



SIX



**Focus:
20 Years of
Continual
Advancements**

Speeding



Forward

SIX has been propelling Switzerland's financial industry forward for two decades and is now stepping on the gas again. RED reveals where speed works for Switzerland's financial-market infrastructure and explains when it's better to wait.

Text **Franziska Garbe**

June 24, 2016. It's been clear for a couple of hours now that the UK will leave the EU. Stock and currency prices are nosediving, politicians and the media are in an uproar, and the telephones at SIX Swiss Exchange are ringing off the hook. Otherwise, there is nothing in the Zurich stock exchange building that betrays any indication of the tensions behind the scenes. Today the big display board in the foyer is the only visible sign of ongoing trading. Securities tickers and numbers rhythmically scroll across it at a moderate pace – electronically, continually and silently.

Gabriela Rytz remembers when things were different. In the mid-1980s, the then 20-year-old used to sprint up and down a steep staircase a hundred times a day at the old Zurich stock exchange on Bleicherweg. As a "ticket runner," she shuttled phoned-in buy and sell orders from her bank's office

on the first floor down to the trading floor, where the floor traders clustered around the ring, deafeningly shouting out prices for the orders handed to them. "Not every security was continuously traded during open outcry sessions," Ms. Rytz recounts. "As a ticket runner, under no circumstances could you miss a time slot. When the alphabetical sequence came to a non-continuously traded security and an order for it was pending, I had to rush it down to the ring."

Fast and at the Best Price

Incoming orders – information transmission – trade execution: What was once purely physical in 1985 is today taken care of by computers. SIX Swiss Exchange's electronic platform executes trades in the blink of an eye, reliably and always in line with the same rules. The elapsed time is measured at a constant 37 microseconds. The bustle on the trading floor and the shouts of traders are a thing of the past. "Our electronic trading system is predictable and ultrareliable," Swiss Exchange Division CEO Christoph Landis says. "No trader needs to price in risk premiums for uncertain information. Bid and offer prices correspond to supply and demand."

There are two crucial factors for price formation on the securities exchange today: The speed at which price information reaches traders, and the speed at which traders can react to that information. The story of broker Jim Fisk (see box on page 15) shows what happens when there's a snag somewhere along the line: The price turns out wrong. Electronic trading on SIX Swiss Exchange prevents such price distortions. "The predictability of our system democratizes the market," Mr. Landis asserts. State-of-the-art infrastructure enables SIX Swiss Exchange to currently provide the European Best Bid and Offer (EBBO) for more than 80% of the securities it trades daily. "This is so good that no trader searching throughout Europe for the best trading venue for a deal can ignore us."

A trading system that works reliably, quickly, and with consistent stability even for large transaction volumes is vital to upholding the ambition of being a reference market, particularly in times of financial-market turbulence. Neither the post-Brexit referendum turmoil in June nor the historically high trading after the Swiss National Bank's decision to scrap the EUR/CHF >

exchange-rate floor ruffled SIX Swiss Exchange's trading system, let alone pushed it to its capacity. But what if that were to happen? "Prices would get distorted, and we would no longer be able to guarantee certain parameters," Mr. Landis says. "That would include, for instance, not being able to clear all trades for settlement within the same day."

In the Beginning There Was Paper Chaos

Everything that takes place after a stock-market transaction is agreed – risk management between the parties to the trade, settlement of the trade and centralized safekeeping of the securities involved – is fully automated in Switzerland today. SIX manages the entire value chain consisting of trading, clearing, settlement and custody.

A look back at the past illustrates how safe and efficient this is. In the early 1970s, the sheer volume of securities transactions that had to be cleared and settled manually plunged Wall Street into a dire crisis. Within a short space of time, trading volume on the New York Stock Exchange had rocketed from 5 million to 12 million transactions per day. The back offices responsible for settling stock-exchange transactions were buried under an avalanche of paper. This resulted in delayed deliveries of securities and an exceptionally high error rate, which caused enormous costs. In a span of two years, a sixth of all NYSE trading members disappeared from the scene – none of them had their accounting under control. It took the deployment of computers and the resulting nascent automation of processes to stabilize the situation.

Swiss Chain Reaction

The various infrastructure operators in Switzerland interlinked their IT systems in 1996. Years later, in 2008, they merged to form Switzerland's central financial-market infrastructure under the name SIX. The Swiss value chain (see box on page 17) was absolutely unprecedented in the mid-1990s. It enabled end-to-end data processing of everything from order entry to central safekeeping. The star attraction was the integration of the Swiss Interbank Clearing (SIC) system into the value chain. Trading banks from then on used it to square their open positions through their sight deposit accounts at the Swiss National Bank.



“As a ticket runner, under no circumstances could you miss a time slot. I had to sprint down to the ring each time.”

Gabriela Rytz, former ticket runner at the Zurich stock exchange

This substantially increased their liquidity and consequently accelerated payment settlement.

In Step: Switzerland and Europe

Today it takes just seven seconds for a transaction to pass through the entire Swiss value chain. Theoretically. In reality, throughout Europe, two working days stand between the execution of a stock-exchange trade and the final transaction settlement. Long gone are the days when the Swiss financial market could be viewed in isolation, let alone operate in isolation. So SIX's clearing operations process trades executed not just on SIX Swiss Exchange, but also on the London Stock Exchange, and on a number of other trading platforms in Europe. "The trades executed throughout Europe continuously reach us in real time," says Christian Sjöberg, the Head of Clearing at SIX Securities Services. This means that approximately two million times a day, SIX acts as a central counterparty, calculates the risks inherent to the parties to the trade in real time, and thus minimizes the risk of default. After the final bell has sounded at the last stock exchange to close, all of the transactions in a given security are offset against each other. "At the end of the day, just a single settlement order per clearing participant is transmitted to the corresponding securities custodian," Mr. Sjöberg explains. This *modus operandi* makes the processing of transactions highly efficient. Expanding volume, high volatility, countless different financial instruments: "We take care of all of it," the clearing expert assures.

Infrastructure Takes Time

In Europe today there are more than 100 regulated trading venues and more than 30 recognized clearing houses and central securities depositories, as well as other custodians and banks that provide safe-keeping services. All of them are networked differently. The fragmentation of the European market fosters price competition between the infrastructure operators. At the same time, there is mounting pressure to harmonize systems, processes and regulations.

A number of harmonization projects are currently underway. They are complex, costly and very time-consuming. Below are just two examples: In 2007, >

Historical High-Speed Trading

Up until 1866, transatlantic news transmissions relied on ship traffic – something resourceful traders knew how to exploit. In 1865, for instance, when news spread in New York that the Confederacy had lost the US Civil War, a certain Jim Fisk chartered a fast schooner that reached the European continent long before conventional mail ships did. Fisk then sold bonds for the Confederate States of America in London for a wildly exorbitant price and made a fortune.

The increasing use of technologies like telegraphy in the financial market has made it less and less possible to gain and exploit an information advantage.



In the 19th century, the telegraph supplanted mail ships as the principal means of intercontinental communication.

In 1930, for example, a stock-exchange ticker system went into operation for the first time in Zurich. It telegraphed current securities prices printed on a narrow strip of paper to any number of recipients without a time lag. This innovation laid the foundation of the business operations of SIX Financial Information. Today, all of the major stock exchanges publish market data, such as the last price paid for a security, to ensure transparency in securities trading.

Actual physical securities are increasingly disappearing. Since 1970, all that's required in Switzerland when a security changes ownership are corresponding account entries at the banks involved and in the securities settlement system operated by SIX Securities Services. Paperless is faster.

“It isn’t IT that provides the answer to the challenges posed by the market, it’s the business model utilizing IT that does.”

Henning Kagermann and Hubert Österle,
book authors

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the European Central Bank began preparatory work on a pan-European securities settlement platform known as TARGET2-Securities (T2S).

The aim of T2S is to enable harmonized, centralized delivery-versus-payment settlement of securities transactions in central bank funds across the whole of Europe. European central securities depositories are in the process of migrating to the Eurosystem’s T2S platform in stages over a two-year period. Since the next migration wave has been delayed, the platform has yet to undergo meaningful stress tests. SIX was part of the initial migration wave in June 2015 and is the only major central securities depository to date to have fully implemented T2S.

Another significant infrastructure project in Switzerland was completed in April 2016, when SIX successfully migrated the Swiss Interbank Clearing (SIC) system onto a new, modern platform. The old system had been in round-the-clock operation for

almost 30 years, and the new SIC⁴ platform is likewise designed to stay operational for a long time to come, for a life span of at least 15 years. The platform is scalable, is capable of handling multiple currencies and, as the first system of its kind in Europe, is based on the ISO 20022 messaging standard, which is the international standard for harmonized cashless payment transactions.

But is a planning horizon spanning more than a decade actually even tenable for a technology-driven company operating in a highly dynamic environment? In today’s fast-paced information age, there are mounting examples of former world market leaders whose business models suddenly became outdated; Kodak, the one-time leading supplier in the photography industry, failed to adapt in time to digital photography; Nokia’s mobile telephones were best sellers until the first smartphones hit the market; and AOL, the default Internet homepage for so many during the 1990s, let itself be supplanted by Google.

The speed at which organizations recognize changes in the market and implement innovative business concepts is often the game changer. “It isn’t IT that provides the answer to the challenges posed by the market, it’s the business model utilizing IT that does,” write Henning Kagermann and Hubert Österle, who jointly authored a book on the transformation of business models.

Value Creation through Network Effects

Kagermann and Österle envision a broadening of the value chain into an ecosystem. They write that “fast, secure and inexpensive execution of orders was the driver behind the reorganization of in-house processes in the 1990s; order execution will also be the driver of cooperation processes across company and enterprise boundaries.”

The idea of value creation through network effects is not a principle that is new to SIX. The company is owned by around 130 banks operating in the Swiss financial market, each reaping cost and efficiency advantages by jointly using centralized infrastructure. SIX is working on further enlarging those advantages through new infrastructure services for financial-market participants. For instance, SIX’s existing infrastructure enables the company to execute a variety of internal bank processes – in the area of compliance matters, for exam-

ple – much faster and more efficiently than any bank can on its own. That gives banks more time to concentrate on their core operations and client relationships.

Transformation by Collaboration

In addition to volume-driven networks geared toward the efficient processing of transactions, there are also a growing number of collaborations focused on the early stages of value creation, such as joint research and development. Here, SIX works together with start-up firms. With their flexible enterprise structures and their greater willingness to take risk, start-up companies often have an edge when it comes to quickly advancing products to market readiness. SIX expects these collaborative efforts to yield ideas for innovative products and services, and to improve time to market.

Through all of these activities and dynamics, the Swiss value chain is being built out vertically as a value chain and horizontally into a network – a profound transformation. How successful this transformation turns out to be will ultimately be decided by SIX's clients. "Customers put their trust in the first ecosystem to attain critical mass," Kagermann and Österle write. The race for scale is only just getting started. ■

The Swiss Value Chain



Trading

Exchange members send their buy and sell orders to SIX's electronic trading platform. Trades are executed automatically in accordance with precisely defined rules.



Clearing

Trading parties deposit collateral at SIX's clearing-house. SIX acts as the central counterparty between buyers and sellers and guarantees the settlement of outstanding claims.



Settlement

Two days after the trade takes place on the securities exchange, SIX automatically and irrevocably delivers the securities and executes the payment.



Custody

Centralized electronic custody of securities facilitates other administrative services such as carrying out equity splits, capital increases and dividend payments.

→ More stories about the Swiss Value Chain:
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