

Security

Why we need it and
how not to lose it.

What makes us secure?

2 | There are many situations in which the possible outcomes are unclear and unquantifiable. Uncertainty and the resultant insecurity can be addressed by not letting emotions rule our decision making. This also applies to decisions in the financial markets.

The hacker threat

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"Regional extreme weather events can disrupt food imports."

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Uncertain expectations

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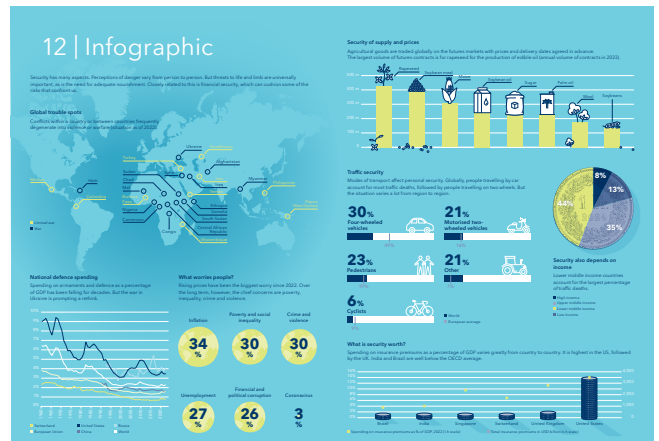
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The object

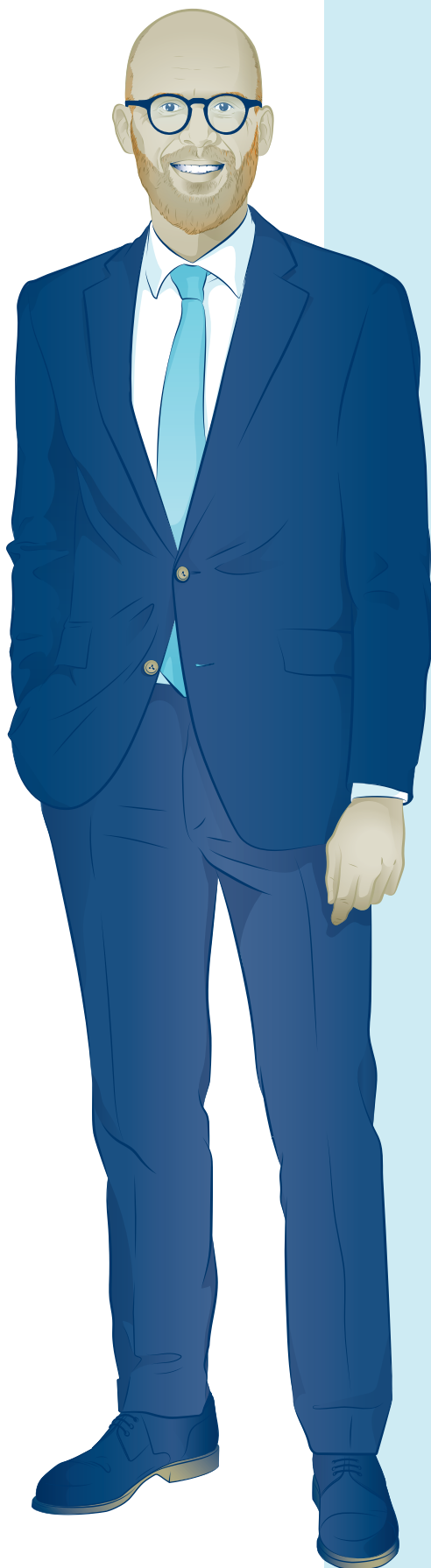
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Security is fundamental



Dear Reader

Security has many aspects. On a basic level, we all want to have enough to eat and drink, be adequately housed and feel safe at home and on the streets. But the need for security goes much farther than that.

Every day we are faced with uncertainties. Is it going to rain? Might I be struck by lightning? These are risks that we have to live with. But: Is this mountaineering route safe? Will my financial position be okay when I retire?

On questions like these, juggling probabilities is not enough - careful precautions are vital.

The need for security is clear, but not everyone has the same security requirements. We asked a war photographer what security means for him (→ page 14), and we invited an expert to explain how import-dependent Switzerland protects its food supply (→ page 16). In today's digital world, of course, the safeguarding of personal and commercial data is also an increasingly important issue (→ page 8).

And what about security for investors? What precautions can be taken to protect an investment portfolio (→ page 3), and how can investors avoid common psychological pitfalls amid the uncertainties that beset them (→ page 20)? In a broader context, individuals' and companies' expectations for the future have a crucial impact on the economy and the financial markets (→ page 18).

I wish you an enjoyable and risk-free read.

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

Dr Felix Brill

Chief Investment Officer VP Bank



What makes us secure?

All sorts of decisions start with the question: what will the outcome be? The result is not always clear or quantifiable. But the greater the uncertainty, the bigger the opportunities.

Felix Brill

We live in uncertain times. Hardly a day passes without a reminder that this is so. Newspapers, television, the internet and personal conversation are awash with alarm about the wars in Ukraine and Gaza, attacks by Houthi rebels on shipping in the Red Sea, worries about energy supply, food safety scandals ... the list goes on and on.

We live in uncertain times. That is not just a statement of objective fact but also an expression of a general feeling of anxiety. Where is it all leading? What does it mean for me and my family? Anxiety implies a desire for greater security. There is no telling what a peace agreement between Ukraine and Russia might eventually look like, but human sympathy and fear of insecurity cry out for the war to end.

We live in uncertain times. Does the statement lose force by repetition? Is everything really so uncertain and insecure? The answer to the first question is yes. The more frequently we experience something, the less it seems to affect us. But that uneasy feeling never completely disappears. The uncertainty persists. Insecurity is often a matter of perception or emotion. It cannot be defined or pinned down. It is indeterminate, changeable and resistant to rational analysis.

Even so, attempts have been made to quantify insecurity. Geopolitical risks are an example. The Geopolitical Risk Index (→ chart on page 4) is based on a tally of newspaper articles on geopolitical tensions over the last 120 years. A look at the chart shows that it is simply not the case that we live in particularly uncertain or insecure times, at least as far as the geopolitical situation is concerned.

It is also not the case that we are ignorant about the ramifications of uncertainty. On the contrary, convincing theories have been developed to explain why people

are often bad at dealing with uncertain situations. And psychologists have devised practical approaches and tricks that help us feel more secure even though absolute security can never be achieved.

Uncertainty is not the same as risk

The US economist Frank H. Knight laid the scientific basis for an understanding of uncertainty in his book entitled "Risk, Uncertainty and Profit" published in 1921. Knight defined uncertain situations as those in which the necessary information for assigning probabilities is not fully available or in which the relevant probability models are unknown. He argued that uncertainty is therefore not the same as risk, which is quantifiable and can be measured in terms of probability distributions. A risk situation is one in which all the possible outcomes and their probability are known.

Take tossing a coin, for example. If you toss a coin often enough, the result should be half heads and half tails. The probability (or risk) of getting heads next time will be 50%. And it is possible to calculate the probability of getting heads five times in a row or tails thirty times in a hundred. Casinos live off this calculability.

Another type of business that works with probabilities is insurance. Whether life assurance or house contents insurance, the frequency of claim events within a large pool of people or houses is calculable to a degree of accuracy that makes it feasible for an insurance company to offer an insurance policy for a specific premium.

In other situations that sort of probabilistic calculation is not possible. At the start of 2022 it was impossible to say how likely it was that Russia would invade Ukraine. And it is equally impossible now to say how realistic it

is to expect a peace settlement any time soon. We can analyse the situation, make assumptions or conjectures and posit various scenarios, but none of that will produce an exact probability. The outcome of the war remains uncertain.

The problem of uncertainty

Uncertainty is unsatisfactory, especially when a decision has to be made, e.g. when a company has to decide whether to move into a particular market or buy up a competitor. Wouldn't it be nice to be sure that one is making the right call? Emotions and perceptions play a big part here. Not knowing how to deal with an uncertain situation can engender a feeling of powerlessness or loss of control. Anxiety, stress or even panic might then not be far off.

Such emotional reactions can make perceptions even foggier and lead to false conclusions. One response might be to try to avoid uncertain situations as far as possible or at least to minimise them. Here a psychological phenomenon comes into play: human beings react more sensitively to potential losses than to equivalent potential gains. As uncertain situations involve the possibility of negative outcomes, would it not be better to avoid them completely? But that would not be a very useful attitude for investors. Uncertainty, like risk, is an intrinsic part of the investment process.

Knight's theoretical distinction between uncertainty and risk is compelling. But in practice the two concepts are often confounded. Human beings tend to regard situations as more threatening if the outcome is unclear. Periods of stress on the financial markets provide a vivid illustration of this. Investors suddenly see only the worst outlook. Panic sets in and positions are liquidated.

Beware of cognitive bias

Uncertainty affects our powers of judgement. That happens unconsciously but not by chance. Well-known cognitive patterns exist that distort our thinking and often lead to bad decisions. Psychologists talk of "cognitive bias". One example is "overconfidence bias", which can intensify the effect of uncertainty. This happens when people think they understand a situation better than they actually do. They may then underestimate the potential risks or not pay enough attention to the unknowns. People often expose themselves to overconfidence bias indirectly, for example by placing too much trust in forecasts made by experts.

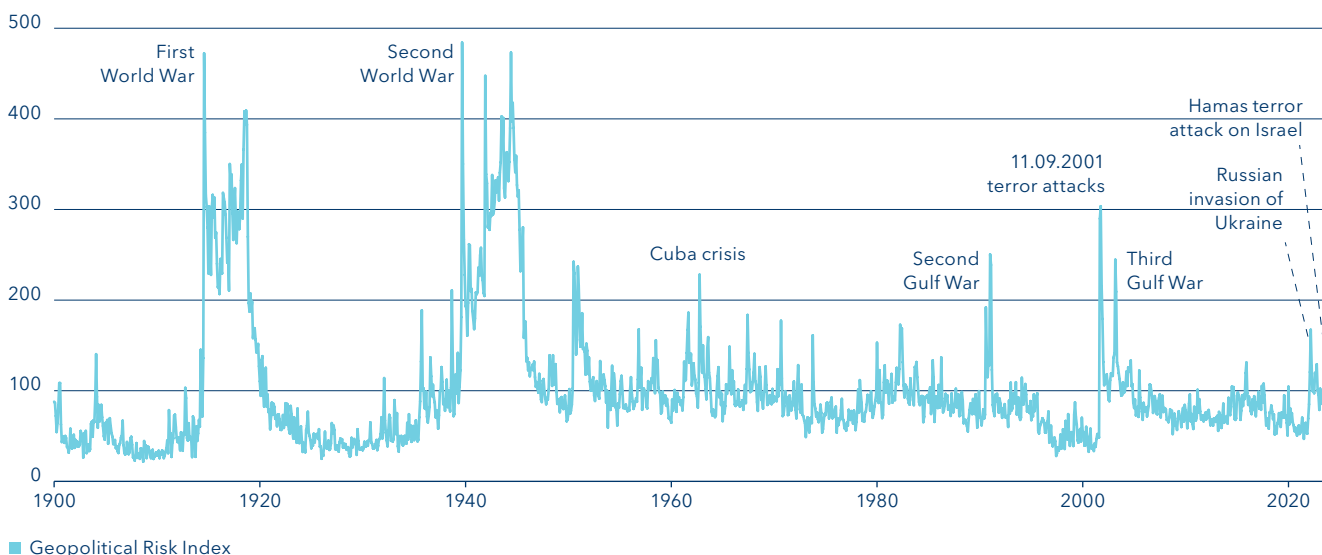
Just how good or bad the experts are at predicting trends in the economy and financial markets can be illustrated by the inflation forecasts of the Swiss National Bank (SNB) (→ chart on page 5). The grey lines on the chart show the SNB's quarterly forecasts of consumer prices over the following three years. Actual inflation is shown in light blue. So now the question is: will inflation over the coming three years be as predicted by the SNB in its March 2024 forecast (dark blue line)?

Quest for confirmation

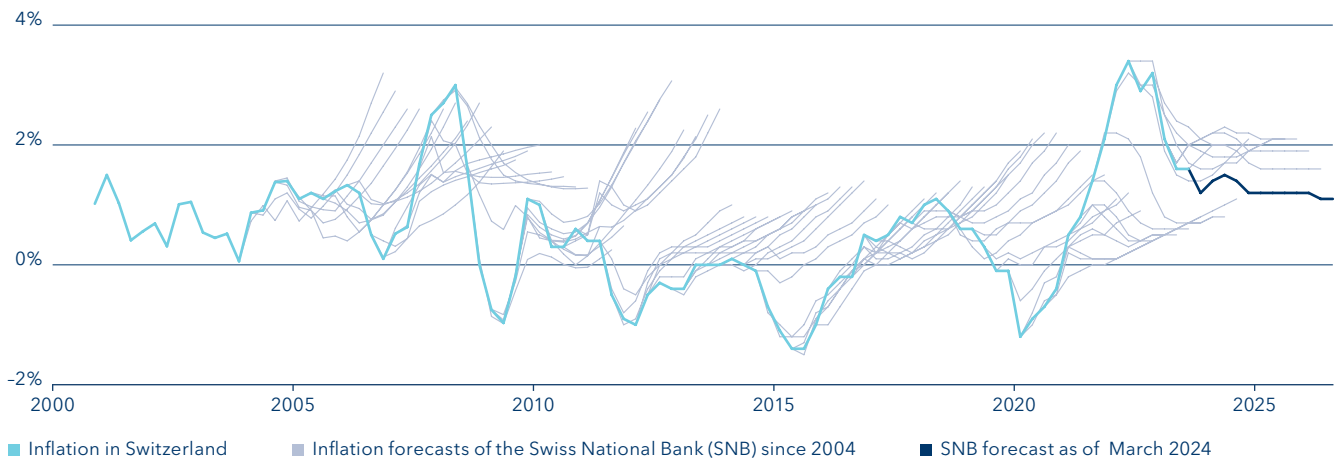
The difficulty of forecasting does not stop financial market analysts all over the world from persisting with their prophetic efforts. Inflation, economic growth, corporate profits, exchange rates, the gold price - forecasts for all of them abound. But in making their calculations forecasters often fall victim to another distortion: "confirmation bias".

Confirmation bias is the tendency to select and interpret news and analyses that shore up one's own point of view.

Compared with the long-term average (1900–2019 = 100), the current geopolitical risk level is only slightly elevated.



Inflation and inflation forecasts for Switzerland



As a human foible this is quite understandable. When analysts have to make an exact forecast about things that are not precisely knowable, they will consciously or unconsciously seek confirmation of the arguments that underpin their forecast. This sort of bias is not confined to predictions on the financial markets. It is liable to occur wherever expectations are involved that affect decision making (more on expectations → page 18).

Investment decisions are no exception. If a share in an investment portfolio fails to perform as expected, there is a temptation to look for news and analyses that seem to confirm that buying the share was nevertheless the right decision. The question that really needs to be asked is: "Would I buy this share today if I didn't already have it in my portfolio?" That would help the investor avoid another distortion, namely "anchoring bias". Anchoring bias is the tendency to rely too heavily on limited information, usually the first information acquired on the subject, or to focus excessively on a particular criterion, e.g. a specific time period for judging the share's performance. We can test this effect by juggling the measurement horizon. Should we look at performance over the last week, since the start of the year, over three years? It is fascinating to see what a difference that can make and how the anchoring of an investment decision can radically affect perceptions about the result (→ chart on page 6).

Deceptive hindsight

And then there is "hindsight bias", another cognitive distortion to which investors often fall victim. "I always knew it." But did you? With hindsight many things seem clearer than when the decision was made. Usually, however, it is an illusion, and things will not necessarily turn out the same in a comparable situation.

Hindsight can lead to an underestimation of risk. When a Bitcoin was worth USD 100, you decided not to buy. With hindsight, however, it now seems obvious that the

price was going to go through the roof. So how about correcting that no-buy mistake by buying now for USD 65,000? That might yield a profit in three years - or thirty. Or will it? Just because buying would have been a good decision ten years ago does not mean it is a good decision now.

Achieving more certainty

People have trouble dealing with uncertainty and often make avoidable errors by falling victim to cognitive biases. So what should we do? Bury our heads in the sand? Better not. There are sensible ways of addressing uncertainty and recognising or even completely avoiding the cognitive pitfalls.

More information, for instance, helps us to see more clearly. Investors need to get a comprehensive picture. That means not reading just one analyst's assessment but two or three. Or consulting other sources, like media reports, or looking for historical parallels. In this way you will be able to see the issue in a new light. That will not make the risks definable and precisely calculable, as in the coin tossing example. But it can contribute to

// Emotional reactions
can lead to
false conclusions. //

// Getting a grip on uncertainty opens up opportunities. //

Informed advice is always helpful, not only in extreme situations. It is always good to talk - whether with your spouse, friends, relatives or work colleagues. And when it comes to investment decisions, your investment adviser is a useful conversation partner. Talking the matter over helps you to address the cognitive distortions described above. You gain a new perspective and are not claiming to know everything better yourself. It is important, however, not to talk only to people who think exactly as you do. That would amount to confirmation bias (→ advice on avoiding typical psychological pitfalls, page 20).

a better understanding of the situation and thereby reduce the uncertainty.

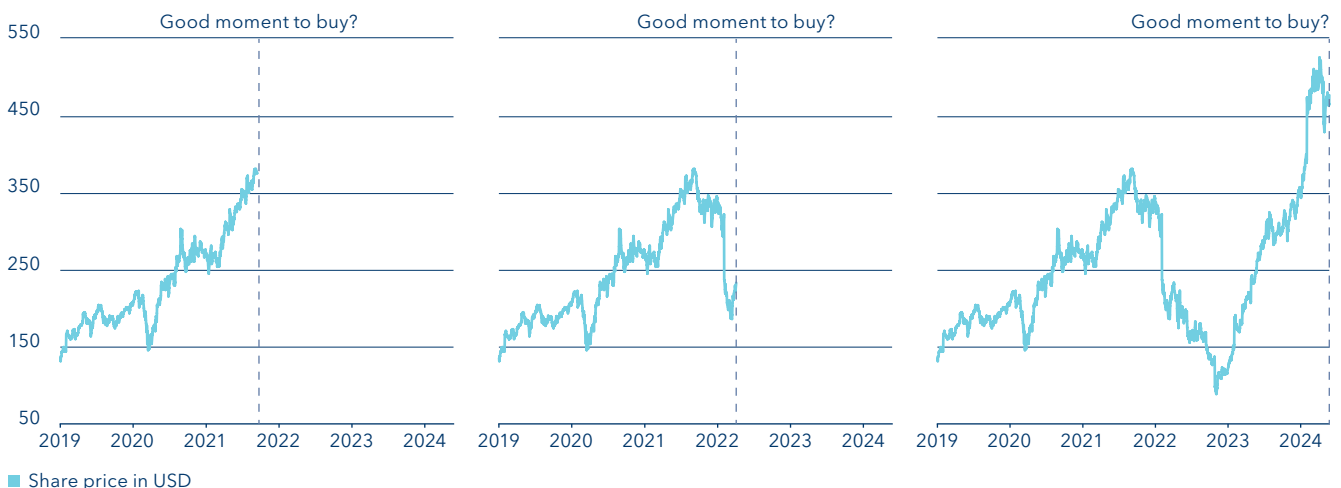
Having collected more data one can start developing scenarios. An example was the situation prior to the Russian invasion of Ukraine in February 2022. That was a classic case in which the outcome was unknown and there were no ascertainable probabilities. However, it was possible to imagine distinct scenarios. It could have ended with mere sabre-rattling, but there was also the possibility that Russia would start a war.

In the VP Bank research department we drew up three different scenarios and looked at their implications for the financial markets. When the "Russia attacks" scenario materialised, things did not turn out exactly as we expected, but we were prepared. If we had waited till the outbreak of war before gathering and analysing information, we might well have found ourselves in a stress situation that would have made it difficult to keep a cool head. In the event, on the day when war erupted we were able to help our clients deal with the resultant uncertainty. We gave our initial assessment and provided advice.

Daring to be uncertain

We live in uncertain times. Sometimes the uncertainties seem greater and more threatening, sometimes less so. But we will never be in a position to calculate precisely what is going to happen. The important thing is not to crawl into a hole and avoid everything that has a whiff of unpredictability about it. We need to get a grip on uncertainties and reduce them. Then we can outsmart our cognitive biases and seize the opportunities that the financial markets offer. With the passage of time we become more confident and learn how best to deal with uneasy situations. Indeed, the most exciting moments for investors are those that involve most uncertainty.

Share price of Meta (previously Facebook) from three perspectives



Improbable doesn't mean never

Felix Brill

The first quarter of 2020 will go down in history as the curtain-raiser of the coronavirus shock - first as a health disaster, then as a trauma on the financial markets.

March of that year saw extreme market movements. On Thursday, March 16, 2020, the S&P 500 index of US equities suffered its biggest one-day loss since Black Monday in 1987. Uncertainty about the new virus had already pushed the index down in the preceding days. In the space of a month many of the world's stock market indices crumbled by more than 30%. The Euro Stoxx 50 lost 34%.

Within only four weeks the drop equalled the average decline recorded in all previous bear markets. A bear market is defined as one in which share prices fall by more than 20% from their last high. This time, moreover, the crash happened with a speed that was unprecedented in figures going back almost a century.

Neither the Great Depression that started in 1929 nor the financial crisis of 2008/09 saw the US equity market fall so dramatically in such a short time. But in those two cases the 30% drop was not the end of the story. Losses eventually exceeded 50%, with the nadirs being reached after about ten and 28 weeks respectively.

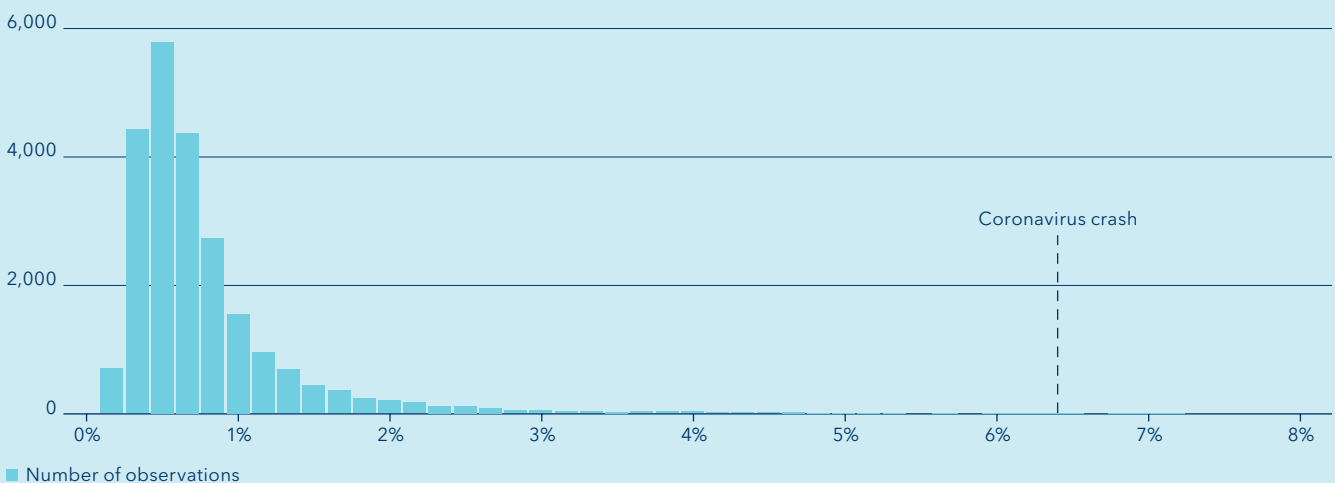
The first two weeks of March 2020 were also an extreme event in terms of market volatility. This can be seen in the figures for average daily movements over ten trading days on the US stock market since 1928 (→ chart).

Over this 92-year period, fluctuations were most typically of the order of 0.8% (overall average). A 2% figure was observed in only 4% of cases, and one-day fluctuations of over 3% were seen in only about 1% of cases. But the ten trading days around March 16, 2020 saw average fluctuations of 6.4% per day. The biggest movement that has ever been registered was 7.2% in November 1929

at the peak of the global economic crisis. In other words, only the Great Depression was more extreme in this respect than the coronavirus crash of March 2020. Between 1928 and 2020 there were only six cases in which ten-day volatility averaged more than 6.4%. That represents just 0.03% of the more than 23,000 trading days since 1928 and can therefore be regarded as an extremely low-probability event, known in portfolio management as a "tail risk".

Risk models in the financial services industry are often calibrated with historical data, but data series going back to 1928, as in this case, are rarely available. Thus an extreme event such as occurred in March 2020 was simply not included in most models. But even if it had been included, such tail risks are usually consciously or unconsciously ignored in practice. A probability of 0.03%? Why bother about that? Until it happens! Then the consequences can be devastating.

Average daily movements on the stock market over ten trading days
(% movements on horizontal axis, number of observations since 1928 on vertical axis)



The challenges of digital security

The digital world is a dangerous place. Assailants lurk, motivated in new and insidious ways. The changes brought by new technologies are not always helpful.

Marcello Musio

Security and data protection are the indispensable backbone of the digital world. Geographical distance and national borders are irrelevant in this context - cyberattacks can be mounted from anywhere on the globe. The risks are real and on the increase. Security presents a huge challenge.

The digital transformation affects all aspects of life, and that obviously includes business and finance. We are all increasingly vulnerable. From education to manufacturing to healthcare - digitalisation has radically changed the way we live, produce, manage, consume and interact. The result: mountains of data that need to be protected.

Companies, governments and individuals are now more dependent on digital data than ever before. In the modern age, where everyone and everything is interconnected, the secure protection of data, intellectual property, systems and privacy is vital. But headline-hitting data

breaches show that we do not live in a digitally safe world. The research company Cybersecurity Ventures estimates that in 2023 there was one cyberattack every 39 seconds, equivalent to over 2,200 attacks per day. Just one is enough to cause enormous damage. In March, for example, the US telecoms company AT&T revealed that personal data (names, email addresses, social security numbers and access codes) of 73 million present and former customers had found their way onto the darknet, a hidden internet for illegal transactions.

Last October the aircraft manufacturer Boeing was robbed of 43 gigabytes of data and presented with a ransom demand for USD 200 million. Another incident involved the hacker group Play, which uses ransomware to block systems or steal data for extortion purposes. In March 2023 this criminal group penetrated the IT infrastructure of the Swiss newspaper "Neue Zürcher Zeitung", stole confidential data and files and demanded a ransom.

Chart 1: Data breaches and victims in the US

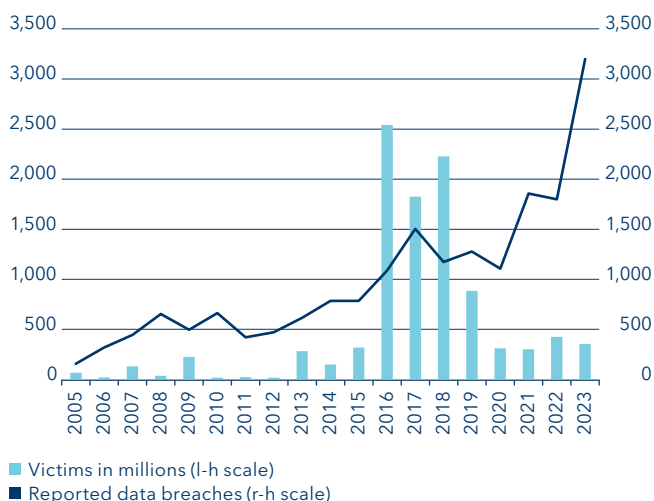
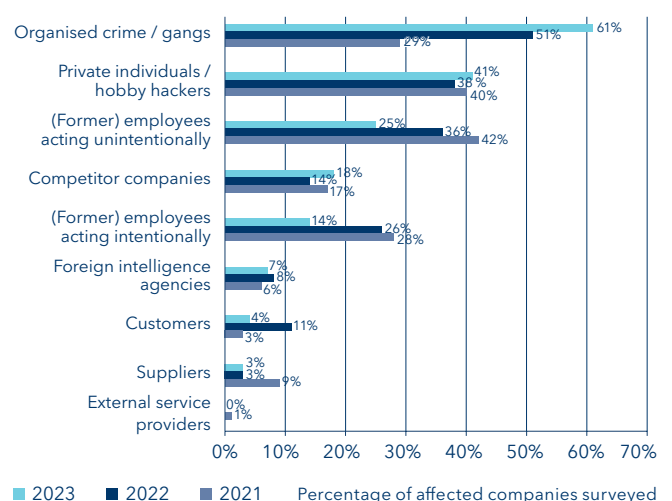


Chart 2: Perpetrators of cyberattacks on German companies



The data haul in this case totalled around 500 gigabytes. Some of the newspaper's systems remained compromised for several weeks. These examples show that no company or organisation is safe and that their customers and business partners are therefore also at risk. For criminals this is an irresistible opportunity. Cyberattacks have become big business. In the US alone, the number of attacks in 2023 was up 78% on the previous year, affecting over 353 million victims (→ chart 1).

Mixed motivations

The perpetrators are a diverse bunch: cybercriminals, cyberactivists, government intelligence agencies, script kiddies (novice hackers who exploit security lapses with the aid of tools and scripts developed by others) and others. Methods of attack have become increasingly varied and ingenious. Financial gain is not always the main motive. Hacking is also often done with the aim of stealing, misusing, manipulating or destroying data, disrupting the activities of companies or other organisations, conducting espionage or simply for fun.

According to the X-Force Threat Intelligence Index published by the IT giant IBM, ransomware was the second most frequent type of cyberattack in 2022. Experts believe that the meteoric growth of such attacks has been driven primarily by RaaS (ransomware-as-a-service). RaaS is a cybercriminal business model in which a group sells its ransomware code to other hackers, which then use it to mount their own attacks. RaaS functions in the same way as a legitimate software-as-a-service business model. Its developers offer their tools and services to other hackers.

Hackers without financial motives may also be trying to spread a political message, destabilise governments or highlight social or political issues. Attacks motivated by

personal grudges against employers or other individuals are also no rarity. Understanding hackers' motives can make it easier to prepare for specific threats and take appropriate security measures. According to research carried out by Bitkom, the German industry association for digital providers, there has been a significant shift in the cybercriminal population. In 2021 the commonest perpetrators were employees, former employees or hobby hackers. In 2022 and 2023, however, organised crime was in first place (→ chart 2).

Another form of attack consists in the deliberate overloading of a targeted system. In September 2023 Google Cloud fended off what was probably the biggest DDoS (distributed denial-of-service) attack of all time, peaking at almost 400 million items of traffic per second. A DDoS attack is a malicious attempt to disrupt a targeted web page, server, service or network by overwhelming it with a flood of internet traffic, making the page or service inaccessible. Alongside Google, other cloud providers such as Cloudflare and Amazon's AWS, were also in the crosshairs. The attack lasted only two minutes but involved more requests than the online encyclopedia Wikipedia gets in a month. The scale and ferocity of such attacks have been made possible by the latest technology.

Reputational risk

DDoS attacks are especially perfidious and tend to focus on services that have to be available instantly and at any time to many users. That includes banks, government departments, hospitals, energy companies - ultimately any organisation with a public web presence. Cybercriminals choose targets that offer the least resistance and promise the biggest profit. Those who don't pay are put out of action - with a resultant loss of business and reputation.

Chart 3: Top 10 business risks for companies in 2024

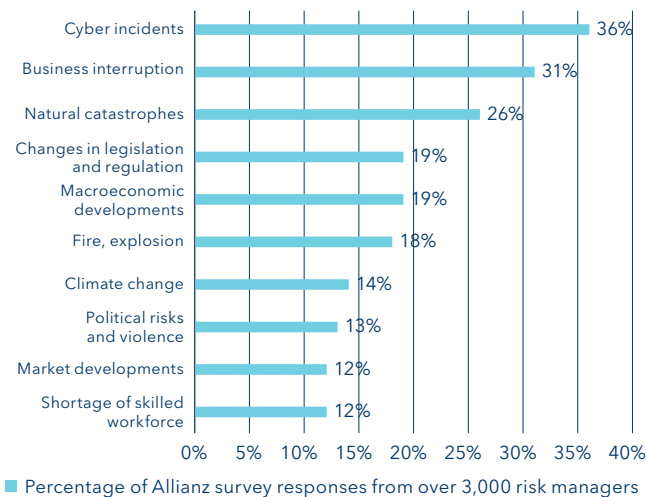
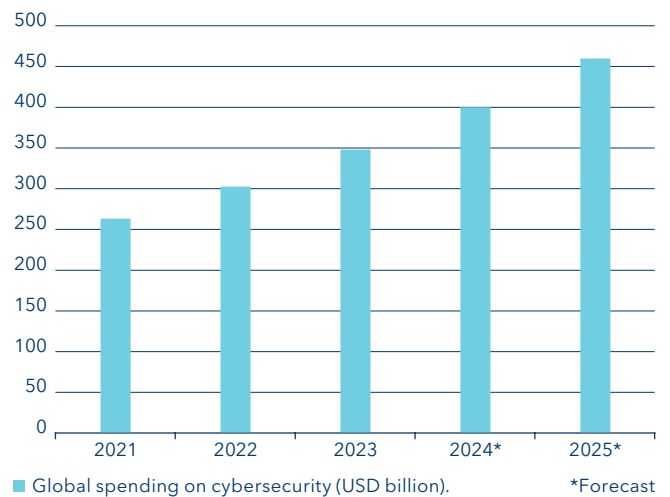


Chart 4: Rising cost of cybersecurity



Unsurprisingly, big and small companies regard electronic crime as their biggest threat. According to the risk barometer of the Allianz insurance company for 2024 (based on a poll of over 3,000 risk managers), cyber incidents like ransomware attacks, data breaches and IT disruptions are companies' biggest worry worldwide (→ chart 3). In second place comes the closely related danger of a business interruption. 59% of those questioned regarded data breaches as the biggest cyberthreat, followed by malware/ransomware attacks and assaults on critical infrastructure and physical assets (both at 53%). Ransomware attacks are also a worry for insurers. Allianz notes that claims for such attacks were up by over 50% in 2023 compared with the previous year.

Cyber arms race

Many companies regard the protection of computer terminals as one of the biggest challenges they face. But the Cyber Security 2020 study by market intelligence provider IDG showed that only 77% of respondent companies had developed a security strategy for end-points. In today's "work from home" environment, many companies have not properly thought through the issue of cybersecurity. At the same time insurance to mitigate the consequences of cyberattacks has experienced a boom in recent years and is now the rule rather than the exception. Even in the case of companies with fewer than 500 employees almost a half are now insured against online risks. The volume of such insurance is expected to rise steeply over the coming ten years.

Cybersecurity Ventures forecasts that the market for insurance in this sector will grow from around USD 8.5 billion in 2021 to USD 20 billion in 2025 and will top USD 34 billion by 2031. Reinsurance company Munich Re reports similar results. In its 2024 Global Cyber Risk and Insurance Survey almost nine out of ten decision makers worldwide stated that their company was not yet adequately protected against cyberattacks. But the report also pointed out that insurance companies do not have an infinite capacity to provide protection. Systemic risks to critical infrastructure and out-and-out cyberwarfare are too much for them to cope with. It is therefore up to governments to improve the defence of the digital world.

Protecting data and infrastructure from attacks does not come cheap, but a successful attack can be much costlier. Cybersecurity Ventures reckons that global spending on cybersecurity (i.e. products and services to protect companies, the "internet of things" and consumers against online criminality) will be USD 1.75 trillion in the

// It's cheaper to protect against cybercrime than to suffer an attack. //

five years to 2025 (→ chart 4). From the same source comes the estimate that cybercrime damage amounted to USD 8 trillion last year, a figure that could rise to USD 10.5 trillion by 2025 (Ideas for investors → page 22).

AI complicates the mix

Systems of attack and defence are already highly sophisticated, but artificial intelligence (AI) will make the cyber arms race ever more complex. On the protection side AI has so far been used mainly to recognise suspicious behaviour patterns. Future AI-based security controls and reaction mechanisms will operate automatically, enabling them to respond to cyberattacks faster and more precisely.

Mark Hughes of the US consultancy firm DXC Technology points out that while AI can recognise and remove threats automatically, the underlying processes are based on known past patterns. Cybercriminals use these patterns to devise new methods of attack. Keeping pace with these developments will be a challenge. The majority of security experts see the arms race between the hacking community and defenders as a process in which defenders are perpetually striving to catch up. The situation would become even more fraught when quantum computers enter the field. They could potentially break through today's defence mechanisms in a matter of seconds. Another problem is the shortage of experts. According to the International Information System Security Certification Consortium (ISC2), the world has a 3.4 million shortage of cybersecurity specialists. Given the growing threats generated by the latest technology, this shortfall looks set to grow.

Keys

Christina Strutz

We all need them – for keeping our property secure.

The wish to put things under lock and key is driven by fear of being robbed. Thus the history of keys is bound up with the desire to protect property from unwelcome attention.

Early key-like objects in Europe date back to about 4,000 years ago, i.e. to the Bronze Age, when human beings began to fashion ornaments, weapons and tools out of metal. These simple devices apparently served to protect dwellings from intruders. Keys have also been found in ancient Egypt and Mesopotamia, consisting of metal rod-like objects that were inserted into rudimentary locks and turned. They were used to protect treasuries, temples or palaces and were therefore seen as a symbol of power. The idea that certain places should be accessible only to certain people is both ancient and modern.

Various cultures have refined the art of key-making over the centuries. Craftsmen in ancient Greece and Rome made robust iron keys and devised increasingly ingenious lock mechanisms. A well-known type of Roman key consisted of a long thin shaft with a single bend and ending in a flat rectangular “bit”, i.e. the part that operates the lock.

In the Middle Ages craftsmen produced increasingly finely wrought keys for sophisticated locks. Kings and princes wanted to keep their treasures safe from enemies and

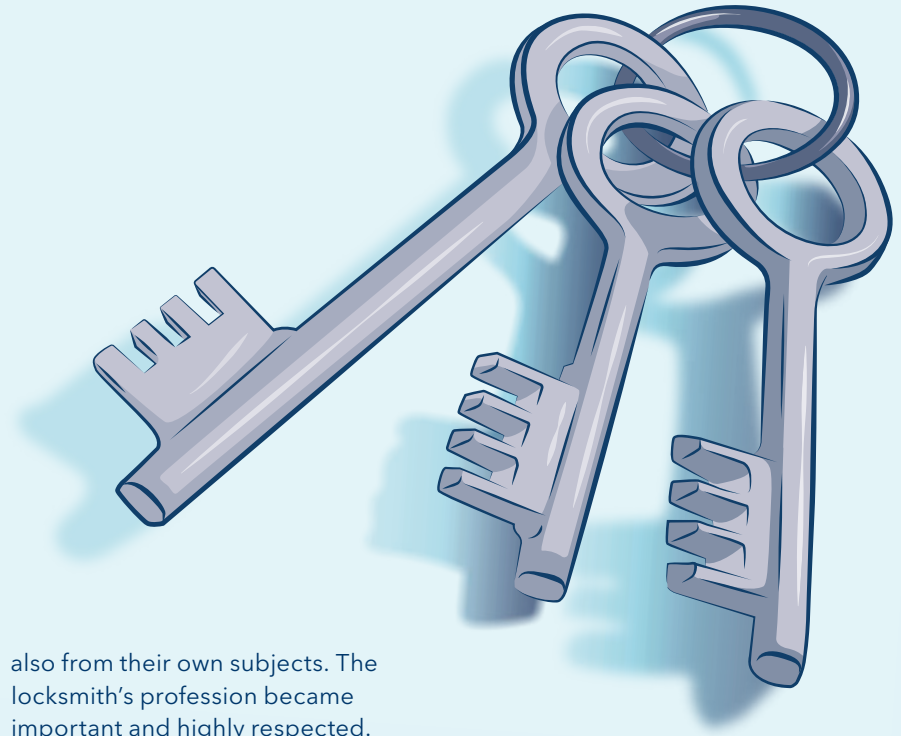
also from their own subjects. The locksmith's profession became important and highly respected.

The industrial revolution and the advent of modern technology have raised key-making to a new level. Keys have played an important part in the evolution of security and access control. Industrial premises, banks, railways, marine freight facilities etc. require advanced security systems. These do not consist only of locks and keys but increasingly also involve other types of access device and further security installations such as surveillance cameras and alarm systems. At the same time new materials and mass production have made key manufacture cheaper.

A big exception was Japan. Until 1920 door locks were unknown in Japan. The constant danger of earthquakes meant that houses were made of wood rather than brick or stone. When an earthquake strikes, wooden houses move with the ground's vibration. Wooden buildings are easy to break into, so valuables were kept in heavy chests or special storehouses and secured with padlocks. Traditionally, safeguarding the house was a woman's job. Thus the advent of concrete buildings with door locks brought more independence for Japan's womenfolk.

In the era of electronics and digitalisation, the role and technology of locking systems are changing fast. Metal keys are giving way to electronic chips, biometric sensors and plastic cards. Electronic access control systems, remote car keys and smart home systems are familiar aspects of modern life. Human beings now also function as keys. Fingerprint, iris and face recognition technologies are widely used to open doors and protect information, especially in smartphones, where masses of personal data are stored (→ page 8). Unique genetic and biometric features are at present harder to fake or copy.

Where physical objects have been replaced by the ones and zeros of the digitalised world, the only keys that function are digital ones: passwords and strings of numbers. Bitcoins and other cryptocurrencies are stored in digital wallets. Forgetting the necessary number key can be fatal. Thus the significance of keys as protectors of property and secrets is the same now as it was thousands of years ago.



Security in perspective

Security has many aspects. Perceptions of danger vary from person to person. But threats to life and limb are universally important, as is the need for adequate nourishment. Closely related to this is financial security, which can cushion some of the risks that confront us.

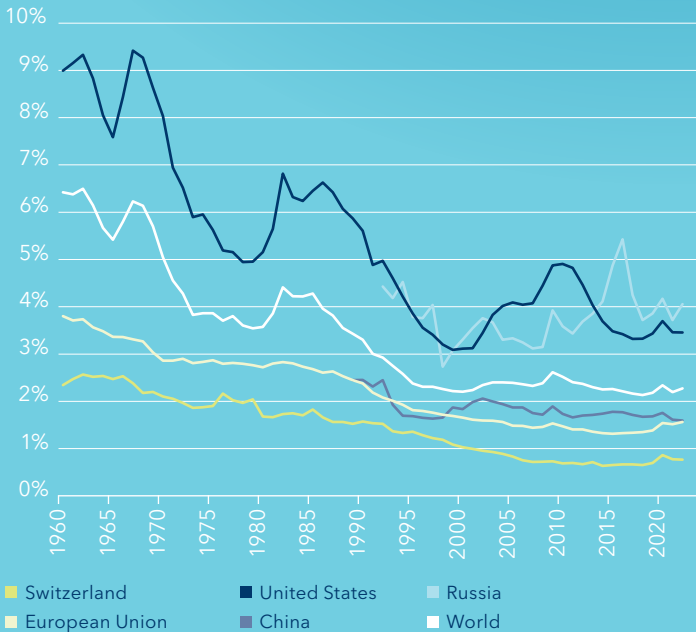
Global trouble spots

Conflicts within a country or between countries frequently degenerate into violence or warfare (situation as of 2022).



National defence spending

Spending on armaments and defence as a percentage of GDP has been falling for decades. But the war in Ukraine is prompting a rethink.



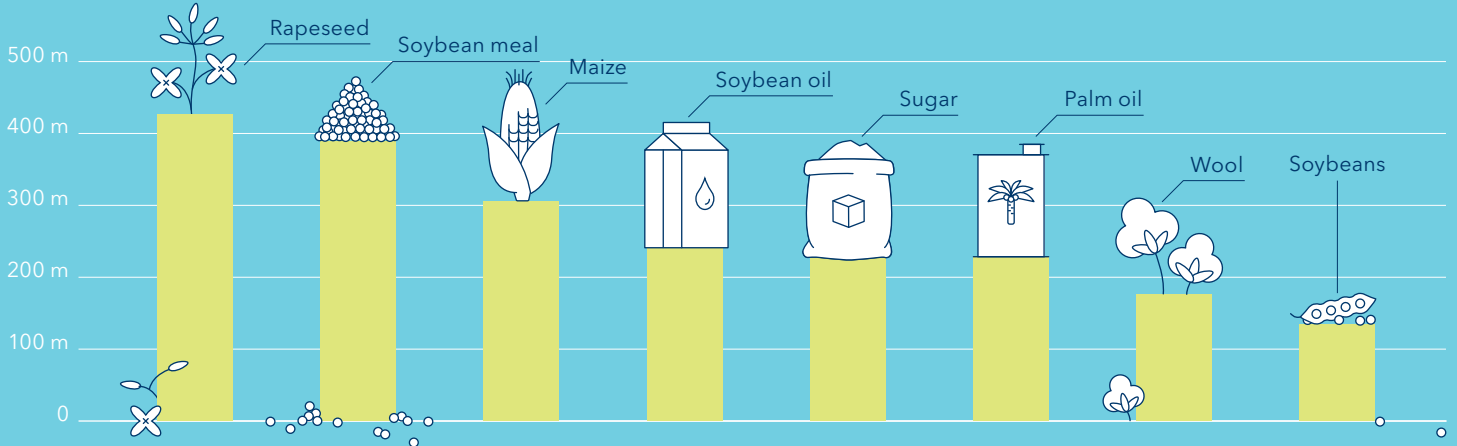
What worries people?

Rising prices have been the biggest worry since 2022. Over the long term, however, the chief concerns are poverty, inequality, crime and violence.



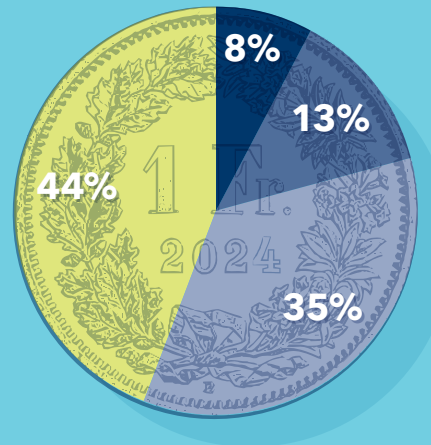
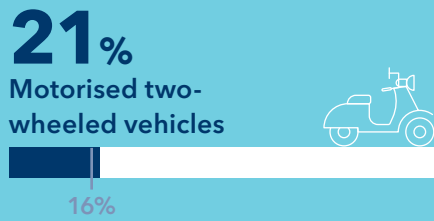
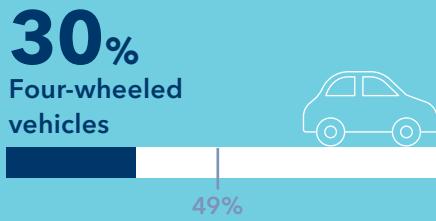
Security of supply and prices

Agricultural goods are traded globally on the futures markets with prices and delivery dates agreed in advance. The largest volume of futures contracts is for rapeseed for the production of edible oil (annual volume of contracts in 2023).



Traffic security

Modes of transport affect personal security. Globally, people travelling by car account for most traffic deaths, followed by people travelling on two wheels. But the situation varies a lot from region to region.



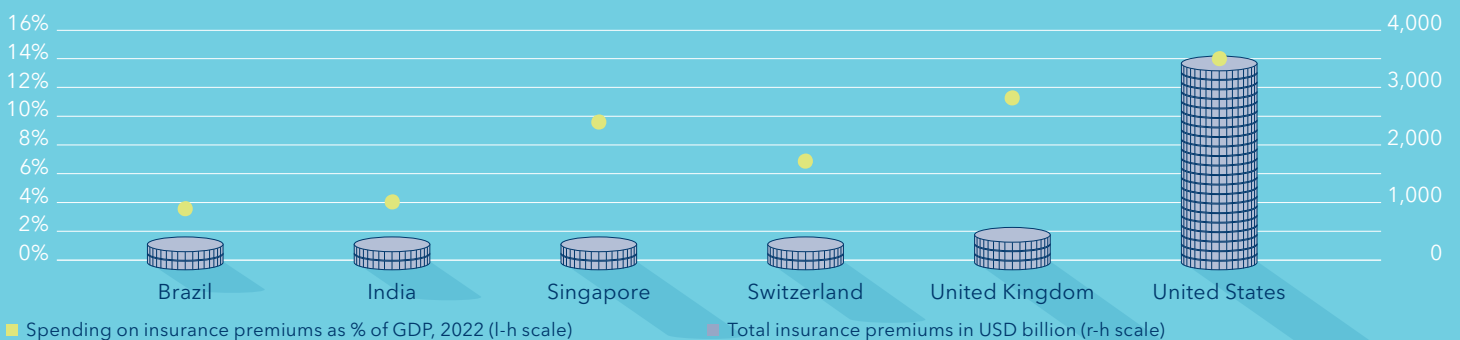
Security also depends on income

Lower middle income countries account for the largest percentage of traffic deaths.

- High income
- Upper middle income
- Lower middle income
- Low income

What is security worth?

Spending on insurance premiums as a percentage of GDP varies greatly from country to country. It is highest in the US, followed by the UK. India and Brazil are well below the OECD average.



“I just want to take photographs.”

As a war photographer, Dominic Nahr has a special attitude to security. He explains what motivates him, how he became a photographer and how a funeral affected his career.

Clifford Padevit



// To document a war,
I have to be on
the spot. // **Dominic Nahr**

A war photographer does not just dive into action. The logistics are formidable. It is no easy matter to get a visa for Libya, for example, or to go to a war zone in Ukraine. But finally the scene is set. "I just click the shutter," says 41-year-old Dominic Nahr, who was named Swiss Press Photographer of the Year in 2024. "At that moment I don't want to limit myself or edit." Later he sorts the pictures on his computer. 2,000 photos will be whittled down to 200, of which he will send perhaps 20 to the publisher. Five of them might eventually see the light of day.

"I do it for the story, and if I want to document a war I have to be on the spot." These days that means frequent visits to Ukraine. And he needs to get close to the action. His preferred camera is a Leica with a wide-angle lens rather than a telephoto. His aim is to make an intimate record of the situations he encounters, e.g. soldiers getting a drone ready for action. "I can't stay in a bunker, and if you go out there's always danger." Shellfire is common. A missile that struck a few hundred metres away did fortunately fail to explode. But when the hotel in Kharkiv where he regularly stays was hit three days before his arrival, or when a restaurant is bombed just when he was meant to see someone there: "That certainly affects me." In

Ukraine he often wears a helmet and flak jacket. But that is not enough. A mobile radio and first aid kit are also essential - and contact with a local representative who has the latest information.

Nahr has been working in conflict zones for almost twenty years. His career trajectory was assisted by Hugh van Es, the photographer who took that famous picture of people boarding a helicopter on a rooftop in Saigon during the American evacuation in 1975. Van Es helped him get a traineeship on the South China Morning Post in Hong Kong, where Nahr grew up. The veteran had been impressed by the young photographer's pictures of his grandmother's funeral.

Ever since getting his first camera at the age of 14, Nahr was keen to record special moments in the life of his family. "I wasn't so good at talking and writing. But when I had a camera in my hand everything made sense and I could simply go out and discover. Since then I just want to take photographs."

There have always been enough conflicts in the world that need to be documented. Nahr's experience as a war photographer was defined by assignments in the noughties in East Timor, Gaza and later the Congo. He has been in over 60 countries, and

the number is still rising. For ten years he lived in Africa, where he witnessed many conflicts at first hand and produced prize-winning photographs. A list of the magazines and photo agencies with which he has worked reads like a Who's Who of photojournalism, a profession that has been reinvented by the advent of new media.

Born in the Swiss canton of Appenzel, Nahr has been working for the Swiss newspaper "Neue Zürcher Zeitung" as a staff photojournalist and editor since 2021. That gives him routine - something he did not have when he was a freelance photographer jumping from assignment to assignment. He likes this new way of working. "The writer and I plan the story together from the start." Picture and text melt into one another. When he did assignments for Time Magazine, pictures and text were two parallel jobs. "I used to choose the moment because the light was right. Now it's more about people. I like that."

He'll soon be setting off again, though the next mission is still a secret. But there's no question about what he'll be taking with him: his good luck watch and a collection of lucky charms from his loved ones. "I wouldn't get on the plane without them."

www.dominicnahr.com



My best investment

"The Fukushima project"

"I've been in Japan several times since 2011 to visit the area of the Fukushima nuclear disaster. That has been an intensive personal project. Many of my Fukushima pictures have been published in the media."



My worst investment

"The Rift project"

"The huge Rift Valley in East Africa is a region of fertile land, volcanoes, mineral wealth and civil war. I've tried to depict all this, but perhaps my project is still not far enough advanced."

“Regional extreme weather events can have a major impact on food imports.”

Import-dependent Switzerland does not leave things to chance when it comes to ensuring secure supplies of basic foods like cereals, potatoes and vegetable fats. Ines Heer, head of the Foodstuffs Division at the Federal Office for National Economic Supply (FONES), explains how this works.

Interview: Clifford Padevit

Dr Heer, what is the biggest threat to Switzerland's food supply, given that half the food consumed in Switzerland has to be imported?

In the Foodstuffs Division we monitor the whole process from field to consumer, including vital inputs like fertiliser. Extreme weather events at various points in the process can generate a widespread threat. A drought, for example, is detrimental to crop production and can also cause shortages of electric power. It's a complicated picture.

But 2023 was a very wet year in many places.

Yes, and we certainly keep a watch on heavy rainfall and flooding. Last year's wet weather affected not only Switzerland but also parts of Germany, from which Switzerland imports a lot.

What products are we talking about here?

Potatoes. Switzerland produces only little propagating material for potatoes. We concentrate on the final stage of cultivation, which means we depend on imported material for planting. If seed potatoes, for example, are not produced locally or are unavailable because of floods in Germany, farmers here cannot plant the next crop. Thus even regionally limited extreme weather events can be very disruptive.

By extreme weather do you mean climate change?

Climate change is one level higher and raises major longer-term issues. At FONES we are concerned with overcoming shortages caused by the short- and medium-term effects of crisis events. At a superordinate level the Federal Office for Agriculture concerns itself with more general matters such as whether suitable crops are being cultivated or the right livestock used.

And a pandemic?

Pandemics are an important crisis scenario alongside energy shortages and threats relating to information and communications technology. The Covid crisis showed how a labour shortage and dysfunctional logistics can affect supply. Thus the number of goods vehicles was increased and Switzerland's Sunday heavy vehicle driving ban was suspended. But experience in the United Kingdom showed that a relaxation of such rules doesn't help much if there are simply not enough drivers available.

How have the dangers changed over time?

Pandemics have long been an issue, but the focus used to be on livestock diseases. Overpopulation was also seen as a danger - the fear that there wouldn't be enough agricultural land to feed everyone. That worry has subsided.

What monitoring sources do you use?

We work closely with a panel of experts, consisting of about 40 specialists in the food sector. We also conduct quarterly surveys to find out where problems exist or could arise. The results are then analysed to assess their relevance and potential impact. The issues affecting food supply are not quite as short-term as developments in the energy sector.

What data do you look at?

Many different sorts. And we aim to further improve our system so that we can identify major changes (e.g. in import volumes) on a weekly basis. We also use agricultural market and customs data, and we want to employ more data on consumption. Internationally we have access to information from the World Food Programme, the US Department of Agriculture and the

Food Supply Shock Explorer, a tool that enables us to analyse the direct and indirect consequences of specific events. For example, what would happen if rice from Thailand were no longer available?

Does supply security relate only to consumers or do you also consider the suppliers' perspective?

The consumer takes first place. Everyone should have enough to eat. But that can only happen if the economy ensures adequate supply across the whole lifecycle of the product. We have to work for the common good.

If the price of a staple food rises, do you regard that as a signal for action?

We react to major price increases. We try to find out if importers can cope with the higher price, source the goods elsewhere or obtain substitutes. If it turns out that the price increase merely affects the finances of the companies involved and that supplies are not endangered, we take no action.

Your office recently took action on mineral nitrogenous fertilisers. What exactly happened?

From autumn 2021 there was a global shortage of nitrogenous fertilisers. This was caused by the disruption of supply chains due to the Covid pandemic, higher energy prices, low water levels on the Rhine and later the Russian invasion of Ukraine. As Switzerland is totally dependent on imports in this sector, in January 2022 the decision was taken to release fertiliser from the compulsory stockpiles. By July 2023 the market had normalised, and the stockpiles were locked again.

What are compulsory stockpiles, and who looks after them?

The federal government has no stockpiles of its own. The authorities have agreements with importers and producers, obliging them to hold permanent stocks in reserve that cover a prescribed portion of domestic requirements.

Who decides whether these stockpiles should be opened?

If we see a genuine problem, we can release up to 20%. If more is needed, we make an application to the ministry. However, opening these reserve stocks does not mean allowing a free-for-all. Access is restricted to satisfying food supply requirements or meeting demand for a particular product. Once the crisis has passed, the stockpiles are closed and replenished.

What restrictions can you specify?

With regard to cereals for example, we could say that bread has priority over cookies. We have to ask ourselves what is needed to ensure basic supply. In the medicines sector there is currently a shortage of rabies vaccine. The

vaccine is therefore now available only for essential use and in the veterinary sector, but not for precautionary use by travellers.

Who pays for the compulsory stockpiles?

Ultimately the consumer does, because the companies holding the stockpiles can pass on the costs. That amounts to about 13 Swiss francs (something over USD 14) per person per year.

Releasing compulsory stockpiles is a drastic step. What about measures to stimulate imports?

That happens before a shortage occurs and is decided by the Federal Office for Agriculture (FOAG). A current example is potatoes. The sector concerned can apply to FOAG for an increase in the import quota to meet demand.

And how can private households prepare themselves?

The rules on emergency provisions are a part of our remit and we would like to update them. Research in the wake of the Covid pandemic showed that some parts of the population keep emergency provisions and others don't. Awareness of the need for such provisions therefore needs to be reinforced. In the event of a major electricity outage, for example, many people wouldn't be able to get to the shops, or the shops' checkout systems wouldn't work. In such a situation it is important that people can feed themselves for several days.

How long should the provisions last?

A week is enough in most circumstances. That is our recommendation.

Profile



Dr **Ines Heer** has headed the Foodstuffs Division at Switzerland's Federal Office for National Economic Supply (FONES) since September 2023. The 47-year-old previously taught project and problem solving management at the Bern University of Applied Sciences. She studied agricultural ecology at the University of Rostock and obtained her doctorate in agricultural economics. Previous jobs have also included work at the Federal Office for Agriculture.

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

Good stories have a big impact

The future is uncertain, and uncertainty breeds expectations. These expectations can coalesce into a narrative that influences the present. Central banks know that all too well.

Clifford Padevit

What can you do with three square metres of land in central Tokyo? The buyer who forked out USD 600,000 for that tiny plot of real estate at the peak of Japan's asset bubble in 1989 presumably thought they were onto a good thing. What happened next is not recorded. But the transaction inspired the famous claim that the ground under Japan's Imperial Palace in Tokyo was worth more than the whole state of California.

How did the buyer envisage the future? What made them think that such a miniscule parcel of land was a good investment? Anyone who puts money into land, buildings or other durable goods has at least one eye on the future. And as the future is always uncertain, the arguments for this and that possible scenario have to be weighed up. Consciously or unconsciously, the three-square-metre buyer must have thought that the benefit and its probability were so attractive that it was worth the price.

Great expectations

Expectations are as much a part of human life as dreams are of sleep. We are psychologically programmed to anticipate future events, and this often involves an assessment of probabilities. The probability aspect is especially important. Cognitive psychology teaches us that human beings are often bad at estimating how likely a future outcome is.

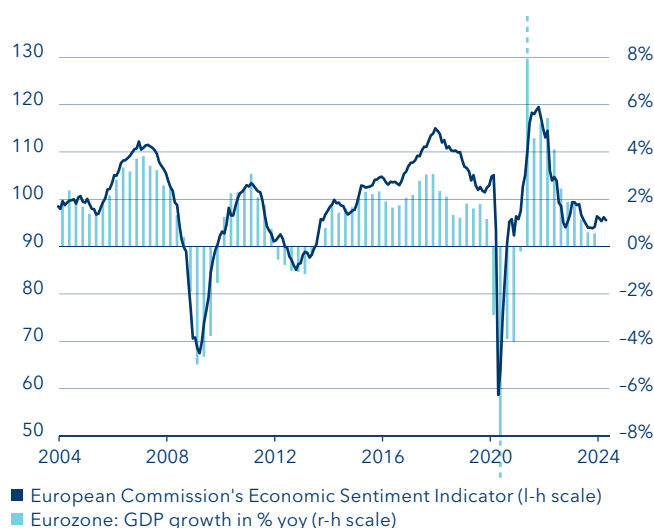
In the business world, decision makers try to assess the probable success of a project or business plan by feeding in a mass of data, even though the basis of their calculation might be uncertain. In his book "Imagined Futures: Fictional Expectations and Capitalist Dynamics" German sociologist Jens Beckert suggests that what tips the scales is a good story. A convincing narrative creates an expected future which provides people with a basis for

decision making. "The story must convince them," writes Beckert. "It must be plausible, though not necessarily correct." The Tokyo land buyer presumably also had a compelling story in mind.

Measuring expectations

Expectations play a central role in the economy, not only in business decision making but also in the behaviour of consumers. Economists have long recognised this and have tried to assess consumers' and businesses' expectations as an aid to understanding the direction in which the economy is going. Some of these assessments go back to the 1950s. Even so, economists are far from agreed about the process by which expectations are formed.

Expectations show the way



Their models assume that people's economic behaviour is rational and designed to optimise their own benefit ("Homo economicus"). But behavioural economists and the recently deceased Nobel laureate and psychologist Daniel Kahneman have shown that individuals' expectations are not always rational. Very small probabilities tend to be treated much too seriously, and that distorts the decision making process.

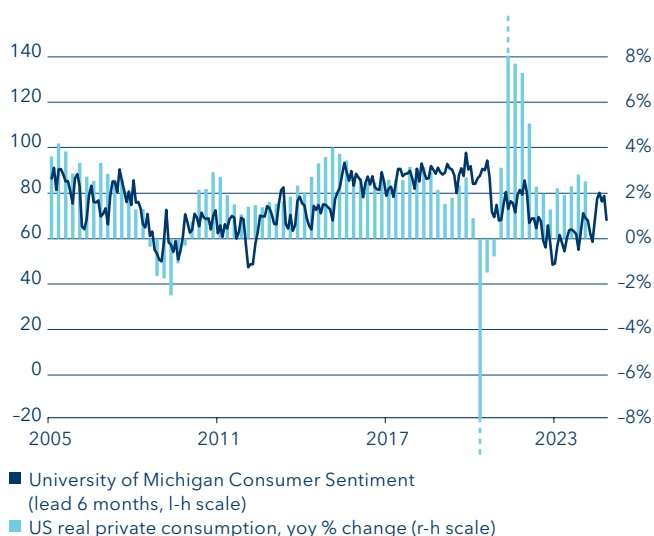
Nevertheless, the power of expectations is incontestable and can determine an economy's direction. If the majority of consumers believe that prices in six months' time will be higher than they are now, they might prefer to spend their money immediately, resulting in higher demand that really does push prices up. If businesses and households think interest rates will fall, they might decide to postpone capital spending or house buying. The key point here is that expectations about the future influence today's reality.

Thus data about expectations are an important input for financial decision making and play a central role in the formulation of economic and monetary policy. Three examples:

1. Consumer surveys

In assessing where the economy is heading it is important to know how consumers see the future, notably with regard to prices of goods and services and job security. Central banks such as the European Central Bank and the US Fed conduct regular surveys of the sentiment driving consumer behaviour. The results of these surveys are a useful supplement to concrete data, e.g. on inflation, and indicate how successful current monetary policy is in influencing expectations regarding interest rates and

Important indicator: consumer expectations



// Expectations about the future influence today's reality. //

prices. There are also independent statistics on consumer expectations, such as those of the University of Michigan, which has been carrying out its Consumer Sentiment Survey since 1952.

2. Business surveys

Business expectations also influence the path of the economy. Since 1985 the European Commission has been publishing its European Sentiment Indicator (ESI), which aggregates business and consumer confidence. But the best-known and probably most influential business indicator is the purchasing managers' index (PMI) compiled for various countries on the basis of monthly surveys of supply chain managers in the manufacturing and service sectors. PMIs are based on five survey areas: new orders, inventory levels, output, supplier deliveries and employment. Respondents are asked whether conditions in each category are better, the same or worse compared with the previous month.

3. Consensus surveys

News agencies and specialist data providers carry out consensus surveys of expert opinion on economic growth, inflation, corporate profits, etc. The estimates of a large number of economists and financial analysts are aggregated and compared with what actually happens. The difference is crucial. In the equity market, expectations regarding share prices, market turnover and profit growth are the basis for buy and sell decisions.

These examples show how expectations help to make uncertainties more structured and tangible (→ page 3). If the numbers create a good story, they become more convincing and harder to ignore. In all markets, including the financial markets, expectations and their direction of change are the major driver of prices. Indeed, it is often said that stock markets trade mainly in expectations.



Secure risk-taking

States of mind like fear or overconfidence can trick investors into making unfortunate decisions. How can investors avoid these psychological pitfalls? A look at some statistics will help.

Felix Brill

Is now really the right time?

“Stock markets have risen 5% since the start of the year. Perhaps I shouldn’t buy until the market has fallen a bit.” Many investors have experienced a moment like this. After a good period on the markets people get the feeling that sentiment might soon take a turn for the worse. It would be annoying if the market corrected just after they bought.

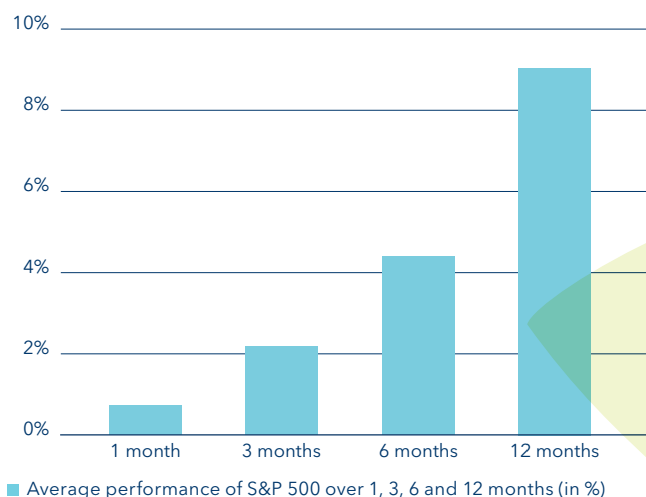
It is often forgotten that it would be just as annoying the other way round: if the market continued to climb while the investor waits for the “right moment”. A decision not to invest is also a decision. To put it in business terms: a negative decision also involves costs, i.e. opportunity costs. In an inflationary world, savings lose a bit of their purchasing power every day. Above all, though, an investor who is not in the market misses out on rising asset values, as the data for different time periods over the last 30 years show (→ chart below). It pays to be invested.

Timing versus time in the market

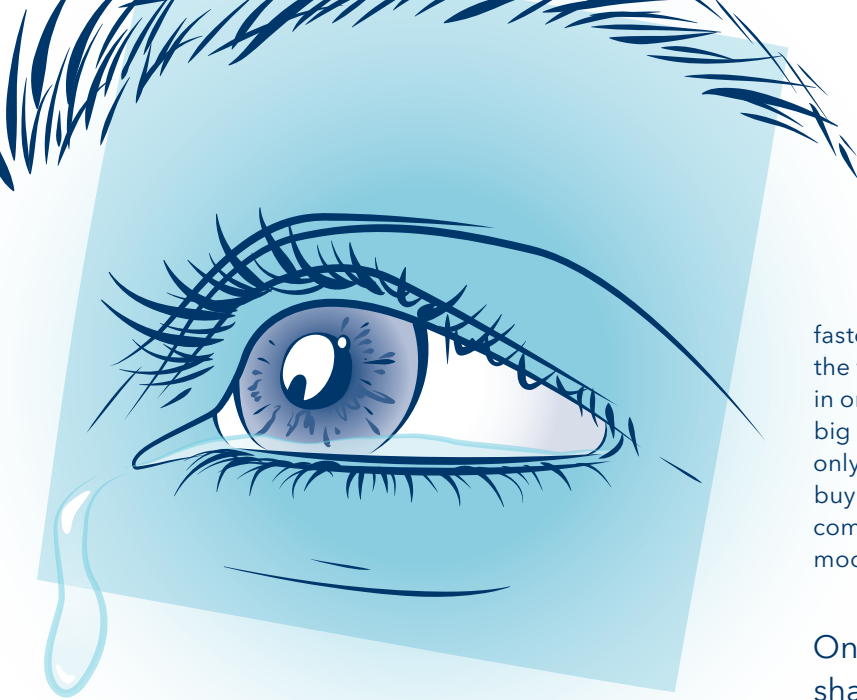
Here’s a little thought experiment. Think yourself back to the year 1994. Contact your bank or stock broker and give instructions to invest USD 10,000 in the S&P 500 stock index. Thirty years later an e-banking enquiry will tell you that the investment is now worth USD 117,900.

Over this period there were about 7,500 trading days. You would have lived through the 2001 stock market crash (dot-com bubble), the 2007-08 financial crisis and the coronavirus shock (→ page 7). But you would also have enjoyed the good times, like the day in October 2008 when the S&P 500 surged by more than 11%. If you had missed the five best-performing days, your 1994 investment would have grown to only USD 74,500, a difference of USD 43,400. A big chunk of percentage growth down the drain! Admittedly, you would have had to be very unlucky to miss all those five days. But investors can only be certain of not missing them if they stay invested. Buying and selling in an attempt to catch the best market phases will not help. Sometimes it works, but usually it does not. In the end you are worse off.

It doesn't pay to wait



- No missed trading days
- 5 best trading days missed: USD 74,500
- 10 best trading days missed: USD 54,060
- 15 best trading days missed: USD 40,810



faster than if you had made the whole investment in one go. One big proviso: only continue to buy shares if the company's business model is still intact.

20%

One share, only shares?

How investors shape their portfolio and what types of asset they buy is a very personal matter. But there is one thing everyone should bear in mind: diversification. To illustrate this we compare the best performing share in the Swiss blue chip index SMI since 2013, Lonza, with the worst, Credit Suisse. If we look at the biggest loss these two shares suffered in a twelve-month period, Credit Suisse comes off worse with a mighty loss of 90%. But Lonza has not had a smooth ride either. In 2022 it dived by 40%. These are setbacks that the investor needs to be able to weather.

Or you can buy the index, in this case the SMI, which in the worst year fell by only just under 20%. And what if you take the idea further and diversify additionally into other asset classes like bonds and alternative investments? That will give you further cushioning. In the worst year since 2013 a diversified portfolio fell by only around 10%.

Don't keep looking!

"...and the S&P 500 increased by 1.3%...". When you hear on the evening news that the equity markets have had a good day, it is tempting to take a peek at the return on your own portfolio. But why? The positions in it are still the same, only the prices have changed. That happens every day. Sometimes the market goes up, sometimes down. What does that matter if you are invested for the long term?

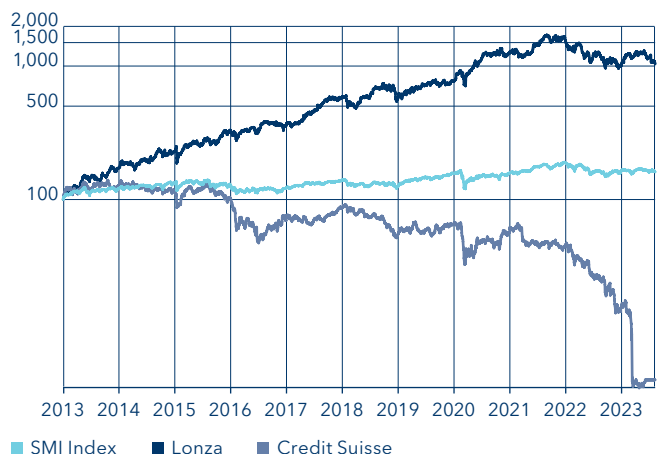
Investors should not let themselves be spooked by short-term market movements. As an illustration, we have collated all the trading days for the S&P 500 over the last thirty years and evaluated the ups and downs for various time periods. In total, a daily look at the index would have been disappointing in 46% of cases, even though the index has climbed in value almost twelvefold over this thirty-year period. A weekly, monthly or quarterly check would have been disappointing about every third time. The longer you wait, the more often things look good. In this example investors would have had an 82% chance of seeing a profit if they had checked only every three years.

Buy the dips

"Two for one!", "First year free!" Whether it is food, mobile phone subscriptions or television sets, retailers know how to lure customers with cut price offers. A 20% fall in a share price or index is similarly attractive. Such setbacks are generally a buy opportunity. It is called "buying the dips". There are two good reasons for this. If an equity index like the S&P 500 corrects by 20%, there is only a relatively small risk (5%) that it will suffer an equivalent loss during the next twelve months. Data for the last thirty years confirm this.

The risk can be further reduced by buying in stages. For example, buy a third today, another third in three months' time and the last third after half a year. And do not lose heart if things turn nasty right at the start. Thanks to the staggered purchases, the minus will be wiped out

Wide gulf between top and flop (indexed, logarithmic scale)



Three times three security shares

Protection is always needed, irrespective of the economic cycle. Here we present our top picks of shares that benefit from increased investment in security.

Jérôme Mäser

1. Supply security

According to Abraham Maslow's hierarchy of needs, physiological needs like air, water, food and shelter are the most fundamental. In the developed nations these basic requirements are mostly met, but demographic change, an ailing infrastructure or increased consumption of raw materials due to technological advances can lead to bottlenecks.

Per capita water usage, for example, has climbed steeply in recent years. **American Water Works**, the largest water utility company in the United States, stands to benefit from this. The company provides high quality water and safe processing of wastewater.

The Swiss-based **BKW** energy company is involved in the whole process of electricity provision from production and distribution to consultancy and building management. Its hydroelectric power stations in Switzerland are a major power source.

The French company **Veolia** is active in both water management and energy services. As a partner of urban authorities and industry, Veolia has knowhow embracing the entire water sector, energy efficiency, renewable energies and heating and cooling networks.

2. Physical security

Once the most fundamental requirements are met, the next level up in the hierarchy of needs is personal safety and the protection of property (e.g. buildings and other material assets) from theft, damage and unauthorised access. Important in this context is the armaments industry, which contributes to national defence and the maintenance of public order.

Singapore Technologies Engineering maintains a close relationship with the government of Singapore and generates two thirds of its income from defence and public security business. It produces armaments for deployment across land, sea and air and offers solutions for the protection of critical infrastructure.

The Swedish group **Assa Abloy** produces locking and security systems that protect against intruders. Alongside mechanical and electromechanical locks, automatic doors and access control systems, the group also markets products relating to identity and access management and citizen ID.

The mineral wool insulation products of Danish multinational **Rockwool** are best known for offering protection against heat, moisture and noise. Importantly, however, they are also non-inflammable. In case of fire, they can therefore help stop the flames spreading, protect buildings and make escape routes possible.

3. Digital security

Threats like hacking, phishing and Trojans did not exist when Maslow defined his hierarchy of needs. In our increasingly digitalised world (→ page 8), however, personal and corporate data need protection. Well-armed attackers and lax security quickly result in data theft, ransom demands and, in the worst case, a company's total paralysis.

Digital dangers are changing continuously. That is why businesses are increasingly using the services of consulting companies like **Capgemini**. This French multinational helps customers find the right solutions for their digital security needs.

CrowdStrike is a global cloud-based cybersecurity leader. This American company's products offer protection against digital attacks and help companies to close their security gaps.

Without appropriate semiconductor products, however, digital devices would not have the computing power to defend themselves successfully against the threats they face. The chips produced by **STMicroelectronics** are used in a wide variety of products, including motor cars, and will therefore continue to be in demand.

Event

Tamara Spiegel

marmite YOUNGSTER

Since 2022 VP Bank has been encouraging young talent in the Swiss and Liechtenstein restaurant sector by acting as Presenting Partner of the “marmite youngster” competition. This annual event, staged by the publisher of the marmite gourmet magazine, gives up-and-coming youngsters a chance to demonstrate their skills as chefs, pastry chefs, service personnel and sommeliers. The aim is to show appreciation for talented young restaurant professionals and to open up new opportunities for them. As Presenting Partner, VP Bank plays a key role in organising the competition.

The competing youngsters create culinary highlights on a prescribed theme, which are then judged by a jury. The winners are presented to the public at a celebratory Award Night. Mirco Kristal was voted marmite youngster 2023 in the chef category and will present his creations at the 2024 Genussfestival (Gourmet Festival) in Vaduz.

// I'm looking forward to cooking at the Genussfestival and making new contacts. //



Mirco Kristal, winner of the marmite youngster 2023 competition in the chef category.



The theme of this year's third Vaduz Genussfestival (August 30 till September 8, 2024) is “Talents and Stars”. On two weekends during the festival top chefs will present their creations in the roofed Rathaus Square.

The 2024 Genussfestival will again feature first-class practitioners of the culinary art. Together they boast 250 Gault Millau points and 17 Michelin stars. As in previous years, visitors can look forward to an experience of gastronomic excellence. The festival also features special events in restaurants and shops in Vaduz. Together with the city of Vaduz, VP Bank is the major partner in the festival.

Now
scan the QR code
and **win!**

Win one of 25 **Kulinarik vouchers, each worth CHF 50**, for the Vaduz Genussfestival on the weekends of August 31 / September 1 and September 7/8 2024.



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Page 5: Swiss National Bank; VP Bank

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- Chart 1 Identity Theft Resource Center: Data Breach Report, January 2024; VP Bank
- Chart 2 Bitkom Research 2023; VP Bank

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- Chart 3 Allianz Risk Barometer 2024; VP Bank
- Chart 4 Cybersecurity Ventures; VP Bank

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