RED

The Magazine from SIX — 3/2021

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eBill. The Swiss digital invoice.

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The infrastructure of SIX ensures access to the capital market and the flow of information and money worldwide. As the operator of the Swiss and the Spanish stock exchange, we combine listing, trading, settlement, and custody of securities in one place. And with SIX Digital Exchange, we are defining the Securities Value Chain of the future. As a competence center for Swiss payment transactions, SIX supports banks with innovative services in an increasingly digitalized world. Moreover, we provide the entire world with reference, pricing, and corporate action data, regulatory services, and indices.

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When Twitter Makes Your Investment Better

Simon Brunner

When traditional corporate reporting reaches its limitations, alternative data can provide answers: What about environmental compatibility? What do customers really think? Does a crisis loom? Credit card transactions, weather data, social media, and the like reveal more than you think.

> **“The burden of proof often gets reversed on social media: There’s a presumption that allegations are true until they are proven false.”**
>
> **Tanya Seajay, CEO Orenda**

In 19th-century England, a common tactic used by British crooks was to rob waiting passengers in Paddington Station and then abscond on a train. The gang of thieves could get off at the next station undetected because in those days, no means of communication were faster than a train. One day, though, the telegraph was introduced. Police could now notify the next train station and organize an arrest.

Having the right information at the right time has always been as valuable as gold, and today that’s even literally true: *Forbes* recently ran a headline trumpeting that “Information Is the New Gold.” The US magazine for investors argues that today’s new means of acquiring and analyzing data harbor greater potential than the precious metal. Staying with the metaphor, *Forbes* declares that data is the “new gold standard.”

Growth of 58.5% per Year

There is, in fact, more information than ever today. Humanity produced more data in a single year in 2021 than it generated cumulatively from the dawn of recorded history to 2016. Moreover, investors are increasingly taking into account in their investments many factors that can’t be found in traditional corporate reporting, but which instead lay hidden – decentralized and unsorted – in the vast flood of digital data. The catchphrase that merges these two trends is “alternative data,” i.e., information that stems from other, alternative sources. In late 2019, SIX already predicted that alternative data would take root as a key basis for making investment decisions in a white paper titled *Data, the Future of Financial Information*.*

But from where exactly does this alternative data originate? According to a study by US-based market research firm Grand View Research, there are a number of very different main sources (see also Top 6 on page 6): credit and debit card data, e-mail receipts, geolocation records, satellite and weather data, internet and app usage as well as data scraped from the Web, and social media – more on which later.

The study says that the global market for alternative data is currently valued at 2.76 billion US dollars and will grow at a rate of 58.5% per annum to almost 70 billion US dollars in 2028.

Alternative data offers investors two benefits. On one hand, investors can put the information to use in the everlasting hunt for alpha to outperform the market (alpha measures how well an investment performs compared to a benchmark): ›

TOP 6

Main Sources of Alternative Data

#1 – Credit and Debit Card Data
Every day, cashless payment transactions generate an abundance of anonymized data on consumer purchasing behavior and about trends, as in retail sales, for example.

#2 – E-mail Receipts
E-mail receipts enable inferences to be drawn about the user behavior of different groups of consumers, with regard to big companies like Amazon or Uber, for example.

#3 – Geolocation Records
Wi-Fi and Bluetooth signals deliver data on the movement of people, providing information, on their patronizing of restaurants in city centers, for example.

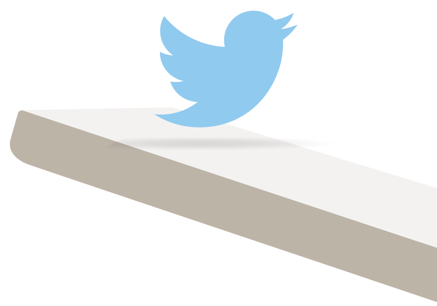
#4 – Satellite and Weather Data
Satellite, weather, and other sensor-based data enables analyses particularly in areas where electronic access to data is lacking, in the agriculture sector or tourism industry, for example.

#5 – Internet
Alongside data on Web traffic, including usage of mobile apps, the internet provides a wealth of scrapable data, on job postings and product ratings, for example.

#6 – Social Media
Social media posts and interactions with them (likes, retweets, etc.) can be an indicator of societal sentiment and future developments, with regard to a company's image, for example.

USD 70 bn

Estimated value for the global market of alternative data in 2028 (Grand View Research)



Credit card statistics for a department store chain enable conclusions to be drawn about its business trend, geolocation records reveal which fast-food chains are in or out, and weather data helps to gauge the performance of ski resorts or amusement parks.

On the other hand, more and more investors want to know how socially acceptable their investments are. This is typically measured along environmental, social, and corporate governance (ESG) dimensions. But since ESG data isn't included in conventional corporate reporting, alternative data is needed to glean ESG information.

Gauging Collective Sentiment

One supplier of such data is Orenda. The Canadian startup company does high-frequency tracking of how companies are talked about on social media in real time.

It's 7 a.m. in Ontario, and Tanya Seajay, the founder and CEO of Orenda, cheerfully logs onto our Zoom call. Question: "How do you explain to your children what Orenda does?" Reply: "My kids don't listen to me anyway," she laughs and continues: "My mother, on the other hand, does. I would tell her that we supply alternative data to financial institutions so that their customers can make better investment decisions." Specifically, she says, Orenda's software analyzes how selected topics are being talked

about on Twitter. More than 10,000 publicly traded and privately held companies, but also countries and industries, are on Orenda's radar screen at the moment, she adds. Orenda analyzes an array of different indicators, but its main focus is on ESG data.

The GameStop stock hype; the campaign against Facebook that saw a number of large corporations pull their advertising from the social network; the image of the pharmaceutical companies that developed COVID-19 vaccines. In all of those cases, the indicators from Orenda exposed early on that something was brewing in cyberspace that later had very tangible real-world impacts.

Seajay says that reputation has always had a big effect on a company's stock price, but it heretofore had been very difficult to gauge collective sentiment. "Today, though, we have a wealth of data and are able to analyze it using artificial intelligence," the former journalist explains. Another advantage, she adds, is that alternative data is generated constantly and doesn't appear just once every quarter.

The Value of Fake News

Orenda concentrates on using Twitter as its data basis. The microblogging service is more reliable and cares more about protecting data privacy than other social networks, Seajay says. Moreover, the data from Twitter is more informative, for instance, than credit card data, she adds. And how does Orenda deal with fake news? "It may have a bad rep, but fake news actually is extremely valuable for investors because it says a lot about a company's image," Seajay explains. "We could filter it out, but then our indicators would lose predictive power."

SIX acquired a majority ownership stake in Orenda in early 2021. Marion Leslie, who heads the Financial Information business unit at SIX, stresses that "in Orenda, we have found a partner that possesses unique expertise in alternative data, ESG data, and data science." The acquisition will open up new possibilities in the growing impact investing market, Leslie says.

"And it enables us, in turn, to reach a much broader global customer base," Seajay adds. "At the same time, it gives us an opportunity to develop new solutions that combine the enormous securities database of SIX with Orenda's specialty expertise." SIX will launch its first › product with Orenda later in 2021 – alternative data from Orenda will then be available on SIX iD, the financial data display from SIX.

"Perception is reality" was a mantra of Lee Atwater, the political strategist to Ronald Reagan and George H. W. Bush. The success of alternative data from social networks underscores that perception can become reality very quickly these days. Or as Tanya Seajay phrases it, "The burden of proof often gets reversed on social media: There's a presumption that allegations are true until they are proven false." In such a world, investors and companies are well advised to listen to the tweeting in the social media jungle. ×

Expansion of ETF Data Offerings

SIX strengthened its ESG (environmental, social, and governance) and alternative data offerings by acquiring a majority ownership stake in Orenda (see article on this page). SIX now has also expanded its data offerings on exchange-traded funds (ETFs) through its acquisition of Ultumus: The international index and ETF data specialist, headquartered in London, covers 7,700 ETF products, which amounts to 95% of the market. In combination with the core capabilities in trading, post-trading, and data-related services, this leading position enables SIX to have a hand in shaping the growing ETF market. Clients of SIX can now expect even greater transparency and efficiency.

More information: six-group.com/ultumus-press-red

* You can download the white paper *Data, the Future of Financial Information* for free at: six-group.com/future-data-red

The transformation of the financial industry is making headlines.
Our employees explain how SIX is contributing to the future of finance.

SEC chief warns crypto platforms must accept scrutiny to survive

Financial Times, September 2, 2021

In the *Financial Times*, United States Securities and Exchange Commission Chairman Gary Gensler warns cryptocurrency trading platforms that they will put their own survival at risk unless they agree to work within the regulatory framework. He says that he is “technology-neutral,” but asserts that crypto assets are no different than any others when it comes to protecting investors, guarding against illicit activity, and maintaining financial stability. That’s why he expresses disappointment that cryptocurrency trading platforms haven’t yet accepted his invitation to dialogue, preferring to “beg for forgiveness rather than ask for permission.”

Entirely unlike SIX. In its role as the operator of the infrastructure for Switzerland’s financial center, engaging in dialogue with the regulator is a routine part of daily business, as it is, for example, for our digital exchange SDX as well. We set out to build a fully integrated trading, settlement, and custody infrastructure based on distributed ledger technology for digital assets in 2018, and have been actively engaged in dialogue with the Swiss Financial Market Supervisory Authority FINMA right from the outset.

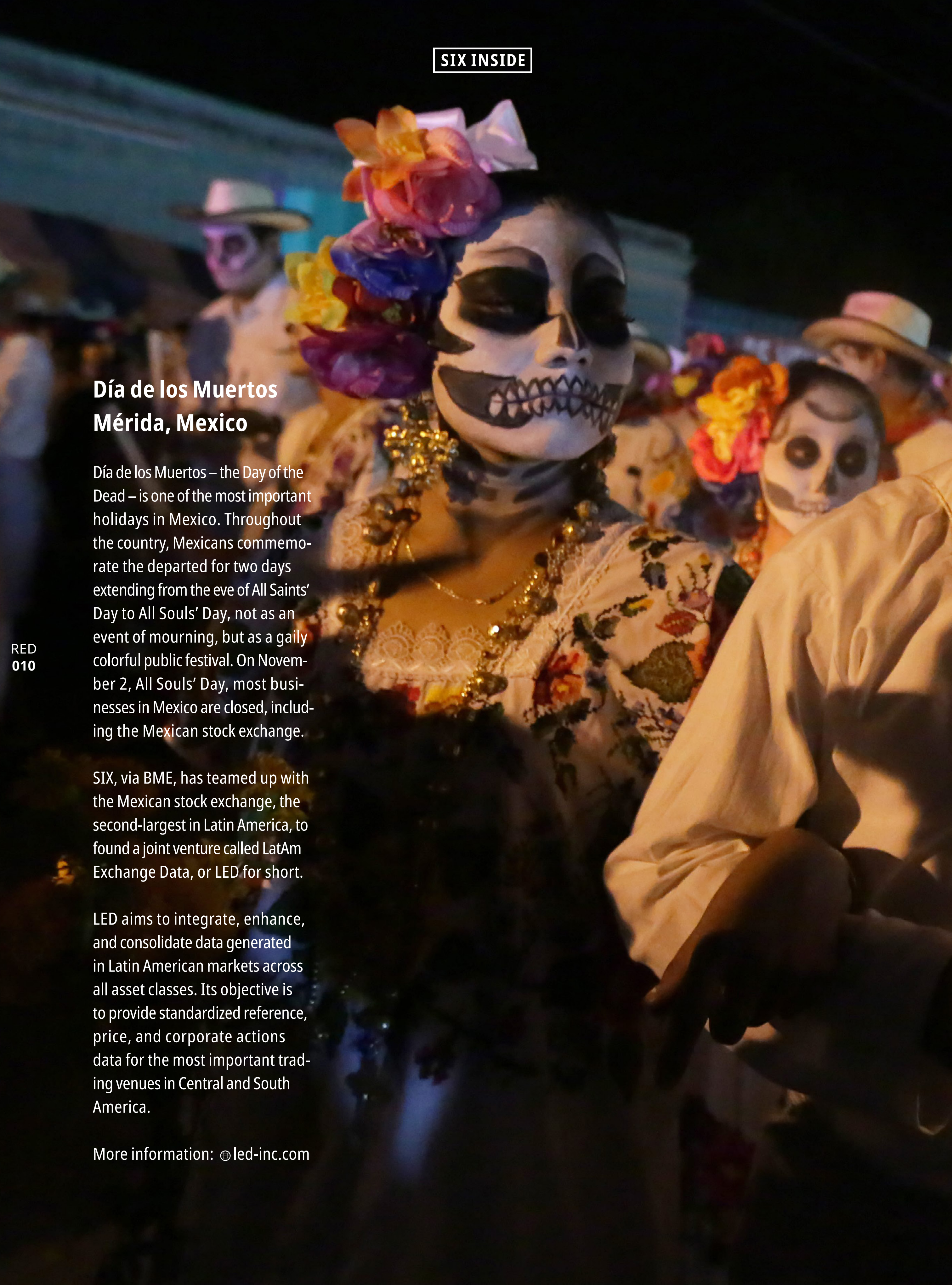
Now we can reap the benefits of this engagement. In September, FINMA authorized the licenses we need to commence operating SDX. They mark the first permits ever issued in the Swiss financial sector for infrastructures that enable trading and integrated settlement of tokenized digital assets.

SDX Will Become a Global Liquidity Ecosystem

We will continue to invest in building up an ecosystem in the months and years ahead. We will amass an international client base consisting of securities issuers, banks, insurance companies, and other institutional investors to create worldwide trading liquidity for digital assets.

The authorization from the Swiss regulator marks a major milestone in providing these clients with a secure and robust infrastructure that meets all of the core requirements of a traditional exchange and central securities depository. Because as Gary Gensler aptly says in the *Financial Times*: “Finance is about trust, ultimately.”

Nathan Kaiser
General Counsel,
SDX



Día de los Muertos Mérida, Mexico

Día de los Muertos – the Day of the Dead – is one of the most important holidays in Mexico. Throughout the country, Mexicans commemorate the departed for two days extending from the eve of All Saints' Day to All Souls' Day, not as an event of mourning, but as a gaily colorful public festival. On November 2, All Souls' Day, most businesses in Mexico are closed, including the Mexican stock exchange.

SIX, via BME, has teamed up with the Mexican stock exchange, the second-largest in Latin America, to found a joint venture called LatAm Exchange Data, or LED for short.

LED aims to integrate, enhance, and consolidate data generated in Latin American markets across all asset classes. Its objective is to provide standardized reference, price, and corporate actions data for the most important trading venues in Central and South America.

More information: led-inc.com

11 Trading Venues

Alongside the Mexican stock exchange, trading venues in four South American countries – Brazil, Chile, Colombia, and Peru – are also currently partnering with LED. They will soon be joined by stock exchanges in six other countries including Panama, Jamaica, and Costa Rica.

Going Global: Coming to New Perspectives

The English author Charles Dickens said: “The world belongs to those who set out to conquer it armed with self-confidence and good humor.” Having both of those attributes certainly can’t hurt.

Three different perspectives illustrate, however, that a few other things are also needed if you want to be successful around the globe.

At the age of 27, Alan Roura was the youngest competitor in the last edition of the Vendée Globe, the world's toughest sailing regatta – again for the second time after 2016. The Swiss national circumnavigated the Earth solo in 95 days and crossed the finish line on February 11, 2021, in 17th place out of 33 starters. He wants to compete again in 2024 with a faster yacht and a bigger team.

The World Circumnavigator

"It's strange how I sailed around the entire world but wasn't affected at all by time zones or national borders. Going by Coordinated Universal Time enabled me to keep my daily rhythm even when I was close to the South Pole, where the nights are only a couple of hours long. It didn't matter one bit to me if it was Wednesday or Sunday. Thanks to my chart, I always knew if I was sailing at the moment south of Cape Town, Tokyo, or Perth. That motivated me because apart from Cape Horn, I hardly saw land for three months. I instead saw something that no one else does. Moments in solitude on the ocean are singularly unique, none of them are reproducible. The magic fizzled, however, whenever I hit doldrums or technical problems arose and competitors caught up to me or pulled ahead of me. I never gave up, though, thanks to my six-person support team at home and especially thanks to my daughter, who was born four months before the race started. I wanted to make her proud and be a role model of perseverance to her."

The Market Developer

"Imagine having developed a product that has become a blockbuster in no time. You now would like to roll it out to other countries. Asia, with its high growth rates and its expanding middle class, particularly interests you. But you don't have a foreign subsidiary or a distribution setup there, which means that you also have no marketing assets, no sales organization, no factories, no warehouses, and no permits in place. It can cost 5 to 10 million Swiss francs to enter a market, and it will take three to five years before your product makes it onto store shelves. And don't think that you can bring it onto the market without having to make modifications to it. People in emerging economies buy shampoo in single-use packaging because a 400-milliliter bottle would cost a month's wages. Consumers in Thailand like everything a little sweeter. And an English name stands for quality in Singapore. We at DKSH have been dealing with such characteristics for over a century and a half. We, for example, brought Mars products to Cambodia and facilitated Lego's expansion into Thailand – and we can make your product available in every corner of Indonesia within a short time if you wish."

Martin Frech is the chief strategy officer and head of e-commerce at DKSH. The Zurich-based company helps businesses to expand into Asia and to grow there. Among its many accomplishments, DKSH brought the AstraZeneca vaccine to Thailand and secured the distribution of more than 80 million doses of COVID-19 vaccine in Asia.

Stephan Hänseler, who heads SIX SIS, is in charge of the services that SIX provides as Switzerland's national central securities depository, and is responsible for the international custody operations. Prior to joining SIX, the mountain climbing enthusiast spent two decades working in various roles at Credit Suisse and UBS in Zurich and Singapore.

The Alpinist

"SIX, with SIX SIS and Iberclear, is the national central depository for Swiss and Spanish securities. Operating out of Zurich, Madrid, and Olten, we also provide custodian services for securities in over 50 markets for our international clients. From London, and with our new branch offices in New York and Singapore, we are continually expanding our global presence. It is essential to be on site in every time zone to directly provide our customers with proven, fully integrated market-specific services for all asset classes. Regardless of our international ambitions, it is imperative not to neglect our domestic markets. The Swiss Alps are home to the imposing twin peaks of Castor and Pollux, which are over 4,000 meters high. I like to analogize them with our custody operations. Castor embodies the services we render as a national central securities depository. The somewhat smaller Pollux symbolizes the international custody business. It is technically more challenging, just like the ascent to the Pollux summit is, and will therefore be given our undivided attention in the years ahead."

Different Accesses to Capital

Matthias Bill

Private equity uses special purpose acquisition companies (SPACs) to raise capital on stock exchanges. At the same time, special SME segments of stock exchanges tap public equity for companies that are still in a growing stage. So, what again is the difference between private and public equity?

When a company needs money, it can either borrow debt capital or sell shares to raise equity.

A differentiation is commonly drawn between private equity and public equity (see illustration on the right). The term "private equity" denotes shares of ownership in companies that are not (or not yet) listed on a stock exchange. The term "public equity" refers to shares of companies that already trade on a stock exchange.

But private and public equity appear to have moved a bit closer together lately. Special purpose acquisition companies, or SPACs for short (see box), promise to accelerate and simplify the path to a stock exchange. At the same time, special market segments for SMEs – such as Sparks from SIX (see right column on page 15) or BME Growth – make it more attractive for companies still in a growing stage to go public. There currently are more than 30 companies listed on the BME Growth submarket alone, which is owned by SIX following its takeover of BME.

And going public also presents an opportunity to make incumbent investors' shareholdings tradable. It turns private equity into public equity, coming full circle. ×

WHAT EXACTLY ARE SPACS?

A special purpose acquisition company (SPAC) is a corporation without active business operations that is founded through an initial public offering. The objective of this "corporate shell" is to use the capital raised through the IPO to acquire a privately held company. The identity of the takeover target is usually unknown at the time of the founding of a SPAC, and investors must approve the proposed acquisition. When a takeover occurs, shares in the SPAC are then converted into shares of the acquired company, which thus turns into a publicly traded company that thenceforth must meet all of the obligations associated with a listing. If an acquisition does not take place by a certain deadline (usually two years), the SPAC's share capital, less any taxes, is returned to investors.

PRIVATE EQUITY	VS.	PUBLIC EQUITY
Often only a minority consisting of private investors and investment companies receive access.	Investors	The public at large can acquire shares in a company.
The investment horizon usually stretches over several years, during which time the shares are prohibited from being sold.	Liquidity	Shares can be bought and sold at any time via a stock exchange.
Investors have a say and frequently are involved in strategy development.	Interaction	Investors remain passive owners and at the most have a say at general shareholders' meetings.
There is no information disclosure obligation.	Information	All relevant information must be publicly disclosed.
Private equity typically flows to companies that are still in an early growth stage.	Point in Time	Established companies typically aspire to go public.

Sparks – the New Segment for SMEs on the Swiss Stock Exchange

Going public on SIX Swiss Exchange doesn't just stimulate the growth of SMEs, but also makes them sturdier during tough economic times. Companies now have a new quick way of raising capital, diversifying their sources of funding, optimizing their ownership structure, increasing their visibility to investors, and enhancing their credibility in the eyes of partners and customers.

Issuer requirements in the Sparks segment are less onerous than those on the main stock exchange. However, all companies listed on the Swiss stock exchange are subject to the same reporting requirements and the same regulatory oversight, which ensures transparency and investor protection in the Sparks segment as well.

Shares of newly listed SMEs that are in a growing stage generally have comparatively lower trading liquidity. Sparks takes this into account by concentrating trading into a condensed trading window, which enables investors to benefit from more efficient price discovery and improved execution of trades.

Sparks supplements the other services from SIX that are specially customized for SMEs. Those services include Stage, a program that supplies independent research to increase visibility, and Bridge, a service that links stock issuers with investors, as well as workshops and e-learning offerings.

Is your company ready to go public? Find out more about Sparks and discover how you can grow further after going public: at six-group.com/sparks-red

Annelotte De Nanassy
Senior Product Manager,
Financial Information, SIX

Survey report: six-group.com/ca-survey-red

Need for Automated Processing of Corporate Actions Data

Demand for precise, efficient processing of corporate actions data is greater than ever today. Companies need timely access to high-quality data. We bring that about through automation, freeing up employees to concentrate on tasks that are more complex. However, our April 2021 survey of leading asset managers, custodians, clearing agencies, and investment banks revealed that there's still a long road to reaching that goal. Almost 80% of the survey respondents stated that they continue to handle part of their corporate actions data manually, and 40% said that they process more than half of such data by hand. Nearly 50% of the respondents cited outdated technology as the reason.

Potential savings calculator: six-group.com/atm-savings-red

ATMs: Optimization through Bundling

Despite the diminishing importance of paper money as a means of payment, providing access to cash remains a vital task in service to society. Banks are faced with the dual challenge of ensuring the availability of cash and ATMs while operating the latter economically. With its new ATM cash management services, SIX has broadened its ATM service offerings to enable banks in Switzerland and Liechtenstein to reap economies of scale. Forecasting powered by artificial intelligence optimizes ATM refilling intervals – the calculator on our website displays the potential savings. In addition, standardized software makes manual processes as well as losses of know-how due to staff turnover a thing of the past.

Beat Glauser
Senior Product Manager Cash Ecosystem,
Banking Services, SIX

Panel session: six-group.com/sibos-2021-red

Where the Global Financial World Comes Together – Virtually

Pablo Malumbres
Head Marketing Securities Services,
SIX

Sibos is the most important event of the year for the global financial world. SWIFT has organized the convention since 1978, annually bringing together thousands of executives, decision makers, and thought leaders to discuss issues concerning the securities business, the payment transactions industry, and lately tech innovations as well. SIX and, prior to the integration, BME attended the event year after year with their own stands. In 2021, SIX was once again a proud sponsoring partner. However, also this year's Sibos took place only virtually, with the advantage that you can continue to view the recorded program, including the panel session "Beyond the Basics: Diversity, Equity, and Inclusion as a Marker for Business Credibility." Marion Leslie, Head Financial Information and Executive Board member, joined in the discussion on behalf of SIX.

SIX, as a thought leader, initiates dialogue with all players in the financial industry.
Our employees share their knowledge in a wide variety of ways.

Inveert

inveert.com

Headquarters: **Seville, Spain**
Founded: **2019**
Employee headcount: **8**
Sector: **wealth management**

Inveert has been participating in the F10 Madrid incubation program.

SIX is the founder and a corporate member as well as main sponsor of the F10 FinTech Incubator & Accelerator.
f10.global

Fewer than 20% of retail banking clients worldwide invest their savings. They park their money in a bank account because they often lack the financial skills and requisite time to grapple with the countless investment possibilities. Also, financial institutions are often unable to offer dedicated financial advisory services to non-wealthy customers for reasons of profitability. We have developed an easy-to-use financial planning platform designed specifically for the mass market. It enables financial institutions to offer a fully digital and automated goal-based advisory service. Our algorithm draws up a personalized saving and investment plan aimed at achieving life goals such as a comfortable retirement or a good education for one's children. Inveert reimagines the user experience in wealth management and guides customers in a personalized way, based on the principles of behavioral finance. Thanks to specific triggers, our platform helps financial advisors to get in touch with customers when something relevant happens.

Eduardo Peralta
CEO of Inveert


Eduardo Peralta (center), CEO Inveert, with part of the team.

WHY WE FIND THIS TOPIC RELEVANT

Wealth shifts, socio-behavioral changes, economic and monetary turmoil, and technological evolution are transforming wealth management. This opens a tremendous business opportunity: democratization of wealth management. Wealth managers need to become more efficient to extend their reach to people who are seeking easy and convenient personalized services. Inveert masters this new challenge with its automated tool, helping wealth managers to serve their clients better.

HOW HIGH WE ESTIMATE THE MARKET POTENTIAL

The market for wealthtech has enormous potential, as evidenced in recent years by the founding of many new startup companies focused on supplying tools such as robo-advisors, digital brokerage solutions, micro-investment tools, and the like. Between 2016 and 2020, global annual investment capital funneled to wealthtech companies tripled from 2.8 billion to 9.3 billion US dollars. Established companies like Renta 4 Banco and BME are in the process of joining forces with them to bring innovative wealth management solutions to their clients.

WHY WE BELIEVE IN THIS STARTUP

We recognized the potential of Inveert the moment we first met with Eduardo and his team at the F10 incubation program. The team's commitment, drive, vision and, of course, experience impressed us. The keen interest that Inveert aroused among various financial institutions and the intention expressed by BME to develop an initial project with Inveert reinforced our confidence in the startup's potential.

Andrea Sanchez
Country Success Lead, F10 Madrid

The experts at the F10 evaluate startups that have ideas and solutions for innovative services, that make processes more efficient, or that want to address new groups of customers.

“Stock Prices Depict a Real Economic Value”

Interview: Matthias Bill

Dr. Daniel Kalt
In his role as chief economist at UBS, Daniel Kalt has been advising the banking group’s executive board on economic policy matters and has been in charge of all research products for clients of UBS Switzerland since 2010. Before joining UBS’s research department in 1997, he earned a licentiate degree in economics from the University of Zurich and afterwards completed the Swiss National Bank’s Program for Beginning Doctoral Students. He earned a doctorate in economics from the University of Bern in 2000. Kalt has additionally served as UBS’s regional chief investment officer for Switzerland since 2012.

Stock exchanges around the world are registering all-time highs in the midst of a pandemic. Equity markets appear to have decoupled from the real economy. UBS Chief Economist Daniel Kalt explains why that impression is misleading, and what's driving investors to the stock exchanges.

We're still a long way from having vanquished the pandemic and overcome the resulting crisis, but stock exchanges nevertheless have recently been reporting record-high share prices. Have equity markets decoupled from the real economy?
I don't think so. That impression stems from an enormous discrepancy between the small universe of publicly traded companies and the great remainder of the economy. The adverse effects of the pandemic have manifested themselves mainly in the "capillaries" of the economy, impacting SMEs, small and midsize enterprises like restaurants, culture establishments, etc.

Publicly traded companies in comparison, which generally are larger-sized companies, were much better prepared to cope with the pandemic and were accordingly less affected by its impacts. Most of those companies are in good shape.

And this is being reflected in stock prices?
Some of the large publicly traded companies in particular have profited directly from the pandemic. Remote work from home, for example, lit a rocket under technology stock prices. There's faith in a better future on top of that. One-year-forward profit expectations for publicly traded companies around the world are 30% to 40% higher than actual pre-pandemic earnings were.

This owes also to current fiscal policies and ultralow interest rates, both of which benefit companies that traditionally trade as growth stocks – technology companies have been at an advantage here as well lately. Value stocks such as banks, in contrast, have been struggling in this climate.

What does the discrepancy that you described mean for a country like Switzerland, whose national economy is dominated by SMEs?
First of all, every national economy the world over is dominated by SMEs. There are hairdressers, bakers, and carpenters everywhere. The image of Switzerland being a country distinctly jam-packed with SMEs is a cliché, in my opinion. On the contrary, hardly any other country of this size is home to as many hyperglobalized corporations as Switzerland boasts: Nestlé, Novartis, Roche, ABB, and so on. Think, for example, of Austria, which plays in an entirely different league.

This has also helped us to get through the crisis comparatively well from a macroeconomic point of view. Gross domestic product in Switzerland contracted by only 2.5% in 2020 while it plummeted by 7% in the eurozone. The UK registered

"The speed at which stock prices recover after a crash depends very much on how severe the disequilibrium in the economy was beforehand."

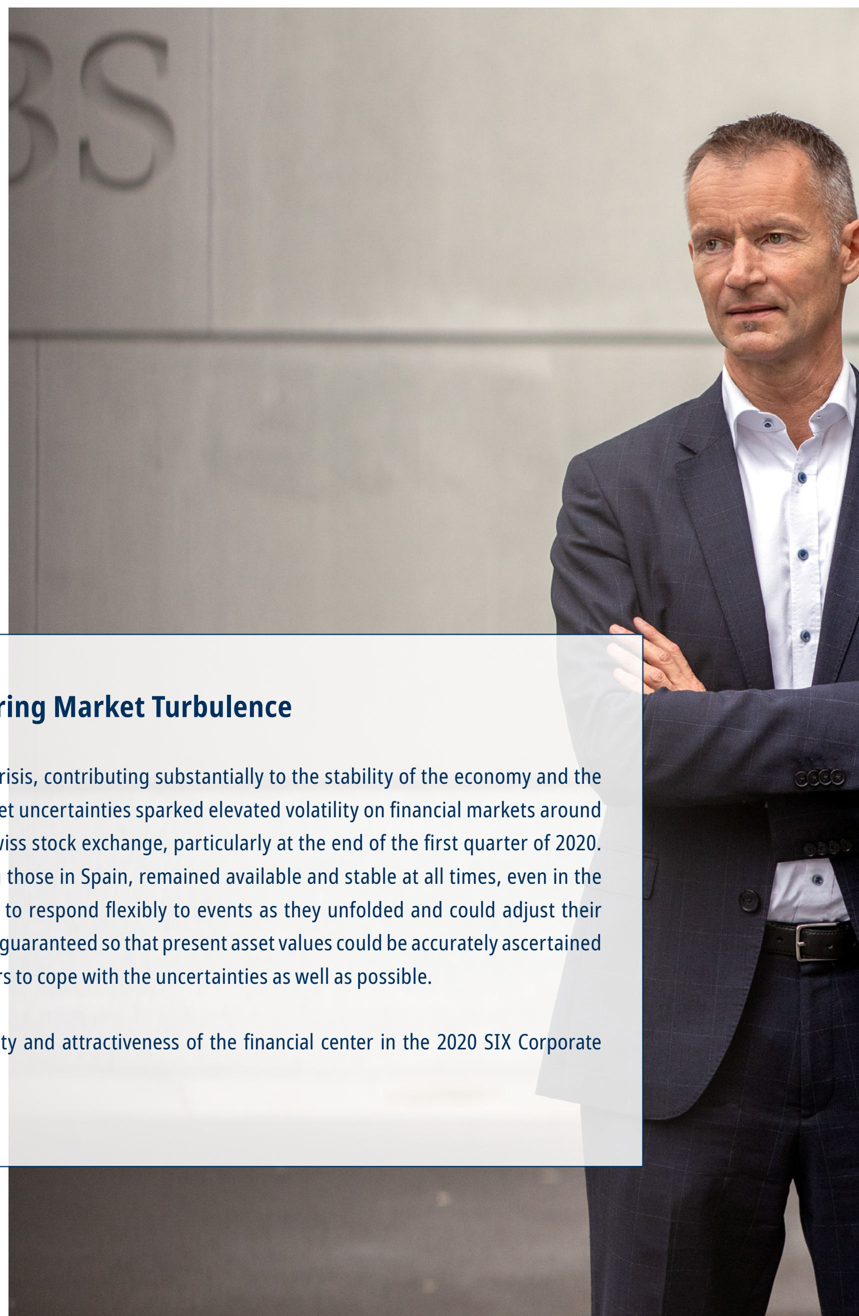
a nosedive of almost 10%, admittedly also as a result, though, of Brexit.

Gross domestic product figures weren't all that plunged in 2020 – so did stock prices in spring of last year. Were you surprised by how quickly they subsequently recovered?
The speed at which stock prices recover after a crash depends very much on how severe the disequilibrium in the economy was beforehand. The 2008 financial crisis is a perfect example of an event that was preceded by a period of ongoing aberrational developments such as real estate bubbles in numerous countries and the securitization of subprime mortgages. This means that in the aftermath, those aberrations first had to be corrected. It took years to accomplish that.

The crisis in connection with the pandemic is an entirely different animal. It burst upon a world economy that was in relatively healthy shape without any large excesses in the real estate market, for instance.

The halt in consumer spending and the attendant recession came from an unexpected quarter: It was caused by government-ordered lockdowns. Perhaps it was knowledge of this fact that prompted some investors to recognize the low stock prices as a buying opportunity, thus helping to kick-start the turnaround. A way out of the crisis then soon became apparent with ›

"I cannot discern a decoupling of equity markets from the real economy."



Infrastructures from SIX Stand the Test during Market Turbulence

SIX has proved its operational resilience during the COVID-19 crisis, contributing substantially to the stability of the economy and the financial market. The raging pandemic and the associated market uncertainties sparked elevated volatility on financial markets around the world and triggered record-high trading volumes on the Swiss stock exchange, particularly at the end of the first quarter of 2020. Throughout that period, the infrastructures from SIX, including those in Spain, remained available and stable at all times, even in the midst of extreme market turbulence. Investors were thus able to respond flexibly to events as they unfolded and could adjust their portfolios at any time. Fair and orderly price discovery remained guaranteed so that present asset values could be accurately ascertained at all times. SIX thereby helped market participants and investors to cope with the uncertainties as well as possible.

Read more about the contribution that SIX makes to the stability and attractiveness of the financial center in the 2020 SIX Corporate Responsibility Report:
six-group.com/cr2020-red

the first news reports of successes with vaccines. A recovery on the equity markets came accordingly quickly.

Is it the prevailing ultralow interest rates that are also driving investors into equity markets in the absence of good alternative sources of return?
That can't be denied entirely. Market interest rates on short-term bonds denominated in Swiss francs have been below zero since 2015. And it appears that these negative interest rates, which were once envisaged by the Swiss National Bank as a temporary measure aimed at weakening the franc against the euro, will be with us for a while longer.

Perhaps in the end we will have spent an entire decade in this interest-rate environment. That wouldn't surprise me, especially seeing as how interest rates on long-term loans have also come under enormous pressure in the meantime, due in large part to massive bond buying around the world by central banks with the help of freshly printed money, though lately that of course has been intended to soften the pandemic's shock on the economy and to stimulate consumer spending.

Central banks as a reliable knight in shining armor – is it perhaps also this image that has stimulated the equity markets?
The term for this is "moral hazard," the belief in not having to bear the full risk of one's actions – of one's investments in this instance. The danger of moral hazard exists. During the equity market crash of 1987 and at least ever since the 2008 financial crisis, central banks have acquired a habit of intervening to brighten consumer and market sentiment.

Interest-rate cuts were long the means of choice for doing this. In the meantime, though, central banks have resorted to buying assets – bonds as I mentioned earlier, but also currencies and stocks. This is a new dimension of monetary policy that equity markets apparently have grown accustomed to as a kind of backstop.

A backstop that evidently works. Stock prices in some segments of the market are already 20% or more above their 2019 levels. So, one can now also conversely ask if this rally will go on this way forever.
Well, if we look at stock prices over the long run, meaning over several decades, we observe that they in fact do rise continuously and that the infamous crashes were only interim dips. Because stock prices, after all, really do depict a real economic value, that of the corresponding stake in a given company. And that's a reason why I cannot discern a decoupling of equity markets from the real economy, to come back to your initial question.

I'm more concerned in this regard about bonds, which reflect the flip side of central banks' expansion of the money supply. Their price levels no longer have much to do with reality. Market interest rates have fallen into an abyss.

Ultralow interest rates are exacerbating disequilibriums also in the real estate market. They have driven up property prices, particularly in Switzerland. If interest rates start to rise again one day, this overvaluation is likely to undergo a correction and there is reason to fear a price collapse. If there has been a decoupling anywhere to speak of, then it's rather in the bond and real estate spaces. ×

When a Tidal Wave of Data Crashes

Matthias Bill

Cybercriminals can easily generate enormous volumes of data aimed at causing a denial of service – paralyzing a company's business operations on the internet.

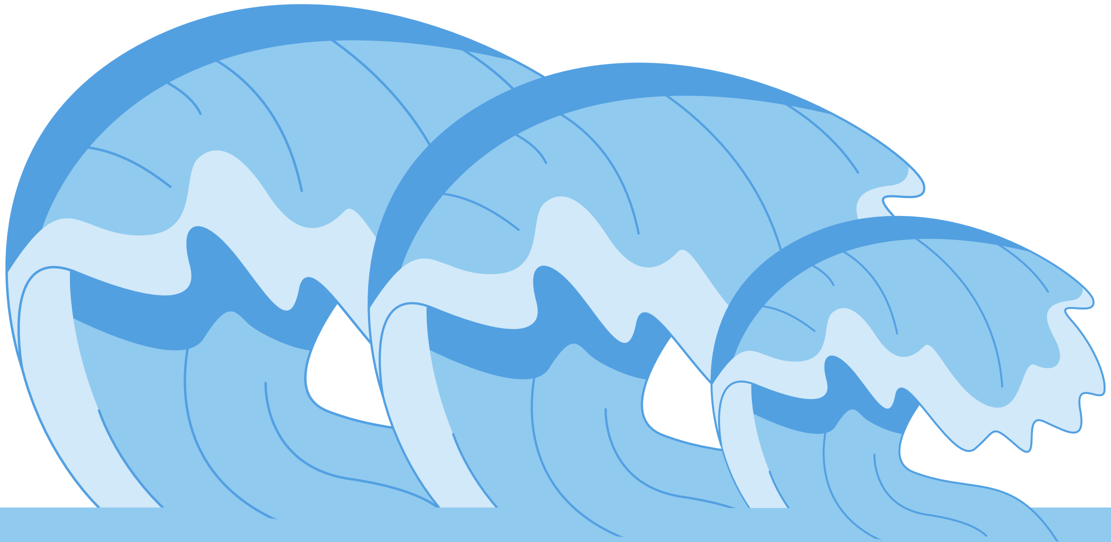
What company doesn't delight in having lots of user traffic on its website and lots of clicks on its product and service offerings? Sometimes, though, what lies behind that website activity isn't customer demand or even a human being at all, but rather computers manned by cybercriminals, who are often capable of generating several hundred gigabits of data per second (see illustration) for the purpose of overwhelming and ultimately disabling a website, server, or an entire network. In such an incident, a company's customers can no longer access a specific service, which causes revenue losses. Cybersecurity experts call this a denial-of-service (DoS) attack, which sometimes also involves a ransom demand.

When cybercriminals harness a whole network of computers to orchestrate their assault – by infecting third-party devices with malware, for example – this is called a distributed denial-of-service (DDoS) attack. DDoS attacks occur very frequently on the internet because the tools that cybercriminals employ to launch them are cheap to acquire and easy to use.

DDoS attacks can be averted, for instance, by limiting the number of queries, filtering them according to specific criteria, interposing a cloud infrastructure, or by going offline altogether. Leaving the internet, of course, only works if the offering at hand isn't public – like in B2B applications. SIX, for instance, puts private connections at its clients' disposal for many services (e.g., Finance IPNet and point-to-point connections). Or alternatively, a novel technology, the Secure Swiss Finance Network (see box), is also now available to make connections even more resistant to cyberattacks.

The Three Biggest DDoS Attacks in History

(Peak Data Volume per Second)



2.5 Terabits

September 2017
Google receives bogus search queries from over 180,000 web servers over a period of six months.

2.3 Terabits

February 2020
An undisclosed client of Amazon Web Services receives up to 70 times more queries than usual over a period of three days.

1.3 Terabits

February 2018
Over a span of several minutes, GitHub, a platform for software developers, receives queries from thousands of routers pooling tens of thousands of IP addresses.

New Infrastructure Increases the Swiss Financial Center's Resistance to Cyberattacks

The Swiss National Bank and SIX will roll out the Secure Swiss Finance Network (SSFN) in November 2021. This will further increase the Swiss financial center's resistance to cyber threats such as DDoS attacks (see the article on the left page) and route hijacking, i.e., the "hostile" takeover of groups of IP addresses.

Segregated from the internet, the SSFN is a monitored and protected network that allows authorized participants operating in the Swiss financial industry to communicate securely with each other and with financial market infrastructures such as the SIC payment transaction settlement system run by SIX. It is based on SCION technology, which was developed at the Swiss Federal Institute of Technology in Zurich and is supplied by Anapaya Systems. SCION technology makes it possible to control which participants may use the communication network and which path data take when being transmitted from sender to receiver.

The rollout of the SSFN marks the first application of SCION technology beyond a point-to-point connection outside a university setting. Close collaboration with a consortium of three telecom service providers – Sunrise, Swisscom, and SWITCH – enables system redundancy. An outage at one provider is bridged within seconds. The SSFN will initially run in parallel with the existing communications network of SIX, which is very secure in its own right.

More information: six-group.com/ssfn-red

BULLISH

Working from Home Works

Interview: Sibylla Rotzler

Hannah Zaunmüller has been the Chief Human Resources Officer and a member of the Extended Executive Board at SIX since February 2021. After stints at Deutsche Post DHL and Swiss Post, the German-Swiss dual citizen most recently held the same role at media group Ringier prior to joining SIX. She is convinced that a hybrid approach to working is the model of the future.

In the last issue of RED, an employee of SIX made a case for instituting a remote-first approach to working as the standard mode. How will we at SIX be working in the future?
Remote work has functioned very well in the vast majority of cases during the COVID-19 pandemic. We are now integrating its beneficial aspects into a hybrid work model that enhances the flexibility of choosing the physical location

Rodeo Time
Hannah Zaunmüller:

136s

Our employees at SIX prove their toughness in the saddle – and in their specialty subject areas.

“Demands on managers have changed, and employee health and well-being have gained new importance.”

where one works. The choice of work location, of course, also depends on specific job requirements and roles and on one’s personal situation. The detailed design of the hybrid model will ultimately be set by the individual departments to meet their different needs and local requirements.

Where’s your favorite place to work?
I enjoy working from home, but I also like working on-site at SIX – we have a fantastic new HR office space.

As Chief Human Resources Officer, what insights have you gained from mandatory remote work during the COVID-19 pandemic?
Working from home ultimately demonstrated to many workers and line managers who were fundamentally opposed to it that it really works and has beneficial aspects. It has also given digital transformation a big boost. We have had to rethink and digitalize work processes. Moreover, demands on managers have changed, and employee health and well-being have gained new importance.

Do employees really work better and more efficiently from home, as we often read in the media?
There have been a lot of studies about this. Some of them show that workers feel more productive working from home, and others actually verify higher productivity. As I said before, I think specific job requirements, roles, and workers’ personal situations are ultimately the decisive factors. A better work-life balance is possible in many cases. Working from home definitely saves time spent commuting to the office.

What, in your view, are the benefits of working on-site?
Working on-site facilitates social interaction, promotes team spirit, and fosters identification with SIX. Physical presence facilitates communication and cooperation. On-site office meetings are indispensable or advantageous for certain processes or functions such as recruiting or holding workshops. Moreover, working on-site offers some employees a quieter and better-equipped work environment or creates a clear separation between work and leisure time.

How many employees have you met in person since joining SIX last February?
I’ve met with very many online, but with far too few in person – but I’m working on that.

It’s 9:30 on a Thursday morning and you’re perched atop a mechanical bull. What do you normally do this time of day?
I sit in a chair at home or in my office at SIX – or I’m on my way to the coffee machine.

Reduction of CO_2 Emissions during the COVID-19 Pandemic

The future hybrid work model to be implemented by SIX will continue to exert a beneficial impact on CO_2 emissions through greater use of virtual meetings and periodic work from home. In connection with the COVID-19 pandemic, the CO_2 emissions of SIX went down by 40% year on year in 2020, largely as a result of a cutback in business flights (due to travel restrictions) and to a lesser extent due to mandatory remote work from home.

93%

of Swiss businesses are aware that traditional payment slips will soon be discontinued.

From September 30, 2022, onward, it will no longer be possible to make payments in Switzerland with the customary red and orange payment slips. All businesses in Switzerland must be capable of invoicing with QR bills by that deadline. According to polling and research institute gfs.bern, 93% of businesses surveyed in May 2021 were aware of the compulsory switchover, but only 15% were already invoicing with QR bills at the time. This means that the bulk of businesses have some work ahead of them in the remaining months until the switchover.

RED Has (More than One) Reason to Celebrate

RED has a birthday to celebrate. Readers leafed through its pages for the first time on September 21, 2016. A dozen issues have been published in the half-decade since then. The magazine from SIX made an impression right from the start, winning over 20 awards.

In spring 2021, RED received the Mercury Excellence Grand Award for Best of Writing in a competition of publications from across all industries and disciplines. Shortly afterward, it was honored as the Best Financial Services Publication by the Content Marketing Awards, leaving even the *Financial Times* in the shade.

Subscribe today and stay abreast of what's next for RED in 2022:
six-group.com/red-subscribe

> **"It is important that we address the current and future challenges that WFE members are dealing with in a united and internationally networked manner."**

SIX CEO Jos Dijsselhof is delighted about his election to the chairmanship of the World Federation of Exchanges (WFE) Working Committee, which advises the WFE Board of Directors on issues pertinent to the industry.

Welcome!

New Listings on SIX Swiss Exchange
September 30, 2021: medmix (MEDX)
October 28, 2021: SKAN Group (SKAN)

New Listing on BME
July 1, 2021: Acciona Energía (ANE)

New Listings on BME Growth
July 7, 2021: EiDF (EIDF)
July 8, 2021: Endurance Motive (END)
July 15, 2021: MioGroup (MIO)
July 22, 2021: Llorente Y Cuenca (LLYC)
July 23, 2021: Aeternal Mentis (AMEN)
August 3, 2021: Inbest VI (YINB6)
August 3, 2021: Inbest VIII (YINB8)
September 23, 2021: Silicius Real Estate (YSIL)
October 29, 2021: CF Intercity (CITY)

New Listing on Latibex
October 27, 2021: EDP Brasil (XENBR)

SIX was crowned the Exchange Group of the Year at the 2021 Financial News Trading & Tech Awards gala. Alongside the accolade for the SIX Swiss Exchange, SIX was also named Clearing House of the Year.

Our employees are experts in their respective fields, and they never stop furthering their education and skills. In the course of their doing that, the best inputs sometimes come from an unexpected direction.

Thomas Tuchel
Head Coach, Chelsea FC

During my youth in Germany, I used to love to go to the stadium to watch my beloved team, Hannover 96, play. I live in Switzerland now, and no longer have an opportunity to see Hannover 96 *live* in action. Moreover, "die Roten," the Reds, were unfortunately relegated from the first division Bundesliga long ago. But I've remained a soccer fan to this day. Today, though, I'm less interested in individual players and much more intrigued by soccer tactics, the constantly changing strategies employed by head coaches.

My compatriot Thomas Tuchel particularly impressed me last season. In the span of a few months, he turned struggling Chelsea FC into a winning team, climbed the standings of the English Premier League, and, as a crowning achievement, won the final of the UEFA Champions League, a match he had lost a year earlier as the head coach of the Paris Saint-Germain FC.

I can really identify with the introverted analyzer. His obsessive attention to detail fascinates me. There is even a story about how he once sniffed the grass of a soccer field because he was thrilled with the quality of the pitch and wanted to hire away the groundskeeper on the spot.

In the index business, I don't need my nose all that much, but details are crucial to us as well. Our calculations have to be accurate. Just imagine the ramifications if the Swiss benchmark index SMI or its Spanish counterpart, the IBEX 35, were inaccurate. That's why we have control mechanisms and monitoring systems in place.

ESG Indices Liven Up the "Game"

Indices are based on rules, just like the sport of soccer is. This also means, though, that the composition of an index can change, as happened to the SMI in September 2021. Swatch Group no longer met the market capitalization criterion for inclusion in the index, and was replaced by Logitech. Indices like the SMI are designed to depict an equity market as accurately as possible because they serve as the underlying asset for numerous financial instruments such as options, futures, structured products, and exchange-traded funds.

Not only can the makeup of individual indices change, but so can the range of indices on offer. It is growing ever larger and more diverse because we are creating indices for different investment styles. We recently rolled out a family of sustainable indices covering environmental, social, and corporate governance aspects, and they are enjoying huge popularity. The ESG indices were quickly followed by the launch of numerous exchange-traded and index funds that track them.

Christian Bahr
Head Index Services, SIX

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PODCAST

The final whistle will sound for the reference interest rate LIBOR at the end of this year. The team headed by Christian Bahr already sent in SARON to replace LIBOR quite a while ago. He explains the importance of this longtime project for Switzerland's financial industry in our SIX Podcast.
six-group.com/podcast-tuchel-red


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