines dogmas and who identifies sources?

The fascination that big data exerts upon us, with the opportunities it offers in diagnostics, research, and therapy, should not blind scientists and practitioners to the need for checks on and reviews of received paradigms. This poses a challenge in an era in which technology is readily available and the arrival of new players is intensifying the race for technological leadership within the healthcare megatrend.

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**Sources:** https://www.healthbank.coop; https://www.ibm.com/watson/; https://www.humanbrainproject.eu

**Further information:** www.prime medic.ch
Agenda 2018

FONDS professionell KONGRESS
January 24 and 25, 2018
Mannheim, Germany

The conference features a trade fair with 222 exhibitors – fund management companies, insurance companies, brokers and other industry specialists – as well as more than 210 technical presentations, first-hand information, the opportunity to make new contacts, and a close exchange with international and national fund managers and experts on the latest trends in the industry. Keynote speakers will include Jean-Claude Trichet, former president of the European Central Bank, and leading economist Hans-Werner Sinn. The “Deutscher Fondspreis” will also be awarded.

Participating as an exhibitor, Credit Suisse Asset Management will be showcasing its thematic funds.

PLSA 2018
Investment Conference
March 7-9, 2018
Edinburgh, Scotland

The Pensions and Lifetime Savings Association (PLSA) is a British industry association for professionals in the areas of pension and occupational benefit plans. The 2018 Investment Conference will be attended by up to 1,000 participants and will focus primarily on pension funds. The conference is geared to fiduciaries, investment officers, pension asset managers, asset managers and investment specialists. It will feature presentations by leading authorities while also offering the opportunity to make contacts and keep up with the latest trends and solutions.

Credit Suisse Asset Management will be participating as an exhibitor at the conference.

Digital Real Estate Summit
March 6, 2018
Brugg-Windisch, Switzerland

Credit Suisse Asset Management will be participating as Premium Partner in the fourth Digital Real Estate Summit, a conference at the interface between real estate and digitalization. The aim of this event will be to highlight the latest findings in research and development relevant for daily business. An exhibit of digital products and systems will reveal how advanced the state of the art already is today in the real estate industry.

PropertyCom 2018
March 22, 2018
Rüschlikon/Zurich, Switzerland

The PropertyCom Management Conference is a major real estate trade event, at which Credit Suisse Asset Management will be participating as Premium Partner. The event is recognized as an expertise-networking platform for portfolio holders, investors and decision makers in the German-speaking real estate sector.

FONDS professionell KONGRESS
March 7 and 8, 2018
Vienna, Austria

More than 100 exhibitors – fund management companies, fund platforms, insurance companies, banks and brokers – and around 2,500 visitors a day are expected to attend the conference in Vienna. Over 100 technical presentations, as well as the most up-to-date information and the opportunity to engage in a close exchange with fund managers and experts, will bring new opportunities and identify current trends. The conference will feature interesting talks by Randi Zuckerberg, former head of marketing at Facebook, and Julia Shaw, forensic psychologist and researcher, among others. The “Österreichischer Fondspreis” award ceremony will also take place.

Credit Suisse Asset Management will be a key exhibitor, focusing on its Robotics, Security and Digital Health thematic funds.

Finanz & Wirtschaft Index Investing Conference
June 27, 2018
Zurich, Switzerland

The conference will take place as part of the Finanz und Wirtschaft Forum. It is designed to showcase the latest developments in indexed asset management to institutional investors and decision makers in private asset management. The conference will feature lectures, as well as workshops on various topics. Credit Suisse Asset Management will be represented by Stefan Fröhlich, Head of German-Speaking Client Portfolio Management, Index Solutions. He will discuss whether sustainability aspects can be made consistent with financial investment objectives in the composition of the index: Sustainable investment with index funds – hindrance or catalyst?

Salone del Risparmio
April 10–12, 2018
Rome, Italy

Il Salone del Risparmio is Italy’s largest financial event and has been organized every year since 2010 by Italian industry association Assogestioni. The conference offers 10,000 financial planners, consultants, asset managers, fund managers and other professionals active in the financial market a platform to share ideas as well as the opportunity to forge contacts. New trends in strategies, markets and regulation will be presented at a broad array of events and exhibits on offer. As partner and exhibitor, Credit Suisse Asset Management will be showcasing its Robotics, Security and Digital Health thematic funds.
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Imprint

Publisher
Credit Suisse Asset Management (Switzerland) Ltd.
Kalandergasse 4, 8045 Zurich, Switzerland

Editor-in-chief
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Communication
Credit Suisse Asset Management (Switzerland) Ltd.

Design and realization
advertising, art & ideas ltd., adart.ch
Steiner Kommunikationsberatung, steinercom.ch

Printer
Multicolor Print AG, multicolorprint.ch

Translation/proofreading
CLS Communication AG, cls-communication.com

Publication frequency
Three times a year

Sources

Data sources
Unless otherwise noted, the statements and
information used in this publication are based on sources
from Credit Suisse AG.

Picture sources
Cover: Getty Images International;
pages 3: Credit Suisse AG;
pages 7, 13, 15, 17, 23, 30, 33, 35, 38, 42: iStockphoto LP;
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Commodity investments and derivatives or indices thereof are subject to particular risks and high volatility. The performance of such investments depends on unpredictable factors such as natural catastrophes, climate influences, hauling capacities, political unrest, seasonal fluctuations and strong influences of rolling-forward, particularly in futures and indices.

Emerging market investments usually result in higher risks such as political, economic, credit, exchange rate, market liquidity, legal, settlement, market, shareholder and creditor risks. Emerging markets are located in countries that possess one or more of the following characteristics: a certain degree of political instability, relatively unpredictable financial markets and economic growth patterns, a financial market that is still at the development stage or a weak economy.

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