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FINANCIAL SECTOR ASSESSMENT PROGRAM

November 2025

TECHNICAL NOTE ON FINANCIAL MARKET INFRASTRUCTURE AND FINTECH OVERSIGHT

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TECHNICAL NOTE

FINANCIAL MARKET INFRASTRUCTURE AND FINTECH OVERSIGHT

Prepared By
Monetary and Capital Markets Department

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program in Switzerland. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at http://www.imf.org/external/np/fsap/fssa.aspx

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Glossary

AUM	Assets Under Management
BME	Bolsas y Mercados Espanoles
BCBS	Basel Committee on Banking Supervision
CBOE CLEAR	Chicago Board of Options Exchange Clear
CCP	Central Counterparty
CHF	Swiss Francs
CIS	Collective Investment Scheme
CLS	Continuous Linked Settlement
CMG	Crisis Management Group
CPMI	Committee on Payments and Market Infrastructures
CSD	Central Securities Depository
EBA	European Banking Authority
EMIR	European Market Infrastructure Regulation
ESMA	European Securities Market Supervision Authority
EU	European Union
FC	Federal Council
FMI	Financial Market Infrastructure
FinMIA / FinMIO	Financial Market Infrastructure Act/ Ordinance
FINMA	Swiss Financial Market Supervisory Authority
FINMASA	Financial Markets Supervision Act
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FTE	Full-time-equivalent
HSLU	Lucerne University of Applied Sciences and Arts
IOSCO	International Organization of Securities Commissions
LCH	London Clearing House Ltd
MOU	Memorandum of Understanding
NBA / NBO	National Bank Act / Ordinance
OTC	Over the Counter
PoC	Proof of Concept
PFMI	Principles for Financial Market Infrastructures
PS	Payment System
SGA	SIX Group AG (Ltd)
SIC	SIX Interbank Clearing (Ltd)
SIF	State Secretariat for International Financial Matters
SIS	SIX SIS AG
SNB	Swiss National Bank
SRO	Self-Regulatory Organization
SSS	Securities Settlement Service
SXC	SIX x-Clear
TN	Technical Note
TR	Trade Repository
VaR	Value at Risk
wCBDC	Wholesale Central Bank Digital Currency

EXECUTIVE SUMMARY

The financial market infrastructure (FMI) landscape in Switzerland is efficient and reflective of the advanced nature of the country's financial market. The country hosts three domestic, systemically important FMIs which are owned by a single group (SIX Group): a CCP (SIX x-clear Ltd.), a CSD (SIX SIS Ltd.), and the country's RTGS Payment System (SIC). Three foreign FMIs providing services to the country's financial sector are also considered to be of systemic importance by the Swiss authorities: two CCPs (LCH Ltd and Eurex Clearing AG) and a foreign exchange Payment System (CLS). Additionally, a range of both domestic and non-domestic FMIs, including FMIs making use of newer technologies such as DLT, are present on the Swiss market, completing the country's competitive FMI ecosystem.

The Swiss FMI regulatory regime is largely aligned with the CPMI-IOSCO Principles for Financial Market Infrastructures (PFMI). The FMI supervision and oversight arrangements are also deemed to be appropriate. FINMA is responsible for supervising FMIs, while the SNB has the responsibility for the oversight of systemically important FMIs. Both authorities disclose their policies regarding FMIs and have established reliable and efficient cooperative arrangements with each other, as well as with authorities of other relevant jurisdictions. FINMA and the SNB employ staff with considerable expertise and experience in supervising and overseeing FMIs and the country's regulation provides for comprehensive powers and tools.

Going forward, the authorities, especially FINMA, should increase the resources available to ensure the adequate supervision of a very dynamic and expanding FMI landscape. As SIX Group is in the process of further integrating the Spanish BME Group into its structure and the Swiss domestic FMIs outsource multiple key functions to SIX Group entities, this may expose the FMIs to additional risks. It is important that the authorities have sufficient resources to expand their involvement and participation in on-site inspections, as these are key to understand and assess the ever-changing processes at SIX Group and the respective FMIs.

It is important to expedite the revision of the country's FMI regulation and expand the authorities' cooperation with the relevant Spanish authority (the CNMV). FINMA's ability to progress and finalize its work on the resolution plans is contingent on the revision of the Financial Market Infrastructure Act (FinMIA), as legal amendments and specifications are needed. It is important to ascertain that the recovery and resolution arrangements are sufficiently resilient considering SIX Group's cross-border activities. Close cooperation with CNMV should be ensured on recovery and resolution planning, including the testing of these plans.

Changes in the FMI's risk and business models will require considerable attention from the authorities. The three domestic, systemically important FMIs have implemented risk management frameworks in observance of the PFMI, but further changes are envisaged. The CCP is notably planning to introduce a new initial margin model, and it is important that the CCP's resilience is ascertained, and the model complies with the PFMI and related guidance. The CCP and the CSD should continue to improve their respective recovery plans and test them to ensure that they can be

implemented effectively. To further strengthen the plans' credibility, it is important that both FMIs introduce scenarios which include failures of other group entities.

The country has been among the first to enact a regulation for the use of blockchain technology by FMIs. Switzerland has taken a pioneering role in settling tokenized securities with wCBDC issued on a SIX Group-owned FMI platform in a real-life operational environment. However, market adoption has been slow. Key reasons include the efficiency of the existing, traditional FMI landscape in Switzerland - both from a cost and operational perspective - as well as the constraints regarding the availability of wCBDC. The SNB has recently increased the availability of wCBDC and will monitor market reception and activity in this respect. Going forward, it will be important that the SNB establishes a strategy clarifying under which conditions it could issue wCBDC on third party operated platforms on a more permanent basis.

Switzerland positions itself as an attractive pole for fintech activities. More than 483 fintech companies operate in the country, serving mostly the business-to-business segment, with a marked focus on international clientele. While companies offer services based on various technologies, those which are DLT-focused stand out in the fintech landscape. Notably, the Swiss Crypto Valley accounted for 5.1 percent of European venture funding in 2023. Early movers to the Crypto Valley include the Ethereum Foundation who settled in Zug in 2014. Switzerland's attractiveness for fintech activities relies on factors such as favorable business environment, macroeconomic conditions, digitalization of the economy, skilled workforce, and regulatory frameworks.

Major progress has been made to the legal, regulatory, and supervisory framework since the last FSAP. Notably, the DLT Act that came into force in 2021 introduced the prudential supervision of crypto-asset custodians, defined ledger-based securities and created a dedicated license for trading of DLT-based securities. Also, FINMA drafted guidance on various topics such as taxonomy of crypto assets, issuance of stablecoins, and staking services. FINMA also imposed amendments to the stock exchange rules and regulations, aiming at ensuring sufficient quality in the collateralization of crypto-Exchange Traded Products. To address the challenges to the safeguarding of crypto assets in case of bankruptcy, FINMA requires a "Crypto-assets Resolution Package" from regulated entities involved in custody and/or staking of crypto-assets. The financial regulator set out additional requirements for those Swiss banks and securities firms that custody crypto assets abroad. Reviews of the consumer protection framework and the fintech license are underway. These revisions seek to ensure protection when investing in products offered by unregulated entities and segregation of consumers' funds in case of bankruptcy. The government fosters financial innovation through a comprehensive plan of action that includes concrete goals for open finance.

There is scope for further improvements to the regulatory and supervisory framework of fintech activities. FINMA should be equipped with sufficient resources to keep up with the dynamic evolution of financial innovation and international standards while intensifying the supervision of crypto licensed activities. The government should strengthen the governance structure of the open finance framework to contemplate the interests of different stakeholders and emerging risks.

Table 1. Switzerland: Main Recommendations				
No.	**Recommendation**	*	**	***
	Part I: FMI and wCBDC			
	EFFECTIVENESS OF THE OVERSIGHT AND SUPERVISORY FRAMEWORK			
1	Increase the resources dedicated to FMI supervision and increase the number of on-site reviews (¶44).	I	H	FINMA
2	Expand cooperation with Spanish authorities (CNMV) on recovery and resolution planning, including testing (¶47).	I	H	FINMA
3	Introduce regular discussions with FMI participants and market participants (¶46).	ST	L	FINMA, SNB
4	Expedite the revision of the FinMIA to close gaps with regards to the PFMI and international best practices (esp. with respect to resolution tools) (¶45).	ST	H	FDF, FINMA
	Select Issues in FMI risk management			
5	Ensure adherence of SXC's new initial margin model to the PFMI and monitor its implementation (¶108).	C	H	FINMA, SNB
6	Ascertain that SXC and SIS continue to improve their respective recovery plans and ensure that each FMI fully meets the requirements of the PFMI (¶109).	I	H	FINMA
7	Finalize and adopt resolution plans for SXC and SIS (¶110).	ST	H	FINMA
	SIX Digital Exchange: DLT and wCBDC			
8	Monitor SGA's plans for SDX and adapt supervisory approach, if needed. (¶132)	MT	L	FINMA
9	Expand strategic discussions / deliberations on permanent requirements for the provision of wCBDC to settle tokenized assets on third-party operated platforms. (¶133)	ST	M	SNB
	Part II: Fintech			
10	Assess bank's crypto assets exposures comprehensively and implement the Basel prudential standard on crypto assets exposures in a timely and faithful manner. (¶164)	ST	H	FDF, FINMA
11	Equip with sufficient resources for fintech monitoring and supervision to keep up with the sector growth. (¶165)	MT	H	FINMA
12	Strengthen the governance structure for open finance. (¶172)	MT	L	FDF, SIF

***** Timing: C: Continuous; I: Immediate (<1 year); ST: Short Term (1–2 years); MT: Medium Term (3–5 years)

****** Priority: H: High; M: Medium; L: Low

******* Responsibility

PART 1: FMIS AND WCBDC

1. FMIs[1] are critical to the smooth functioning of the global financial system and thus promoting financial stability and economic growth. FMIs provide the central infrastructure for clearing and settling payments, securities, and derivatives transactions, thereby centralizing, and reducing risks. At the same time, where not properly managed, FMIs may be a source of financial distress or a transmission channel of financial shocks across markets and jurisdictions.

2. The Swiss FMI landscape is dominated by a single company, SIX Group AG (SGA), which provides the whole range of FMI services and operates three systemically important FMIs. Specifically, SIX Group operates a Central Counterparty (CCP), a Central Securities Depository (CSD) and the country's main Payment System (PS). Effective supervision and oversight of the Swiss FMI landscape and prudent risk management practices are important to ascertain FMIs operate in a sound manner and continue providing their critical services. This also holds true for any FMI's ventures into new technologies and asset classes such as DLT and digital assets.

3. The main objective of this note[2] is to analyze the potential for FMI-related risks to financial stability in Switzerland. The report includes an assessment of the supervision and oversight of FMIs by the relevant authorities, as well as a targeted review of risk management arrangements in place at the three domestic, systemically relevant FMIs. Furthermore, the note also provides insights into the Swiss experience with DLT-based FMIs and the settlement of tokenized securities transactions using wholesale Central Bank Digital Currency (wCBDC)[3].

4. The recommendations in this note are based on the internationally agreed standards for FMIs, the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMI) and related guidance. The analysis of the regulation, supervision and oversight of FMIs is based on the *Five Responsibilities for authorities* in the PFMI (Appendix I). The analysis of the risk management arrangements of the Swiss FMIs is based on relevant principles in the PFMI and related guidance. At the same time the note does not include a comprehensive assessment against the principles, rather focusing on select aspects. The analysis builds on findings of earlier assessments, including the 2019 Switzerland FSAP (Appendix II).

[1] The term 'FMIs' refers to PSs, SSSs, CSDs, CCPs, and trade repositories (TRs) in line with the definition by the PFMI. This diverges from Swiss legislation which, which also defines exchanges and other trading venues as FMIs.

[2] Part 1—FMIs and wCBDC of this note was prepared by Ismael Alexander Boudiaf, Financial Sector Expert at the IMF. The FSAP team thanks its Swiss counterparts for their excellent cooperation and hospitality during the mission. The analysis is based on publicly available information, and additional documentation provided by the Swiss authorities and SIX Group, as well as discussions with the Swiss authorities, SIX Group, BX Digital, as well as a group of participants of the Swiss FMI landscape and the BIS Innovation Hub Centre in Switzerland.

[3] The term 'wCBDC' being defined as "a public digital form of money issued by a central bank (…) commonly denominated in the national currency and is typically convertible to other forms of central bank money" (Source: IMF, GFSR October 2021, Chapter 3 and online annex).

FMIS AND REGULATORY ARRANGEMENTS FOR FMIS IN SWITZERLAND

A. Overview of the Swiss FMI Landscape

5. The Swiss FMI landscape is mature and relies on the performance of a variety of domestic and non-domestic FMIs to settle and clear a diverse set of financial transactions. FMIs active in Switzerland include traditional FMIs such as Central Clearing Counterparties (CCP), Central Securities Depositories (CSD), Payment Systems (PS) and Trade Repositories (TR), as well as FMIs that rely on new, innovative technologies, such as DLT, and venture into digital assets.

6. SGA operates the primary exchange (SIX Swiss Exchange), the local CCP, CSD and TR, as well as the country's RTGS. Additionally, three foreign domiciled FMI are recognized and classified as systemically important by the Swiss authorities. The Swiss FMI landscape is characterized by significant interlinkages and relationships between the FMIs and participants, including between FMIs owned and operated by SGA and non-domestic FMIs.

7. SGA is an unlisted public limited company owned by domestic and international financial institutions, which are the main users of its services. No single shareholder comes close to an absolute majority, although UBS holds more than a third of the shares following its acquisition of Credit Suisse and is also SGA's dominant client. Aside from owning and operating the Swiss-domiciled FMIs and the SIX Swiss Exchange, SGA also provides retail payment services, financial data services and cards services. Over the past years, the company has expanded beyond the Swiss border, most notably with the purchase of BME Group and Regis-TR in Luxemburg. It also ventured into digital assets via a dedicated FMI called SDX.

8. Three FMIs owned by SGA are designated as systemically important by the Swiss National Bank and dominate the post-trading service value chain in Switzerland for securities.

- **SIX x-clear (SXC) provides clearing services for securities (incl. equities and bonds) traded on SIX Swiss Exchange, the London Stock Exchange, the Oslo exchange (via its Norwegian Branch) and other major exchanges and trading venues.** SXC has interoperability arrangements with two CCPs, LCH Ltd and Cboe Clear, allowing its membership to engage with a wider range of counterparties. SXC is recognized as a third country CCP by ESMA, allowing it to provide securities clearing services to the EU counterparties.

- **SIX SIS (SIS) provides custody and settlement services for tradable financial instruments, including securities traded on the SIX Swiss Exchange, and operates a real-time Securities Settlement System (SSS), called SECOM.** SIS also provides collateral management services related to repo market transactions, including SNB repo and interbank repo transactions. The CSD maintains links with multiple other CSDs, including through the Eurosystem's TARGET2-Securities (T2S) service.

- **The Swiss Interbank Clearing (SIC) system is a payment system that includes multiple functionalities, whereby only the RTGS PS functionality is in scope for this note**.[4] SIC is operated by SIX Interbank Clearing Ltd. SIX on behalf of the SNB, which is the system manager for SIC and, together with SIS plays an important role in the implementation of monetary policy in Switzerland.

9. Switzerland hosts a range of non-systemically important, domestic FMIs aside from the three aforementioned systemically important FMIs - notably the SGA-owned CSD SIX Digital Exchange (SDX), SIX Trade Repository and the EuroSIC RTGS system for settlement in euro.[5] The number and types of FMI is expected to grow and diversify further over the coming years as the Swiss Financial Centre strives to strengthen its competitive position and encourages the introduction of FMIs based on new platforms and technologies, such as DLT.

10. As a small and open economy, Switzerland relies on services by and connections with non-domestic FMIs. These FMIs provide access to derivatives clearing and foreign exchange settlement services, which require considerable market depth and scale. Foreign FMIs are relevant in that they either extend the reach of the services provided by SGA (via interoperability agreements) or complement SGAs services (focusing on products that are out of scope, e.g. derivatives clearing). Three non-domestic FMIs are systemically important: LCH Ltd (LCH), Eurex Clearing AG (Eurex) and Continuous Linked Settlement (CLS).

- **LCH is a UK-based CCP offering clearing services to Swiss counterparties.** This includes securities traded on various UK trading venues as well as the SIX Swiss Exchange and, more importantly, over-the counter derivatives and derivatives denominated in Swiss Francs. LCH thus allows Swiss banks to hedge and manage risks and thus their capital requirements in line with the Basel III framework. Via its interoperability arrangement with SXC for securities, it also build bridges across marketplaces and products. LCH is also connected to SIS, which acts as CSD for cleared securities.

- **Eurex is a Germany-based EU CCP and the second largest European CCP after LCH.** Eurex also provides access to clearing services for securities and derivatives, including derivatives based on underlying Swiss assets. Eurex maintains a connection with SIS, reflecting the preference of certain Swiss banks for keeping SIS as CSD when opting for Eurex for clearing services.

- **CLS is a US-based FMI operating an international payment system settling foreign exchange transactions.** As such it is key in mitigating settlement and liquidity risks for the

[4] Interbank RTGS transactions account dominates in terms of turnover volume, while 96 percent of SIC transactions are retail payments transactions.

[5] This system is managed by Swiss Euro Clearing Bank which is licensed as a bank in Germany and part of SIX Group. It will be discontinued at the end of 2027 due to its low usage and the resulting lack of economic rationale for its continued operation.

foreign-exchange transactions of its settlement members and their clients. CLS is owned by 79 direct members (mostly banks), including three large Swiss institutions.

B. Overview of the Regulatory and Supervisory Framework

11. The currently applicable legislative framework for the regulation and supervision of FMIs in Switzerland has been largely in effect since January 2016 and allocates supervisory and oversight powers and responsibilities to FINMA (the National Supervisory Authority) and the SNB (as Swiss Central Bank), respectively. It is mainly composed of the two Acts (the FinMI Act and the NB Act), two Ordinances (the FinMI Ordinance and the NB Ordinance), and two Explanatory Notes, which taken together implement the adoption of the PFMI in Switzerland. The FinMIA elaborates on the responsibilities of FINMA with respect to FMI authorization and supervision, also covering aspects such as insolvency and resolution. The Act establishes an insolvency and resolution framework for FMIs, as well as the framework for the regulation of OTC derivatives. The FinMIA is complemented by the FinMIO which provides more detailed requirements when compared to the FinMIA, which is more high-level/principles based. The NBA, on the other hand, details the oversight responsibilities for the SNB, and is complemented by the NBO, which provides details on FMI requirements. The Explanatory Notes finally grant interpretative freedom to the authorities and clarify the intention of the Swiss regulatory framework to align with the PFMI and international standards. A more comprehensive review of the key legislation relevant to regulation of FMIs in Switzerland has been provided in the 2019 FSAP for Switzerland.

12. FINMA and the SNB are the responsible authorities for the supervision and oversight of FMIs. FINMA has the authority to supervise and authorize FMIs, with exceptions applying to PSs[6] and FMIs operated by or on behalf of the SNB. FINMA is also responsible for the consolidated supervision for FMIs that are part of a financial group (e.g., SGA) and is the resolution authority for FMIs. The SNB has oversight responsibilities for systemically important CCPs, CSDs and PSs and is responsible for designating FMIs and business processes of those FMIs as systemically important in consultation with FINMA.[7]

13. The responsibilities and objectives of FINMA and the SNB overlap partially, requiring close cooperation and coordination for their activities regarding systemically important FMIs. The authorities cooperate closely, including via regular meetings and alignments with regards to supervisory and oversight activities and information exchanges. This cooperation also extends to interactions with international working groups or the FMIs.

14. Swiss FMIs are to a considerable degree impacted by EU and UK regulatory frameworks and developments, which have witnessed considerable amendments since 2018. To continue providing their services to EU/UK clients and trading venues, these jurisdictions require

[6] PSs require authorization from FINMA only if this is necessary for the proper functioning of the financial market or the protection of financial market participants, and if the PS is not operated by a bank, or by the SNB or on its behalf.

[7] Swiss legislation does not provide for TRs to be designated as systemically important, thus the SNB does not oversee TRs.

cooperation agreements and a large degree of regulatory equivalence. Swiss FMIs hence do not only comply with their domestic framework but actively strive to align with EU and UK law. Within the context of SGA, the EU regulatory framework is also directly relevant in view of SGA's acquisition of Spanish Stock Exchange (BME) Group in 2020 and the acquisition of Regis-TR, which is a pan-European Trade Repository domiciled in Luxembourg.

15. The FMIs owned and operated by SGA, especially SXC and SIS compete for business with European FMIs and are, at the same time, reliant on cooperative arrangements with their competitors.[8] The efficiency and economic viability of FMIs are notably driven by their scale. As FMIs in neighboring EU jurisdictions consolidate their business, this will reinforce SGA's need to grow and find ways to compete with larger players. The acquisition of BME Group and the early experimentation with DLT via SDX bear witness to these pressures to compete and innovate. Adequate regulation, supervision and oversight will only gain in importance over the next years.

16. These developments and further guidance issued at international level have led to a comprehensive review of the Swiss FMI regulatory framework, although the proposed amendments will only come into force in 2028–2029. Although the Swiss FMI framework and the considerable interpretative freedom granted to the authorities are deemed largely aligned with international principles and best practices, certain gaps have been evidenced in the review. These gaps and the amendments proposed notably pertain to key areas such as recovery and resolution planning for FMIs and are set to persist in the foreseeable future.

17. In other areas, the Swiss authorities have expedited legislative changes, most notably with the so called DLT blanket Act. On 1 August 2021, Switzerland became one of the first countries in the world to enact regulations for blockchain technology, including for its use by FMIs. One of the key changes introduced is a license for DLT trading facilities,[9] a new type of financial market infrastructure for DLT securities that can admit other companies and natural persons to trading in addition to financial intermediaries. In this respect, Switzerland preceded the EU's DLT pilot regime by more than two years.

EFFECTIVENESS OF THE OVERSIGHT AND SUPERVISORY FRAMEWORK

A. Regulation, Supervision, and Oversight of FMIs

18. The criteria used by the Swiss authorities to identify domestic and non-domestic FMIs subject to regulation, supervision and oversight are defined in legislation and publicly disclosed. Domestic FMIs require authorization from FINMA, which is also responsible for the ongoing supervision of authorized FMIs. An exception in this respect exists for FMI operated by or

[8] SXC has only recently gained the status as "preferred" CCP for select Euronext trading venues, whilst it has failed to achieve a cooperative achievement with Deutsche Boerse Group.

[9] With BX Digital, FINMA has licensed its first DLT trading facility on March 12, 2025.

on behalf of the SNB. Non-domestic CCPs and TRs entering into arrangements with Swiss counterparties[10] or accepting derivatives trade reports pursuant to the FinMIA similarly require recognition from FINMA, although they are not subject to ongoing supervision by the authority.[11] Oversight is carried out by the SNB for systemically important FMIs (both domestic and non-domestic).[12] Additionally, the SNB determines the systemic importance of FMIs and their business processes according to criteria set out in the FinMIA and NBA. FINMA and the SNB publicly disclose the FMIs that are subject to their supervision or oversight on their websites.

19. FINMA and the SNB have adopted a risk-based approach to supervision and oversight. FINMA's activities are determined by its assessment of an FMI, the observance of regulatory requirements by the FMI and potential emerging risk and issues. Both, SXC and SIS, are subject to the most intense level of supervision, including an annual assessment of their observance of the requirements in the FinMIA. Similar observations hold true for the SNB's oversight approach, which foresees an annual assessment of domestic, systemically important FMIs (including SIC) against the special requirements in the NBO. The authorities' expectations and priorities are communicated to the FMIs in written for the upcoming year.

20. FINMA and the SNB have established a very efficient bilateral MoU-like cooperative arrangement framework for FMIs. This framework sets out the respective focus areas and responsibilities. Possible gaps are avoided by close coordination and cooperation and information sharing between the two authorities is based on Art. 21 NBA and Art. 50 NBA (SNB) and Art. 39 Financial Markets Supervision Act (FINMASA). Furthermore, in 2021, FINMA and SNB established a "Framework for FMI stress and crisis situations", in line with a recommendation issued following the 2019 FSAP.

21. The cooperation between FINMA and the SNB is crucial, as the scope of the authorities' activities differs in certain aspects. FINMA's main responsibilities pertain to areas such as governance and organization, outsourcing, capital management, recovery and resolution planning. FINMA's ultimate supervisory focus is at group-level as the authority's supervision of SXC and SIS is carried out within its consolidated supervision program of SGA. FINMA's yearly *Assessment Letter*, including passages related to findings on single FMIs, is addressed to and sent to the SGA, and not the single FMIs. The SNB on the other hand focusses on financial risk management, IT systems and business continuity. Its oversight activities occur at the level of the FMI and the SNB's *Annual Opinion Letter* is sent directly to the single FMIs.

22. The Swiss authorities are furthermore involved in cooperative arrangements with international authorities on non-domestic FMIs through MoUs and other cooperative

[10] I.e., grant supervised Swiss participants direct access to their facilities, provide services for a Swiss FMI or conclude an interoperability agreement with a Swiss CCP (Art. 60 para. 1 FinMIA)

[11] In case of non-domestic FMIs, FINMA relies on the supervision of these FMIs by the national authorities, with whom FINMA has a cooperative agreement.

[12] The SNB can waive the requirement to meet special requirement stipulated in the NBO under certain conditions (including equivalent supervision/oversight by home authorities and cooperation with the SNB) and has done so for all systemically important, non-domestic FMIs.

arrangements (e.g., Supervisory Colleges). Following the acquisition of the BME Group by SGA, FINMA concluded a MoU with the CNMV, and the two authorities hold at least two common college gatherings per year. This cooperation is well established and supported by additional information exchange arrangements on current issues and developments which relate to both groups. Both authorities are represented in international forums discussing and developing regulatory and supervisory standards applicable to FMIs. This enables the authorities to monitor current market developments and contribute to the development of regulatory approaches and supervisory and oversight practices.

B. Regulatory, Supervisory, and Oversight Powers and Resources

23. The Swiss authorities' powers to obtain timely, relevant and comprehensive information are enshrined in law. The respective regulations (i.e., FinMIA and NBA) do not set constraints regarding the scope of information and documents that can be requested by the authorities.[13] Sanctions, including criminal provisions and fines, are possible and foreseen in cases where an FMI would refuse to provide information or deliberately provide incomplete or false information. Both, FINMA and the SNB, may also conduct on-site audits or charge a third party with the performance of such audits.

24. The Swiss authorities have regular meetings with the management and technical experts of SGA and the respective FMIs. Within this context, authorities also require the FMIs to provide data and documentation, including relevant policies, procedures, and contractual frameworks.

25. The authorities have yet to establish regular meetings with the FMI's participants and their clients. Such meetings are important to gain a comprehensive understanding of the efficiency of the FMI landscape and the services they provide to market participants. In the Swiss context, this importance is reinforced because of the ongoing consolidation of the EU's post trade landscape which directly competes with Swiss FMIs, as well as upcoming changes in SGA's risk management approaches and experimentations with DLT.

26. Both FINMA and the SNB have powers and tools to induce change and enforce corrective actions. FINMA's powers are extensive and include the appointment of investigators, the revocation of the license or the limitation of business activities. Similarly, the SNB can sanction a systemically important FMI in cooperation with FINMA, although its powers are more limited.

27. Despite a marginal increase in FTE since the last FSAP (one additional FTE), FINMA has yet to increase the amount of its resources to FMI supervision. This is warranted by the complexity of its FMI landscape and the number of FMIs. The Market Infrastructure and Derivatives Section is responsible for the supervision of FMIs (including trading venues) and has overall 8.8 FTE. Of these 8.8 FTE, 3.8 are allocated to the Supervision of Market Infrastructures (SMI) Group and 5 are

[13] The information requested may take the form of regular reports, ad hoc and ex-ante notifications, depending on the subject matter.

in the Legal Market Infrastructures Group.[14] Within SMI, a single FTE is allocated to the supervision of the CCP, the CSDs (SIS and SDX), and the TR altogether (with the support of the Team Lead). Despite the dynamic nature and complexities stemming from the Swiss FMI landscape, less than a single FTE is thus allocated to the supervision of each domestic FMI. Should the respective expert be unavailable for a prolonged timeframe, no dedicated expert within the SMI Group would be available for the supervision of the country's FMIs.

28. FINMA's SMI Group is supported by various horizontal functions within FINMA. FINMA's Recovery and Resolution Department is responsible for organizing and supporting FINMA's participation in the various CMGs. This department is also responsible for recovery and resolution planning, wherefore it has allocated one FTE to this endeavor. Additionally, two horizontal functions within FINMA (the Quantitative Risk Management and the Operational, Cyber and Risk teams) support the SMI in their assessment of FMI model changes and cyber and IT risk supervision.

29. FINMA's supervisory team outsources the yearly on-site audit of FMIs and is currently only conducting a limited amount of brief on-site reviews (2–3 per year) at Group level.[15] The outsourcing of the yearly on-site audit to an external party is a long-standing supervisory practice at FINMA, while the limited number of on-site reviews carried out by FINMA is linked to resource constraints. This comprehensive reliance on external auditors for the annual on-site audit limits the build-up of expertise at FINMA, potentially undermining its ability to fulfil its supervisory responsibilities.

30. The SNB's resource situation is less stretched and adequate in light of the currently ongoing practice of outsourcing on-site audits at FMIs. Its oversight unit, which is responsible for the oversight of systemically important FMIs consists of 10 FTE, whereby the SNB allocates approximately 2 FTE each for the oversight of SIS and SXC. Additionally, other units and resources are available to support the oversight unit's work (e.g., the Legal Services division on regulations and oversight, and the Money Market and Forex division regarding Crisis Management Groups (CMGs) and liquidity facilities). The SNB oversight team does not participate in on-site audits, as this would overstretch its resources.

C. Disclosure of Policies with Respect to FMIs

31. Both authorities have clearly established objectives and roles which are defined in publicly available regulatory documents (e.g., FinMIA, NBA and FINMASA). The FINMA's objectives with respect to FMIs include the wider goal of protecting creditors, investors, and insured person, as well as ensuring the proper functioning of the financial market. The SNB's mandate regarding the FMI oversight focuses on the stability of the financial system. The tasks and responsibilities of the various units are outlined in internal documents (i.e., not publicly available).

[14] The Legal Market Infrastructures Group is responsible for the authorization and recognition of FMIs, the authorization of changes to FMI operations and rules, as well as regulatory aspects on trading and derivatives.
[15] FINMA conducts limited on-site exercises on dedicated topics in close coordination with the SNB, e.g. via deep dives and supervisory reviews.

32. FINMA and the SNB publicly disclose relevant information and inform on their activities, approaches and policies with respect to FMI supervision and oversight. This includes a high-level discussion of their supervision or oversight activities in their annual reports. Additionally, the authorities also share their intentions and work plans in further detail with the FMIs.

D. Applications of Principles for FMIs

33. Switzerland has adopted the PFMI via the FinMIA/FinMIO and the revisions to the NBO, enabling FINMA and the SNB to oversee and supervise the FMIs in Switzerland. A Level 2 assessment by CPMI-IOSCO in 2018 confirmed this,[16] although a range of gaps were observed. These gaps have been acknowledged by the authorities and were included into the country's FMI regulation revision process.

34. A holistic revision process of the FinMIA is set to address identified gaps in the Swiss regulatory framework for FMIs, although the proposed amendments are unlikely to be introduced before 2028/2029. The process is subject to further potential delays and uncertainty, considering the considerable opposition of the Swiss financial industry to the current proposal. It is important to highlight that the industry's opposition is not related to aspects pertaining to FMIs, but rather pertain to proposed changes regarding the rules for exchanges (which are formally classified as FMIs in Switzerland).

35. The authorities ensure that the PFMI are applied to all domestic payment systems, CSDs/SSSs and CCPs designated as systemically important via the implementation of the respective legislative texts. This also applies to SIC which is operated by SIX Interbank Clearing Ltd. on behalf of the SNB, where the requirements set out in the NBO FinMIA cover the PFMI. The supervision/oversight includes FMIs' cross border services, as long as the FMI is domiciled in Switzerland. In the upcoming legislative revision, FINMA will likely obtain the ability to comprehensively apply the PFMI to FMIs domiciled in Switzerland but deemed to be systemically important solely in other jurisdictions.

36. The SNB is both the operator and the overseer of the SIC payment system, which could create potential conflicts of interests. However, these are addressed by the SNB via an allocation of its oversight and operational responsibilities to separate organizational units. These units are part of different departments and report to different members of the Governing Board, thereby avoiding any undue overlap.[17]

E. Cooperation with Other Authorities

37. FINMA and the SNB have established efficient and effective cooperation arrangements for the supervision and oversight of relevant FMIs. These arrangements are enshrined in the respective legislation which permits, and in some cases requires, FINMA and the SNB to cooperate

[16] https://www.bis.org/cpmi/publ/d183.pdf

[17] The *Banking Operations* Unit within Department III fulfills the SNB's SIC's System manager role, while the *Oversight* Unit within Department II is responsible for carrying out the SNB's oversight role for SIC.

with each other, including by sharing information. The cooperation is further formalized by an exchange of letters, which clarifies the responsibilities of the two authorities. The authorities' cooperation is further evident in practice and coordinated/joint activities and information sharing practices.

38. Cooperative arrangements between the two authorities include a crisis management framework ("Framework for FMI stress- and crisis situations") which was finalized by FINMA and the SNB in June 2021. This framework governs the collaboration between FINMA and the SNB, the involvement of the Financial Crisis Committee, and the exchange of information between the authorities, the affected FMI, and foreign authorities. It covers cooperation across all stages of stress and crisis development. The framework is tested on an annual basis via so called annual drills.

39. The Swiss authorities have established multilateral and bilateral cooperation arrangements with foreign authorities regarding Swiss and foreign FMIs deemed systemically important in Switzerland. Swiss legislation permits information sharing with foreign authorities subject to certain conditions, including the establishment of MoUs and written agreements. In light of the general policy pursued by the SNB to discharge non-domestic FMIs from compliance with the SNB's special requirements under certain conditions, cooperative agreements are prerequisites for the Swiss authorities to ascertain adherence to national laws and the PFMI. The agreements in question foresee information sharing, the establishment of cooperative arrangements with foreign authorities on Swiss domiciled systemically important FMIs and the participation in cooperative oversight arrangements for non-domestic systemically important FMIs.

40. The arrangements extend also to arrangements that cater to market stress periods and crisis situations via so-called Crisis Management Groups (CMGs). These CMGs facilitate an efficient and coordinated response in times of stress, via a shared understanding and awareness of risks as well as transparent crisis communication contact lists and guidelines. Further information on the cooperative arrangements is summarized in Appendix V.

41. A dedicated MoU has been established between FINMA and CNMV. This agreement enables wide-ranging information exchanges, facilitates the coordination of supervisory activities and includes the organization of biannual common colleges with CNMV.

42. The cooperation between FINMA and CNMV has yet to be expanded to include common work streams on the recovery plans of the various FMIs and dedicated testing arrangements at Group level. In light of SGA's presence in various jurisdictions and the Group's intention to further integrate the Swiss and Spanish businesses, it will be key to develop common scenarios, coordinated responses and test the adequacy of the procedures in place.

F. Recommendations

43. Overall, the Swiss FMI landscape is endowed with an effective and efficient supervisory and oversight framework. The supervision and oversight of the FMIs is deemed to be adequate and comprehensive and the authorities are largely aligned with the PFMI and international

best practices. Both FINMA and the SNB employ staff with considerable expertise and experience in supervising and overseeing FMIs. The authorities disclose their policies regarding FMIs and have established reliable and efficient cooperative arrangements with each other and with authorities of other relevant jurisdictions. At the same time, several gaps and weaknesses need to be addressed.

44. FINMA should increase the resources available to its FMI supervision team to ensure the adequate supervision of a very dynamic and growing FMI landscape. The SMI Group within FINMA which is responsible for the supervision of the country's FMIs has less than 1 FTE dedicated to the supervision of the country's CCP and CSD. Although it can draw from the support of other functions within FINMA and cooperates well with SNB on financial risks, the supervisory team would have difficulties to adequately replace the main expert, should he/she become unavailable. Similarly, the team is unable to expand its exposure/participation to on-site inspections which are key to understand the everchanging processes at SGA and the various relevant FMIs.

45. The Swiss authorities shall expedite the adoption of the FinMIO/FinMIA revision to close long-existing gaps with regards to the PFMI and international best practices. The revision is especially important for aspects related to the recovery and resolution of FMIs, where legal amendments and specifications are needed, e.g. to facilitate the improvement and finalization of the resolution plan by FINMA. It is imperative that the authorities ascertain that the revision is not delayed due to the financial industry's opposition to elements unrelated to FMIs, possibly decoupling FMI topics from other issues.

46. The Swiss authorities will benefit from introducing regular discussions with FMI participants and market participants more broadly. Both FINMA and the SNB have a strong level of understanding with regards to ongoing trends and best practices in the Swiss financial market and other jurisdictions. Considering the ongoing changes in the European post trading landscape and the experimentations with new technologies and FMI types, it would be prudent to meet with market participants to ensure that the changes are inclusive, strengthen financial stability and do not lead to an a la carte regime for the large dominant banks.

47. FINMA shall extend its cooperation with CNMV regarding the supervision of SGAs FMIs to strengthen the arrangements around recovery and resolution planning, including their testing. In view of the progressing integration of the two groups and considerable outsourcing arrangements observed within the group it is key that group-wide scenarios are both developed and tested.

SELECT FMI RISK MANAGEMENT TOPICS AT SXC, SIS, AND SIC[18]

A. Group-Level Arrangements Regarding the FMIS' Risk Management

48. The risk management frameworks of SXC, SIS and SIC follow a hybrid approach whereby fundamental risk management guiderails and activities are determined and performed at group level, whilst other responsibilities lie at the level of the FMI. All three FMIs adhere to SGA's Risk Policy (SRP), which is adopted at group level and approved by SGA's Board of Directors (BoD) and FINMA as the supervisory authority. The FMIs adopt the relevant passages for their use and align their frameworks, e.g. with regards to risk identification and management methods and tools. Despite their reliance on a group-wide policy, the FMI's BoDs bear the ultimate legal responsibility for the management of their overall risk situation and the implementation of day-to-day risk management (including the adoption and maintenance of calibrated risk appetite frameworks). Each FMI has a dedicated risk appetite framework providing the strategic, organizational, methodological, and behavioral foundation for managing risks.

49. SXC, SIS, and SIC each have a streamlined, dedicated governance structure consisting of a Board of Directors (BoD) and a Management Board (MB). The FMIs have adopted SGA's "three lines of defense" model as basis of their risk governance frameworks. This framework defines the responsibilities, methods, processes and reporting of risks faced by SGA and its subsidiaries. The first line of defense consists of senior executives of the FMI, which are accountable for managing specific business risks. The second line of defense has been entirely outsourced to a group-wide central function with dedicated functional risk management teams headed by SGA's CRO. Within this central risk management function SGA's Head of the Financial and Quantitative Risk Team plays a key role, as he also acts as CRO for both SIS and SXC. The FMIs' CRO is notably responsible for the implementation of group-wide standards and managing business specific risks at the CCP and CSD. Finally, the third line of defense is constituted by the FMI's BoD and the internal and external auditors.

50. Since the last FSAP, SGA has enacted changes to strengthen the independence of the two FMIs' governance arrangements and their ownership on risk management related matters. The BoD of SXC and SIS comprises a majority of members which are independent from group management. Furthermore, the Chairman of the FMIs' BoD also sits on the group BoD, chairs the SGA's Risk Committee and is independent from the group's management. Key decisions taken at group level, including the availability of SGA's risk management resources dedicated to FMI risks, need to be discussed and approved by the FMIs' BoD, thereby strengthening the FMI's responsibilities and ownership of key topics. The MB of SXC and SIS includes a dedicated CRO and

[18] This section focused on the FMIs' risk management frameworks' observance of principle 3 of the PFMI ("Framework for the comprehensive management of risks"). However, the assessment team refrains from evaluating the quality of the risk management models/frameworks per se or their compliance with national supervisory expectations.

CFO. The dual function of the FMI's CRO (who also holds a key function at SGA) ascertains the FMIs involvement in discussions related to the risk management of the FMIs.

51. The FMIs' MBs have the ability to dissent and block SGA decisions on key aspects, and substantial changes (including changes to risk models) require the approval of the FMIs' management. SGA's group competency rules establish that in case of contradicting decisions by the Group and the FMI Board, the latter's decision prevails. Additionally, safeguards for SXC and SIS's strategic and operational independence have been included in the charter of the FMIs' Business Unit, whose Management Committee includes the CEOs of SXC and SIS.

52. Arrangements for SIC differ slightly in comparison with the other entities of SGA, due to the involvement of the SNB, which is the system's manager. This is reflected both in the governance structure of the FMI, where the SNB has a seat on the Board of Directors of SIX Interbank Clearing Ltd, (together with SIX and representatives of involved financial institutions), and risk management arrangements. The SNB has considerable responsibilities, (including setting operating times and participation criteria) and an own risk management system in line with its role as system manager for SIC. SNB's risk management framework largely mirrors the framework implemented at SGA. Risks are identified by SNB line managers (first line of defense). A separate unit within the SNB is responsible for risk oversight (second line of defense). Finally, the internal audit function at SNB serves as third line of defense.

53. Risk management tools and techniques across the risk management lifecycle are harmonized at group level, to the extent possible. All three systemically important FMIs employ SGA's Enterprise Risk Management (ERM) tool to capture risks, events, processes, and controls to enabling efficient and transparent risk management. The FMIs also rely on a group-wide Internal Control System (ICS) to evaluate the adequacy, effectiveness, and reliability of controls and ensure compliance with statutory, regulatory and internal company rules.[19]

54. Certain aspects, including Business Continuity Management (BCM) and the compliance function are entirely outsourced and managed at SGA-level. All three systemically important FMIs rely on services from a dedicated entity (SIX Group Services) regarding, e.g., controlling, HR, compliance, IT operations, security and legal services.

55. All three FMIs maintain and update comprehensive risk inventories and ensure continuous monitoring and regular reporting on risk developments. Identified risks within the risk inventory are aggregated across the FMI, but also at higher levels within SGA (Business Unit, Group-level). All risk policies and frameworks are reviewed at least on a yearly basis.

56. Both SXC and SIS implemented mitigants to ascertain the continuity of the risk management services provided at group level. SIX Group Services keeps additional capital and liquidity reserves to ensure that the services can continue to be provided to the single FMIs in case

[19] With respect to SIC, the SNB applies an internal control system (ICS) which is supplemented by a directive on operational risks management.

of a wider stress scenario affecting SGA**.** The fact that the Head of SGA's Financial and Quantitative Risk Management Team is also the CRO of both SXC and SIS is meant to provide additional assurances for the continuity of the risk management function in a crisis scenario.

B. SXC: Key Risk Management Features

57. SXC is a CCP providing clearing services for equity market instruments and - to a lesser extent - bonds traded on 26 European trading venues. SXC is a wholly owned subsidiary of SIX Securities Services AG and is a part of SIX Exchange Group AG, which itself is fully owned by SGA. As CCP, it interposes itself between trading partners and allows for multilateral netting and portfolio offsetting. SXC has been designated as systemically important by the SNB, as it constitutes a key part of the Swiss market infrastructure, and its failure could impact the country's financial system. SXC finds itself in a highly competitive market environment, as the European post-trading landscape is consolidating and the CCP is under pressure to grow and continue providing an economically attractive clearing service to its 62 current clearing members. The CCP's risk management arrangements are thus of primordial importance.

58. SIX x-clear performs its own operative risk management as a core function and is responsible for managing and controlling the risks of its daily clearing activities. Risks managed at FMI-level include credit, market, liquidity, operational, custody and settlement risks as key CCP risks. SXC not only adheres to the Swiss regulatory framework, but also aims to comply with the EU framework, which is more prescriptive than national regulations, e.g. with respect to the anti-procyclicality features of initial margin models.

Credit and Market Risk Management Tools

59. SXC relies on two main inputs to determine the level of prefunded resources required for its business-as-usual risk management: margins and stress tests. SXC's margin framework encompasses both variation and initial margin models to cater for occurred market valuations and forward-looking risks. Margin requirements are calculated in real time during the clearing day and adjusted where applicable. Should collateral values fall below the requirements, members are required to post additional collateral within 1 hour. SXC's stress testing framework includes default, non-default and liquidity stress scenarios. These scenarios are a key input to determine the required size of the CCP's default fund, as well as liquidity arrangements needed to cover potential liquidity needs.

60. The CCP's initial margin model framework has been transitioning for a protracted period, with the introduction of a final, stable initial margin model expected in the course of 2025. As of today, SXC operates two separate clearing systems, SECOM and SIX Clearing Platform (SCP), which are applicable depending on the trading/clearing venue. Clearing members connecting to SIX x-clear via the Swiss Stock Exchange must provide collateral as requested via the SECOM model, whilst clearing members connecting to SXC's Norwegian Branch collateralize according to SCP. In 2025 SIX x-clear plans to introduce a single new initial margin model based in SECOM (SREC).

61. The CCP's main current initial margin model, SECOM, is based on a multilayered, complex approach, and yields conservative collateral requirements. In a first step, SECOM relies on the 99.7 percent Value-at-Risk (VaR) for the respective instruments, using a liquidation period that differs across the asset classes cleared by the CCP. In a second step, the VaR results are bucketed into 8 different risk buckets (per asset class) to derive a base margin. In a third step, various add-ons and off-sets are included to account for risks not sufficiently addressed by the base methodology. Finally, the initial SECOM margin computation is supplemented/complemented by a margin validation and calibration methodology that derives daily initial margin requirements via a Monte Carlo-based VaR model. SIX x-clear adjusts the margin requirement based on the outcome of this validation process (by applying the more conservative result).

62. The second initial margin model (SCP) is based on a Monte Carlo VaR approach allowing the CCP to generate sufficient profit and loss (PnL) scenarios for portfolio margining using historical data. The underlying parametric assumptions for return simulations are checked daily against historical data. The margin is calculated at a 99 percent confidence level using a close-out period of two days for all underlying equity instruments.

63. The future risk model, termed SREC, will unify the initial margin methodologies and aims to establish compliance with both national regulation and EMIR. In terms of methodology it will consist of a Hybrid VaR risk model, based on a 75 percent Monte Carlo VaR component (same as in SCP) and a 25 percent Stress VaR component. The Stress VaR will be based on a window of historical observations during which market stress was pronounced.[20]

64. The new model, whose introduction is contingent on supervisory approval, is likely to result in lower margin requirements and is set to serve as margin model for cash equities across the group, including the Nordics and, in a second step, BME Clearing in Spain. The CCP has yet to obtain a track record of successfully implementing a new initial margin model. It will be key for the authorities to ascertain that the model performs adequately and is able to cater for the specificities of the various products and markets.

65. Aside from its margin models, SXC also relies on its default fund, whose total size is defined by the CCP's stress tests. The exact contributions of each participant are based on the individual risk contribution of the respective member. It is calculated based on the membership category,[21] the median initial margin over a set period, and the credit rating of the respective member. SXC's daily stress tests assume the default of the two financial groups creating the largest aggregate credit exposure to SIX x-clear and consist of a set of historical and hypothetical scenarios. Stress test breaches of set threshold may result in a recalibration of the default fund. Moreover, stress test assumptions and parameters are revised on an ad hoc basis after large market

[20] Periods of market stress are identified based on the "dual lambda" approach, independently for equity and fixed income products. This approach uses two exponentially weighted volatility estimators with different decay parameters that provide long- and short-term volatility on a representative set of index instruments. Stressed VaR periods occur when short-term volatility exceeds long-term volatility for any index.

[21] Membership impacts the amount of the Default Fund contribution, with General Clearing Members (GCM) contributing significantly more than Individual Clearing members (i.e. members only clearing their own portfolios).

movements. The risk management model of SIX x-clear is assessed and validated annually by an external, independent entity.

66. The CCP also has Default Management Procedures (DMP) in place which provide clarity on the involved procedural steps and elaborates on responsibilities and timelines. The overall responsibility for DMP processes is allocated to the FMI's senior management. As the CCP clears solely exchange-traded securities, no auctions are foreseen: the CCP liquidates the defaulter's positions via brokers which are responsible for operationalizing the close-out. The CCP carries out annual tests of its DMP which includes brokers but does not include any clearing participants. Porting, which is theoretically facilitated by the CCP, is also not tested considering the foreseen standard option to close out positions via designated brokers.

Liquidity Risk Management Tools

67. SXC has implemented a comprehensive liquidity risk management program which includes risk measurement and monitoring via a dedicated liquidity risk module. This module allows SXC to quantify risks via dedicated liquidity stress tests. The stressed liquidity positions consider the CCP's exposure to correspondent banks and settlement agents, as well as the CCP's clearing members.[22] Liquidity is monitored daily and measured against pre-defined risk appetite and risk tolerance limits to ensure sufficient liquidity is available and avoid liquidity shortfalls.

68. SXC's main liquidity provider is SIS, in line with SGA's preference for intra-group dealings. Additionally, the CCP has direct access to the SNB's central bank facility, allowing it to pledge eligible collateral and receive liquidity in return. SXC also has committed credit lines with custodian banks to facilitate its day-to-day business.

69. SXC has firmly established collateral management policies, including collateral eligibility criteria, collateral valuation and concentration limits. The CCP only accepts collateral in the form of cash in highly liquid currencies and securities included in the list of collateral eligible for SNB repos. To reduce wrong-way risk, commercial bank guarantees and any security of which the issuer is a bank or other credit institution are not accepted as collateral.[23] SXC has established issue-specific maximum concentration limits to ensure that the collateral pool is sufficiently diversified and can be liquidated without significantly impacting market prices. Additionally, the CCP applies (daily validated) haircuts to its collateral which are based on a VaR model and historical, as well as hypothetical, stress test scenarios.

Additional CCP-specific Risk Management Considerations at SXC

70. The CCP has arrangements in place to manage risks from its interoperability links with LCH and CBOE. SXC applies the same tools and methodologies used to manage the risks from its clearing members also to address risks stemming from interoperable CCPs. A dedicated margin and

[22] The liquidity planning tool allows for a tracking of projected / planned cash flows up to T+4.

[23] Bonds issued by supranational banks or development banks, as well as covered bonds that have a low default correlation with the issuing bank may be accepted as collateral on a case-by-case basis.

collateralization process, including specific add-ons, is agreed between the Co-CCPs. Margin requirements are exchanged throughout the day and collateral is placed at Clearstream Banking Luxembourg (CBL). SXC also conducts credit risk assessments of interoperating Co-CCPs and performs regularly due diligence reviews to ensure a mutual understanding of risk management methodologies and verify the financial strength of its CCP partners.

71. The majority of the CCP's assets are kept at SIS or the SNB, while a smaller part is held at highly rated financial institutions and secured reverse repo investments. The CCP has outsourced the main parts of its custody and asset management activities to other legal entities within SGA.[24] SXC has appointed SIS as settlement agent and relies on the CSD's selection criteria[25] and choice of local correspondent banks.

72. The CCP relies on a comprehensive operational risk framework, which is regularly reviewed. SXC's systems are fully automated and their guaranteed recovery times in case of a site disaster are less than two hours (according to its Business Impact Analysis (BIA)). The CCP's business continuity management (BCM) is part of SGA's BCM. The CCP's internal risk assessment includes the assessment of the threat it poses to its clients and other FMIs. SXC is also represented in national working groups and associations (including the national interbank alarm and crisis association), ensuring its readiness in these respects.

73. SXC is engaged in a continuous dialogue with its clearing members to facilitate and manage any interaction and information needs. This notably includes the CCP's Risk Committee, as well as a Member Advisory Committee. The Risk Committee advises SXC on key risk management topics includes both direct and indirect members. A Member Advisory Committee was set up to proactively provide information to and receive feedback directly from the CCPs clearing members on relevant topics. To enhance transparency, SXC also provides a margin simulation tool through which the clearing member are able to calculate the margin requirements of a given portfolio.

74. SXC, unlike other European CCPs, is not subject to Supervisory Stress Tests (e.g. ESMA ST), nor has it participated in industry initiatives to reveal potential risk commonalities and best practices. For 2025 SXC plans to take part in the global fire drill exercise organized by CCP Global and international regulators. This will allow the CCP to compare and test its readiness to other CCP's.

C. SIS: Key Risk Management Features

75. SIS is a CSD acting as global custodian for its clients and covering a broad range of markets, including the Swiss financial market. SIS provides a fully integrated service offering, including custody, settlement and issuer services, as well as asset and tax services. Both SIS and SECOM, the Securities Settlement System (SSS) operated by SIS, are designated as systemically

[24] SXC manages outsourcing arrangements via dedicated Service Level Agreements (SLAs). These agreements include qualitative and quantitative performance targets and the CCP monitors the performance on a regular basis.

[25] These criteria are also applied to custodians directly appointed by SXC.

important by the SNB. Aside from the importance of SIS as CSD for the national banking sector, SIS plays a central role for the Swiss financial system and the implementation of the SNB's monetary policy operations, as it is responsible for managing the settlement processes of the Swiss repo market. SIS furthermore plays a key role in the country's preparations to shortening the settlement cycle from T+2 to T+1 in coordination with other European jurisdictions.[26] SIS's risk management arrangements are of primordial importance considering the CSD's central importance to the Swiss financial market.

Credit, Settlement and FX Risk Management Tools

76. SIS' credit risk framework focusses on measuring and addressing risks resulting from the short-term financing services (via credit lines) it provides to its participants[27] and the CSD's treasury and investment activities. As a CSD which settles under Delivery-versus-Payment (DvP), its exposure to credit risks is limited. SIS settles on a gross basis and uses central bank money via its link to the RTGS (SIC), where possible. Securities are blocked on the deliverer's account and only transferred once the cash settlement is confirmed.

77. The CSD relies on credit limits and conservative collateral requirements based on validated methodologies to manage risks from credit lines granted to its participants. SIS' credit limits reflect the underlying creditworthiness of the respective participants[28] and any extended credit line is adequately collateralized. Any short-term credit granted by SIS is fully collateralized by cash or liquid securities. SIS resorts to the same VaR/Monte Carlo simulations-based methodology used by the SXC to derive collateral haircuts. Haircuts are validated on a daily basis. The collateral of the FMI's participants is directly held at the CSD.

78. SIS is the liquidity provider for SXC, providing the CCP with a covered multi-currency credit line (a generic tool available to SIS' participants). SIS also grants a broker lien to SXC as an additional emergency liquidity tool in case of a clearing member default. The broker lien is secured with equities which SXC would receive from surviving Clearing Members.

79. SIS has established default management procedures (DMP), which ensure that it can continue to operate and meet its obligations to non-defaulting participants in the event of a participant's default. Participants' assets are properly segregated in SIS's bookkeeping system in book-entry form, and participants can open multiple accounts to reflect their inhouse segregation needs. The CSD's procedures have clearly distributed responsibilities and defined procedural steps ascertaining the relevant stakeholders' involvement in case of need. SIS has already dealt

[26] Unlike in other jurisdictions, the settlement cycle regime in Switzerland is not defined in any regulation, but rather determined by SGA in conjuncture with market participants. The Swiss Securities Post-Trade Council, of which SIS is a key member, is mandated to coordinate the transition to T+1 and acts as a national and international coordinator for all inquiries on the domestic markets' change of the settlement cycle.

[27] Lending activities are limited to very short-term interim finance (one business day) of cash or securities with the sole purpose of ensuring the efficient processing of transactions.

[28] This is expressed e.g. via its credit rating and its financial capacity, proxied by Tier 1 capital. SIS has adopted a risk-based monitoring process, incl. daily CDS-spread, equities prices and rating change alerts for the counterparties/countries of incorporation.

successfully with bankruptcy/insolvency cases of participants, leading the CSD to be confident in its DMPs. However, SIS does not actively test its default procedures with its participants and other stakeholders.

80. SIS manages the counterparty credit and FX risks it is exposed to due to its treasury/investment activities.[29] The CSD's investment policies reflect an overall conservative approach, only allowing investments (via reverse repos) in securities which are central-bank-eligible, i.e., part of the SNB collateral basket. Risks are also mitigated via high minimum credit rating requirements and nominal exposure limits for the respective counterparties.

Liquidity Risk Management Arrangements

81. Liquidity risk measurement and planning is performed via SECOM and a designated liquidity module.[30] The module considers all positions held at sub-custodians and correspondent banks, as well as cash and securities collateral. SIS applies conservative haircuts to account for liquidity outflows in stress scenarios. Risk monitoring and stress testing occur daily. The CSD's scenarios include the default of the participant or participant group (Cover-1) causing the largest payment obligation for SIS extreme market conditions, as well as the default of the major liquidity providers in several currencies.

82. SIS' main liquidity resources include cash received from its participants in the form of settlement liquidity, collateral pledged to cover for multi-currency secured cash credit lines and its equity capital. The CSD's liquidity positions are either held at the SNB or at commercial banks with a very high credit rating. The CSD's excess liquidity is only invested in short-term reverse repos to minimize risks. To cover possible liquidity needs the CSD has entered into prearranged and reliable funding arrangements. SGA has furthermore committed itself to provide additional resources in case of a liquidity shortfall.

Additional Risk Management Considerations at SIS

83. SIS has implemented a comprehensive operational risk framework which is embedded into the SGA-wide operational risk response framework. Key elements such as BCM and IT Service Continuity Management are Group-wide risk management frameworks (i.e. steered at the SGA level). SIS is embedded in the SIX-wide response structure (emergency and crisis management organization) and is included in SGA's Business Continuity Plan.

84. The CSD's core systems are fully automated and, according to SGA's Business Impact Analysis, have guaranteed recovery times that amount to less than two hours in case of a risk event. SIS operates redundant processing systems to guarantee high availability of services in the case of disaster. SIS also operates a contingency site which is ready to use at any point in time. The

[29] These include overnight money market placements, repo and foreign exchange transactions.
[30] SIS implemented a liquidity framework, including risk appetite and tolerance limits, which is supported by an operational liquidity planning tool at the SGA's treasury department and a liquidity risk module governed by the risk management department.

full workload capacity is covered at both sites and all data is mirrored in real time on a 24-hour basis, 7 days a week.

85. Despite the extensive automation and contingency measures in place, operational problems may occur due to counterparty mistakes. This may impact the efficiency of the CSD's settlement system. SIS addresses this risk via access criteria (defining who can participate), information offensives, guides, rules, testing possibilities made available to the CSD's participants[31] and a failed settlement regime to incentivize settlement ratios.

86. Wherever possible, SIS uses the services of other affiliated companies of SIX. SIS outsources the operation and maintenance of its data center to SIX Group Services. These outsourcing arrangements are governed by SLAs in compliance with regulations. SIS manages risks from the various SGA services it depends on via a Master Intercompany Agreement. This agreement includes qualitative and quantitative performance targets (e.g., through KPIs such as FTE per service, IT-service availability) which are monitored by the FMI.

87. SIS applies conservative selection criteria and arrangements in place when establishing a relationship with another FMI or local custodian. Losses from the default of a sub-custodian are born by the participant and not the CSD. SIS also monitors risks from its custodians on a regular basis and conducts due diligence. These processes apply notably to its custodian network as well as other CSDs, and participants.

88. SIS provides forums to its participants at three decision levels to ensure a competitive service and alignment with its participants. These forums, which exist at strategic[32], operational [33], and technical[34] level, allow for mutual exchanges and facilitate feedback channels. The CSD is also represented in national working groups and associations, ensuring its readiness in emergency and crisis situations.

D. SIC: Key Risk Management Features

89. The Swiss Interbank Clearing (SIC) is the central electronic Swiss payment system operated by SIC Ltd on behalf of SNB. SIC Ltd is a subsidiary of SGA. SIC processes both large-value payments and retail payments in Swiss francs for its participants. The FMI is unique as it settles both interbank and retail payments on the same system (the scope of the FSAP only extends to the RTGS part of SIC). SIC's RTGS plays a key role in the implementation of the SNB's monetary policy and has been found to be systemically important by the SNB. The appropriateness and effectiveness of the SIC is thus of primordial importance.

90. The risk management responsibilities for the SIC system is shared between SIC Ltd (which is the dedicated entity/subsidiary of SGA) and the SNB. SIC Ltd runs a comprehensive

[31] SIS has a contractual relationship only with its participants, not with indirect participants.
[32] Via the Swiss SPTC and members can address post-trade securities-related issues in the Swiss market.
[33] Via so called "User Groups", comprised of operational representatives of relevant stakeholders.
[34] Via Technical working groups, comprised of subject matter experts.

risk management operation and reports regularly to the SNB, in accordance with Article 36, NBO. SIC Ltd's risk management operation is reviewed and updated annually by its Executive Committee and approved by its BoD.

91. SIC is not exposed to material credit and liquidity risks as it does not directly extend credit lines to its participants. SIC Ltd and the SNB have established procedures for managing the default of one or more SIC participants. The SNB does provide intraday and liquidity shortage financing facilities against collateral, thus assuming risks in this respect. SIC is not exposed to liquidity risks from settling transactions, as it only executes payments if sufficient cover is available. Should this not be the case, the payment is delayed until sufficient cover is available (RTGS) or cancelled (IP).

92. The SNB plays a key role in the provision of short-term liquidity to SIC participants via the SIX Repo Ltd trading platform. Participants in the RTGS service can access different sources of liquidity, which allow them to react flexibly to fluctuating liquidity situations. SIC participants may access interest-free liquidity via the SNB's *intraday facility*. This liquidity must be repaid to the SNB by the end of the same clearing day. Additionally, SIC participants have access to the SNB's *liquidity shortage financing facility*. Both facilities are offered only against collateral.

93. The SNB defines access rules to the SIC system and takes decisions on the suspension or exclusion of a participant. As a general rule, SIC participants need to have a sight deposit account at the SNB in order to have a settlement account in SIC. The FMI's participants are thus mainly banks, securities firms, licensed fintech companies, insurance companies and FMIs. As a rare deviation from this rule, there may also be the option of SIC participation without an own sight deposit account: third-party system operators may operate settlement accounts on behalf of SIC participants.[35] There are currently six such operators, including SIS/SECOM.

94. SIC employs a suite of methodologies to reduce the risk of a settlement gridlock and ensure the efficiency of its services. The service rules require participants to split payments exceeding CHF 100 million into smaller tranches, wherever possible. Additionally, its settlement algorithm includes a mechanism to resolve gridlocks in the system. Payments in the SIC are generally settled in the order in which they are submitted, although SIC participants can manage the settlement sequence of their payments by assigning a priority to a payment.

95. If cover is insufficient, the payment remains in a wait file for a limited amount of time until sufficient funds become available. SIC participants can manage the settlement sequence of their payments by assigning a priority to payments. Payments remaining in the wait file at the end of the clearing day due to insufficient cover are deleted and must be resubmitted by the remitting party. The designated recipient of unsettled payments is in this case entitled to charge the remitting party a penalty fee.

[35] This requires a one-off authorization from the SIC participant in question.

96. SIC Ltd and the SNB have defined various procedures and tools to ensure that normal operations can be recovered and resumed as quickly as possible in the event of a disruption or a failure. This includes a multi-layer backup and recovery process and a 'two data centers' strategy to ensure the continuity of operations in different scenarios and a second data center in cold standby. Batch-processing—termed "mini-SIC"—can be activated should internet access fail. Participants have the choice between the proprietary Messaging Gateway or SWIFT as their default gateway to the SIC system. The standard for payment messages in the SIC system is ISO 20022. In the event of disruptions or failure affecting individual SIC participants, there is the possibility of submitting and receiving RTGS transactions via a backup data carrier. Furthermore, as system manager, the SNB can directly access the SIC system and act on behalf of the SIC participant.

97. Both the activation of the backup center and batch processing are tested annually, the latter with SIC participants. SIC Ltd tests the functionality of the technical processes at least once a year. As SIC's system manager, the SNB is informed of the test results. SIC Ltd analyses annually the effect of an outage of their payment services for the Swiss financial system and submits it to the BoD. This analysis includes the impact on the PS' participants and third-party systems (incl. FMIs) throughout longer periods of outage and considers the effectiveness of their backup and recovery processes.

98. The SNB defines system-critical participants and third-party systems based on qualitative and quantitative criteria. Special requirements exist for these participants. This includes the mandatory ability to resume their critical business processes in connection with the SIC system within four hours in the event of a disruption, as well as other operational and organizational requirements (e.g., participating in SICs emergency task force).

E. Recovery and Resolution Planning for SXC, SIS, and SIC

Recovery Plan Arrangements for SXC and SIS

99. In line with applicable regulations (i.e., the FinMIA and FinMIO), the CCP and the CSD each developed a recovery plan[36] to ensure their survival and the provision of its critical processes and services in a recovery scenario. Recovery plans are updated by the FMIs and assessed and approved by FINMA on a yearly basis. SXC and SIS perform an annual risk analysis, define threshold values for recovery indicators and set out the recovery objectives for the business processes that are necessary for their operations. In their recovery plans, SXC and SIS assess various stress scenarios which go beyond the scenarios applied in business-as-usual (BAU) risk management. The options foreseen by the recovery plan aim at strengthening the FMI's capital and liquidity position. Additionally, the parent company of both FMIs (SIX Securities Services) has been endowed with a capital of CHF 300 million which becomes available during a recovery scenario.

100. The recovery plans of both FMIs have been deemed credible and were consequently approved by FINMA. At the same time, the FMIs were tasked with continuing to improve their

[36] Aside from the recovery plan, the two FMIs also provide a wind-down plan.

recovery plan. FINMA notably tasked the FMIs to further integrate potential risks resulting from the interdependence between the two FMIs and further demonstrate the adequacy of the severity of the recovery scenarios.

101. Neither of the two FMIs tests their recovery plans or the effectiveness of their recovery options, although they conduct a yearly default management test. The focus of the default management test differs each year and involves FINMA and SNB. However, it does not test any arrangements and assumptions included in the recovery plan.

102. Despite being part of a group, the recovery plans of SXC and SIS did not include a scenario which focusses on a risk event that is group-specific or foresees a failure/stress at another SGA FMI. In light of the considerable dependencies, links and outsourcing arrangements within SGA, such a scenario would be important. Testing the resilience of intra-group arrangements will also allow to strengthen the authorities' confidence in the reliability and availability of the recovery plan.

Recovery Plan Arrangements for SIC

103. The SNB has tasked SIC with developing a recovery plan, as it may face financial difficulties that may endanger the ongoing operation of the payment system. In doing so, the SNB went beyond the PFMI standards, which state that "where a central bank owns and operates an FMI as one of the services which the central bank has undertaken to provide, (…) the requirements to prepare recovery and orderly wind-down plans do not apply". SIC Ltd reviews and updates its recovery plan on a biannual basis and may update the plan on a need-basis. The SNB assesses the plan after each review cycle and submits expectations and areas where improvements are required in written.

104. The plan also includes a detailed self-assessment by SIC of the various recovery tools against the criteria in the CPMI-IOSCO guidance. The recovery plan includes various recovery tools that allow SIC to continue providing its critical services as a going concern, along with an analysis of these tools with regard to their impact, feasibility and time to implementation. The plan illustrates how these tools can be applied in various stress scenarios and provides an assessment of their effectiveness.[37] Where necessary, SIC has also implemented relevant preparatory measures to facilitate the successful usage of recovery options.

105. The SNB as system manager is also responsible for crisis management across the Swiss financial center within the framework of the Interbank Alarm and Crisis Management Organization (IAKO). Alongside the SNB and FINMA, SIC participants deemed system-critical and those represented on the SIC BoD participate in the IAKO. The IAKO's functionality is regularly tested via dedicated exercises.

[37] The different recovery tools allow to cover either large capital losses, liquidity shortages or to increase profitability.

Resolution Plan Considerations for the Three FMIs

106. The Swiss authorities have yet to finalize the development of the resolution plans for SXC and SIS. This process is notably contingent on the regulatory review of the FinMIA and hence is unlikely to be finalized before 2028-2029. FINMA has developed a resolution scenario for SXC and SIS, which is a combination of scenarios used in the FMI's recovery plans (hence a combination of financial loss and operational incident scenarios). For SIC, no resolution plan is foreseen in line with the PFMI, as SIC Ltd cannot decide to wind down the operation of the RTGS without the SNB's consent (the service contract between SIC Ltd and the SNB includes an agreed notice period of 36 months). At the same time, the SNB requested SIC Ltd to develop a withdrawal plan which describes the transfer process of the RTGS system either to the SNB itself or a new contractor. The SNB reviews the withdrawal plan after every update.

F. Recommendations

107. The three systemically important, domestic FMIs, SXC, SIS and SIC, have implemented comprehensive risk management frameworks which are aligned with the PFMI to a large extent. All three FMIs have established risk management policies, procedures, and systems to measure, monitor and manage the risks to which they are exposed. All three FMIs have also established tools that incentivize their participants and clients to manage and contain risks they pose to FMIs. Similarly, the FMIs review and manage the risks born from its participants as well as those they pose to other entities. Additionally, the FMIs have also identified risks which could prevent them from being able to provide their critical services and developed recovery and wind-down plans.

108. The authorities shall ensure the comprehensive adherence of SXC's new initial margin model to the PFMI and closely monitor its implementation. The CCP has yet to establish a positive track record in introducing a new margin model that can be applied across the comprehensive set of its trading venues. The new model is also forecast to result in decreased collateral requirements for clearing members, and it will be important to ascertain that the model is both risk sensitive and includes a rigorous approach to managing and assessing the anti-procyclicality of the margin model for the products cleared by the CCP. Guidance in this respect is notably provided in the BCBS- CPMI-IOSCO *Final report on the transparency and responsiveness of initial margin in centrally cleared markets.*[38]

109. The authorities shall ascertain that SXC and SIS continue to improve their respective recovery plans and ensure that each FMI fully meets the requirements of the PFMI. Both FMIs should test and review their recovery plans to ensure that they can be implemented effectively. SXC and SIS shall carry out periodic simulation and scenario exercises to this effect. It is also important that the recovery plans of both FMI introduce scenarios which include failures of other entities within SGA and test the impact on the respective FMI. This will enable the FMIs and the authorities

[38] Transparency and responsiveness of initial margin in centrally cleared markets – review and policy proposals

to test the reliability and resilience of the arrangements with respect to outsourced functions and shared resources, which notably include the central risk management function and the FMI's CRO.

110. FINMA has yet to finish developing and approving the resolution plans for SXC and SIS, which remain at an early stage. The authorities have achieved some progress since the last FSAP. This includes the review of the country's regulatory framework in this respect was performed and the inclusion of the legal basis for certain preferred resolution tools for SXC in the draft amendments in the ongoing revision of the FinMIA. For SXC, the preferred resolution strategy and preferred resolution tool set have been defined and discussed with the CMG, however for SIS similar progress has yet to be achieved. In 2024, FINMA defined the information needed from FMIs to draft a resolution plan, an endeavor which will require significant resources and should be expedited.

FMIS, DLT, AND WCBCD—THE SIX DIGITAL EXCHANGE CASE STUDY

A. Overview

111. SIX Group AG is actively experimenting with new technologies and financial innovation, including DLT-based securities settlement and crypto assets. It launched SIX Digital Exchange (SDX) in 2019 which operates a DLT-based securities settlement platform and - until June 2025 - a trading platform.[39] SDX was granted two separate licenses as a CSD and exchange in September 2021. Today, SDX offers issuance, settlement, servicing, and custody of tokenized securities, including the full automation of post trade servicing and asset servicing, using smart contracts.

112. The FMI relies on an established risk management framework and operates a comprehensive risk management system. Similar to other SGA entities, its risk management framework is embedded in the overall group policy. SDX's access policies require sufficient expertise and technical capabilities from potential participants that would be interested in joining the FMI. Membership is restricted to banks, central banks, securities firms and FMIs,[40] thus does not encompass private persons. Participants are required to have a CHF account at SIC or a correspondent institution which does so.

113. SDX is embedded in the traditional Swiss FMI landscape despite the novel nature of its DLT platform. It has established a link to SIS (SIX group's CSD), allowing SIS participants to settle and hold digital bonds originally issued on SDX. SDX did not obtain a license as DLT trading facility which could have allowed it to service end-clients directly and create the basis for a comprehensive regulated tokenized ecosystem. Instead, the FMI operates with "traditional" exchange[41] and CSD

[39] In June 2025, SDX discontinued its digital asset trading services and consolidated them into the SIX Swiss Exchange.
[40] As of end 2024, its membership was largely composed of Swiss banks.
[41] SDX plans to voluntarily return its exchange license in 2025 to consolidate its trading services into the SIX Swiss Exchange.

licenses,[42] providing intermediated access to its services via its members. Members may have one or more accounts[43] on the platform, on which to store digital assets and/or digital money.

114. To cater to the underlying technology, the FMI was required to adopt new frameworks, which includes the settlement methodology. Unlike SIS, SDX currently does not generally settle in central bank money, having to rely on its own private token. SDX issues tokenized Swiss francs, whereby these are backed 1 to 1 with reserves at its account at the SNB. These tokens can then be exchanged for tokenized securities. SDX, which uses R3 Corda enterprise DLT, verifies that sufficient assets/funds are available, before settlement occurs. Additionally, SDX currently hosts and controls most key functions and capabilities, including the technical access portal and the maintenance of the DLT nodes (its DLT platform is categorized as a private permissioned peer-to-peer network with hierarchical access to the ledger).

115. The oversight arrangements for SDX are identical to that of other FMIs domiciled in Switzerland. FINMA is responsible for its prudential supervision, at the same time no oversight of SDX is exercised by the SNB, as it is not considered to be of systemic importance. This decision was taken by SNB in consultation with FINMA and based on the limited number of members and the limited market activity at SDX. The supervisory approach for SDX adopted by FINMA is identical to the one adopted for SIS (including foreseen activities and powers), although the intensity of the supervision is reduced in light of the reduced relevance of the FMI.

116. SDX is seen as nascent business within the wider SGA in light of the low activity on its CSD and trading platforms. As of April 2025, the CSD had 12 participants, with the now discontinued exchange having 3 participants. The issuance volumes on the SDX remain modest, with total digital bonds issuances amounting to ca. CHF 1.5 billion. In order to increase activities on its platform, SDX plans to integrate further with SIS, and develop synergies and mutually beneficially products by leveraging its DLT technologies (e.g., focusing on automatizing corporate actions via smart contract use cases). SDX closed its trading platform in June 2025 and instead relies on its established bridge with SIS and the Swiss Stock Exchange to facilitate secondary market transactions for securities originally issued on SDX. This is a consequence of the lack of activity on SDX's own exchange and the lack of interest of market participants to make use of SDX's offer to facilitate atomic trading and settlement (instant and simultaneous settlement of securities and money without counterparty credit risk).

117. A key aspect for SDX lies in the payment leg of the settlement process for tokenized assets. A settlement arrangement using SDX's own private token is suboptimal as it results in credit risks for investors and participants, and thus a balance sheet charge for holding this token. Unlike central bank money, a private token is not bankruptcy-remote but constitutes a claim on its issuer

[42] Formally, SDX is a central securities depository in accordance with Art. 61 Swiss Financial Market Infrastructure Act (FinMIA) and a securities depository in accordance with Art. 4 para. 2 (d) of the Federal Intermediated Securities Act (FISA).
[43] As for regular CSDs, possible account types include proprietary, omnibus and segregated accounts.

(in this case SDX). To facilitate the scaling of the new technology, wCBDC would constitute a possible option to alleviate the issue.

118. In order to explore ways to leverage DLT, investigate tokenized finance and experiment with the use of wCBDC to settle tokenized assets, SIX Group and SDX have partnered with the SNB, a select group of banking institutions and, initially, the BIS Innovation Hub Swiss Centre via a common and currently ongoing multi-phased project termed Project Helvetia (kindly refer to Box 1—Project Helvetia for detailed information on the project).

Box 1. Project Helvetia

Project Helvetia is a multi-phase joint experiment and explores various approaches to the settlement of tokenized assets in central bank money. The project includes an ongoing pilot which explores the integration of tokenized assets and central bank money on SDX's DLT-based platform. It involved the BIS Innovation Hub Swiss Centre (for the initial two phases), SIX Group AG (SGA) and the Swiss National Bank (SNB), as well as a limited set of banks.

Phase I of the project took place in 2020 and tested the technical and legal feasibility of settling tokenized assets in central bank money. Two Proof of Concepts (PoCs) were investigated: 1) issuing wCBDC directly on the platform and using it to settle transactions, and 2) building a link between SDX and SIC to settle transactions. Both PoCs were found to be feasible, both from a technical and legal perspective.

Phase II of the project occurred in 2021 and expanded on the work of Phase I, by investigating the settlement of tokenized asset transactions via wCBDC on SDX's platform (PoC 1 of Phase I). The second phase notably added commercial banks[1] to the experiment, integrated wCBDC into the core systems of the central bank and commercial banks and ran test transactions from end to end (using the test environments of production systems).[2]

Helvetia Phase II included also monetary policy considerations and investigated various channels of issuing wCBDC and facilitating cross-border settlement with wCBDC on SDX. The concepts tested included foreign banks (with access to the Swiss RTGS) triggering the issuance and redemption of wCBDC, as well as the creation of wCBDC by the SNB on SDX directly via monetary policy operations.

Helvetia Phase III, which largely builds on Helvetia Phase II, has been running since December 2023. It was renamed **Helvetia pilot** in mid-2024 and is set to run at least until 2027. This phase saw the move from test environments into a production environment where the SNB is making wholesale CBDC available for the settlement of commercial tokenized bond transactions.

Project Helvetia was expanded in June 2025 to include the settlement of tokenized assets with traditional central bank money (RTGS link). To this end, the SNB is providing BX Digital, a financial market infrastructure which is planning to operate a trading facility for tokenized assets, with a production-environment connection to the existing Swiss Interbank Clearing (SIC) system. BX Digital's services are built on an open DLT platform (Ethereum) and aim at allowing for an easy integration with existing banking processes and custody solutions as the cash leg of transactions on BX Digital is settled via a direct link to SIC.

[1] Citi, Credit Suisse, Goldman Sachs, Hypothekarbank Lenzburg and UBS.

[2] Phase 2 came close to realistic conditions in many aspects, although certain areas where not included for simplicity purposes. E.g., accounting and statistical and regulatory reporting were out of scope, as was error handling or considerations pertaining to cyber security or privacy.

119. The wCBDC used in the Helvetia pilot constitutes a digital Swiss franc (CHF), exclusively issued to participating financial institutions via the dedicated DLT-based SDX platform. Economically and legally, the issued wCBDC is an alternative but equivalent representation of sight deposits held at the SNB. The tokenization and detokenization of CHF is triggered by the participating banks through SIC (RTGS) using a standardized, automated process (via established ISO messages).

120. To comply with Swiss public[44] and private law[45], SDX developed dedicated functionalities allowing SNB to retain control regarding the issuance, access and redemption of wCBDC on SDX's platform. SDX hosts all nodes on its platforms (including the central bank node and commercial bank nodes) and controls the notary node, as well as a newly created observer node, which collects all intraday transaction data. The central bank is also granted access to the observer node and books and reconciles wCBDC holdings in its systems. SDX is furthermore responsible for executing technical and operational tasks such as executing participant's instructions by crediting and debiting the participants' wCBDC accounts when issuing, settling and redeeming wCBDC. Commercial bank nodes are used to store tokenized assets and wCBDC and to initiate transactions on SDX.

121. During the initially foreseen timeframe of Helvetia Phase III (Dec 2023 to Jun 2024), the SNB and SDX established clear initial participation rules in light of the experimental and targeted nature of the exercise. This encompassed notably a limited set of participating financial institutions which were required to not only have a sight deposit account with the SNB but also be admitted to the SIC payment system and be members of SDX. Participation is also conditional to signing dedicated contracts with the SNB and the ability to comply with Helvetia's operational demands (both SDX and SNB are involved during the admission onboarding process).

122. In order to contain project risks and costs, SDX and the SNB constrained the availability of wCBDC during Helvetia Phase III. wCBDC was solely available intra-day upon request on pre-agreed days (so-called "Helvetia days") and within a set time window. Consequently, wCBDC are tokenized and detokenized on the same day between 8 am and 3 pm and do not remain on SDX's platform overnight. In 2024, SDX registered 8 Helvetia days, which included bond issuances, SNB Bills (see next) and a secondary market transaction.

123. The SNB also successfully issued digital SNB Bills on SDX in June 2024, thereby becoming the world's first central bank to carry out a monetary policy operation in a live DLT production environment. The issuance was calibrated to Helvetia Phase III which meant that the digital SNB Bills were issued with a term of seven days via a private placement on SDX. Processes and arrangements (including pricing and auction platforms) differed from the SNB's normal Bills program. The private placement allowed the SNB to tailor processes and conditions to the unique

[44] SNB must thus retain control and monitoring functions over wCBDC equivalent to those over traditional sight deposits.

[45] The operator shall act as the mandated party in relation to wCBDC and perform delegated tasks on behalf of the central bank, based on contractual agreements. This includes the operation of nodes on behalf of the central bank.

specifications of such a pilot transaction. The SNB issued digital SNB Bills totaling CHF 64 million to five Helvetia pilot banks.

124. The SNB has taken a supportive approach to innovations with regards to DLT-based FMIs, although it has adopted a technology neutral stance. It has stopped short of insisting on wCBDC as future standard for the cash settlement leg of securities transactions and remains open to other solutions (including the settlement through SIC, or the use of bankruptcy-protected tokenized private money forms). The SNB will regularly assess the prolongation of its involvement within the Helvetia project.

125. The Central Bank extended the availability of wCBCD on SDX in May 2025 to every day, which could lead to an uptake of the volume and number of transactions. This is consistent with the SNB's phased approach and requires limited amounts of resources on the central bank and the FMI's side. As Helvetia remains a pilot and has yet to achieve wider adoption, the SNB has yet to develop a wCBDC policy stance which would include a more permanent governance and technical requirements that would be applicable to third-party platforms hosting wCBDC.

B. Challenges

126. Despite the multiple milestones reached and the successful live transactions on SDX's DLT platform, both the FMI and the SNB acknowledge that material challenges exist and need to be addressed. SDX remains in a start-up phase, where it has yet to define and scale its business model and faces a range of interrelated challenges. These challenges are notably related to market acceptance of the FMI and the technology, the low settlement/transaction volumes on its platforms, coupled with uncertainty regarding the future product offering and the availability of wCBDC on its platform.

127. Growth has been slower than expected, both in terms of participants and activity on its CSD and exchange platforms. FMIs rely on scale and network effects to increase efficiencies and bring value and there are signs that the Swiss securities market has limited capacity to host two CSDs. SDX is currently actively trying to attract also non-domestic financial institutions and is hopeful to onboard a considerable number of new participants by the end of 2025 (a subset of these new members might join the Helvetia Pilot).

128. As the current post-trade landscape in Switzerland already rests on highly reliable and integrated traditional FMIs, SDX is required to demonstrate its value proposition. To achieve this, SDX is developing enhanced processes and expanding its offering to provide new solutions and use cases for its participants. The FMI has also created a Market Advisory Group in 2025 to strengthen interactions with the industry.

129. SDX plans to make further use of its intergroup connections, especially with SIS and SSE to scale its business and showcase its value. The FMI's own exchange is being discontinued in light of the absence of transactions, and a common strategy and offering with SIS is to be developed (SGA also intends to organizationally integrate SDX more closely with the other Swiss

FMIs in the group to streamline processes and develop synergies). For the time being, the FMI plans to put less focus on atomic trading and settlement or providing a standalone offering, rather focusing on expanding the product range to other types of securities (equities, funds) and leveraging the possibilities of DLT for automatizing and streamlining processes and asset servicing services related to tokenized securities.

130. The availability of wCBDC has been recently extended but may still be a constraining factor. The SNB has extended the availability of wCBDC to every business day in May 2025. That increases the flexibility for pilot banks, although wCBDC is available only intra-day. Consequently, the banks must still tokenize and detokenize wCBDC at the beginning/end of the day, depending on their needs. This requires dedicated processes that may reduce the appeal and efficiency for the FMI's participants.

C. Recommendations

131. Switzerland has been among the first countries to provide a legal base for blockchain technology, including its use by FMIs, since the DLT blanket act entered into force in 2021. This has allowed SGA to launch SDX which introduced a DLT-based settlement platform and, in cooperation with the SNB, facilitated the successful settlement of commercial transactions with wCBDC in a production environment. The jury remains out on whether DLT-based FMIs will become more widely used by the participants in the Swiss financial market.

132. FINMA shall closely monitor the upcoming developments at SDX which may warrant a revised supervisory approach for the FMI. The Group plans to further integrate SDX with the other parts of SGA's FMI ecosystem, especially SIS, which has already established a link to SDX. As the group will seek to leverage synergies and increase joint product initiatives, it will be important to address any risks from interdependencies that might arise.

133. The SNB shall establish a strategy which details under which conditions it would issue wCBDC on third party operated platforms. In the event that tokenization becomes more widespread, it is important to offer solutions for settlement in central bank money. These solutions could include expanding the availability of wCBDC and/or establishing links to the RTGS system, as highlighted by the SNB itself. It is important for the SNB to expand its institutional discussions and deliberations on requirements for permanently issuing wCBDC on third party operated platfoms, should a decision be taken to allow the settlement of tokenized assets with wCBDC on a permanent basis. This will provide both the SNB and FMIs with clarity and allow for an adequate planning and investment horizon.

PART II: FINTECH[46]

A. Background

134. Digitalization of finance continues to progress in Switzerland, supported by a governmental plan of action. The country exhibits favorable conditions, such as favorable business and regulatory environment, macroeconomic stability, high levels of digitalization, and skilled workforce, to harness the benefits of technology innovation applied to financial services or fintech. These underlying conditions explain the growth of digitally provided services by both incumbents and new entrants. Among innovative developments, Switzerland stands out in the provision of crypto-related services, thanks to the early approval of a comprehensive regulatory framework. Ongoing initiatives such as the introduction of instant payments anticipate further financial innovation by impacting the substitution of cash payments. Authorities underscored the relevance of a digital financial sector as a key driver of the economy's competitiveness. Aiming to a future-proof financial sector, authorities outlined a broad plan of action.

135. This financial innovation exposes the financial sector to new vulnerabilities while exacerbates existing ones. A digital financial sector increases the surface for cyber-attacks and fraud. New business models based on sharing information expose customer to data breaches, which could undermine trust in the system. Technologies such as artificial intelligence can exacerbate dependencies on third-party providers or facilitate the creation of deep fakes. Crypto activities can intensify interconnectedness between regulated and unregulated entities, increasing credit, liquidity, market and operational risks. New entrants may erode incumbents' revenues, if they compete aggressively.

136. Swiss authorities follow a technological neutral and proportional approach. This implies that regulated activities, such as banking and securities dealing, will receive the same regulatory treatment regardless of the technology used. The regulatory framework for fintech activities is governed by the Financial Services Act (FinSA) and the Financial Institutions Act (FinIA) and complemented by other laws and ordinances. Modifications introduced to the banking law created a new license, whereby firms can receive up to CHF 100 million in deposits or crypto assets (i.e. payment-tokens). As these firms are not allowed to invest customer funds (no maturity transformation), they are subject to fewer regulatory and supervisory requirements than traditional banks.

[46] Part II—Fintech of this note was prepared by Gabriela Elizabeth Conde Vitureira, Senior Financial Sector Expert at the IMF. The FSAP Team appreciated the excellent cooperation from Swiss authorities and other counterparts. In particular, the team wishes to thank the staff from regulatory and supervisory authorities—FINMA, SIF, and SNB—as well as to representatives from the private sector, for the time and information provided.

B. Scope and Approach[47]

137. This part covers fintech developments and supervisory oversight in Switzerland since the last FSAP and is divided into three main sections. It includes the impact of fintech on new entrants and incumbents, the approach to monitoring fintech developments, the institutional arrangements for regulation and supervision of fintech, and overall supervisory cooperation. The first section provides an overall description of the fintech ecosystem, encompassing fintech companies and banks. The second section covers the regulatory and supervisory approach towards fintech. The last section focuses on six key issues: i) crypto assets landscape, ii) fintech license and regulatory sandbox, iii) open finance, iv) AI adoption in the banking sector use, v) use of technology for regulatory compliance by regulated entities and the financial sector regulator, and vi) crowdfunding.

138. The review is based on various written documentations as well as discussions with the authorities and other stakeholders. The TN builds upon 2018 Switzerland FSAP, responses to questionnaires and data provided by the authorities for an overview of the broad industry, the regulatory and supervisory framework, and its implementation in practice, as well as other publicly available information. On-site and virtual meetings with the authorities (FINMA and SIF) and representatives of the industry provided additional key information and clarity on various topics.

FINTECH INDUSTRY OVERVIEW

139. Switzerland positions itself as an attractive location for the fintech industry.[48] The country ranks second in fintech market attractiveness in Europe, due to factors such as favorable business environment, macroeconomic conditions, digitalization of the economy, and regulatory frameworks.[49] The availability of a skilled workforce and investments in research and development ease the adoption of frontier technologies, including blockchain and artificial intelligence (AI).[50]

140. The government supports the digitalization of the financial sector through a broad plan of action (Figure 1). The plan contributes to the overarching Digital Switzerland Strategy which is structured around five long-term domains: (i) Education and skills, (ii) Security and trust, (iii) Framework conditions; (iv) Infrastructure, and (v) Digital public servicers. A digital financial sector is a key driver for the Swiss economy's competitiveness. Therefore, the government aims to promote a future-proof financial sector that evolves by being innovative, interconnected, and sustainable. The plan includes various measures that either promote new business models and technologies (e.g., Open Finance and DLT); strengthen ongoing initiatives (e.g., Cybersecurity and Green fintech); or monitor market developments to identify the need for action (e.g., Cloud computing and AI). A

[47] This part of the TN only discusses the institutional and legal framework, as it pertains to fintech developments. Issues related to FINMA's institutional structure, as an integrated regulator, are dealt with at great length in the detailed assessment principles for Basel Core Principles for banks, and hence, not repeated here.

[48] The Financial Stability Board defines fintech as "technologically enabled innovation in financial services that could result in new business models, applications, processes or products."

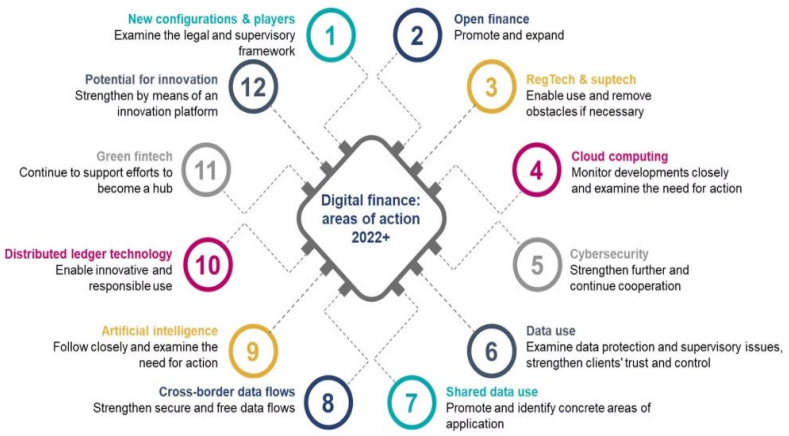
[49] European Fintech Index

[50] Technology and Innovation Report 2023 | UN Trade and Development (UNCTAD).

regulation that removes unjustified barriers to entry is underscored as pivotal to the development of financial innovation. The creation of the fintech license and the DLT Act illustrate how financial sector regulation has adapted to include government initiatives.

Figure 1. Switzerland: Digital Finance: Areas of Action 2022+

12 measures for a strong Swiss digital financial center



Source: State Secretariat for International Finance

141. Fintech companies in Switzerland focus on the business-to-business segment and have an international orientation (Appendix VII). According to the 2023 IFZ Fintech Study, there are 483 fintech companies in Switzerland, a sector that has been growing since 2015. With incumbents contributing significantly to the provision of financial services in the economy and high levels of financial inclusion, fintech companies find a niche in the business-to-business segment, serving mostly international clients. Fintech companies mostly offer services on payments and banking infrastructure, complementing traditional financial activities, and they seem to play a significant role in terms of digitalization and innovation. In that regard, several fintech firms access to data stored on incumbents through Application Programming Interfaces (APIs) with consumers' consent (see Open Finance section). Additionally, only a few firms offer Banking-as-a-Service solutions, ranging from digital onboarding of clients to offering structured investment products.[51]

142. While companies offer services based on various technologies, those DLT-focused stand out in the fintech landscape. For example, the number of companies providing algorithmic-based investment recommendations is approximately 0.2 percent of the total population or 31 as of December 2024, as per figures informed by authorities. On the other hand, DLT focused-companies have been steadily growing in number since 2015, outpacing Analytics/AI and Process Automation-focused companies (Appendix VII). The so-called Crypto Valley accounted for 5.1 percent of European venture funding in 2023.[52] Early movers to the Crypto Valley include the Ethereum

[51] Banking-as-a-Service | Hbl Solutions, Leonteq

[52] Europe ranked second after US in global DLT venture funding in 2023, according to CV VC Top 50 Report 2023.

Foundation. There are other notable examples in the banking sector, Sygnum and Amina, the first crypto assets banks, and in securities markets Taurus, a securities dealer.

143. The introduction of instant payments and an electronic ID further supports innovation and competitiveness of the financial sector. The launch of instant payments in August 2024 allows individuals and companies to perform account-to-account transactions with immediate execution and final settlement in seconds. Initially, around 60 financial institutions, covering over 95 percent of retail payment transactions, joined the system. By end-2026, all financial institutions active in retail payments will be reachable. Payments are settled via Swiss Interbank Clearing (SIC) operated by SIX, which reduces counterparty risk. Aiming to meet international standards, the system mirrors the European SEPA Instant Credit Transfer. The government announced a plan to offer an electronic ID (e-ID) from 2026. The e-ID will guarantee the protection of personal data thanks to concepts such as self-sovereign identity (SSI), privacy by design, data minimization and decentralized data storage. This development is expected to enhance protection against identity theft in the payment process.

144. Incumbents identified financial innovation as a key opportunity and responded by increasing investment in technology. According to a survey prepared by the Swiss Bankers Association, further improvements in the customer experience through digital channels represent the best opportunity for the industry to achieve growth. Notably, respondents indicated that investments in crypto assets will increase by 50 percent. While they identified the risks associated with discount banks and fintech companies as significant, the perceived importance of these risks fell compared to the previous year. This is since some discount banks cater to different customer segments than traditional banks. On the other hand, most fintech companies focus on payment apps. As these still necessitate a bank account, the banks will continue to be integral part of the value chain.[53] According to the IFZ Study, banks have been steadily increasing the proportion of investment in technology (Appendix VII). A higher expense in IT related labor costs vis-à-vis non-IT related costs parallels that trend. Data analytics is gaining momentum within the banking sector and 49 percent of surveyed institutions indicated that they have hired between one to five data scientists on a full-time basis. Fraud detection leads the deployment of data analytics products (61 percent), followed by risk management (49 percent) and optimization of marketing and sales (37 percent).

145. While limited at present, financial stability risks from fintech activities can rapidly escalate. International experience indicates that financial innovation facilitates digital fraud. The cybercriminal ecosystem is evolving to include non-technical criminals that use cyber tools without having technical expertise. Fraudsters employ increasingly sophisticated techniques whereby they can bypass current security measures (e.g. two-factor authentication, biometrics). Further adoption of AI can turn markets more volatile, exacerbate dependencies on third-party providers, and boost cyber and market manipulation risks. In addition, crypto assets can amplify financial stability vulnerabilities such as an increasing linkage with incumbents; the increased use of leverage in investment strategies; concentration risk of trading platforms; and a less intensive approach globally

[53] SBA_Swiss-Banking-Outlook_2024_EN.pdf

to the oversight of the sector. Other concerns relate to low levels of investor and consumer understanding of crypto assets, money laundering, cyber-crime, and ransomware. Finally, business models such as Open Finance and Banking-as-a-Service can raise concerns about the concentration of counterparties, third-party risk management, and interconnectedness.

REGULATORY AND SUPERVISORY APPROACH[54]

A. Institutional Setting and General Approach to Fintech

146. The State Secretariat for International Finance (SIF) develops the basis for financial regulation, while FINMA acts as the prudential and conduct regulator and supervisor for financial markets. SIF, a government agency reporting to the Federal Department of Finance (FDF), is responsible for drafting regulatory projects pertaining to financial markets, such as federal laws, Federal Council Ordinances, or FDF-issued ordinances. FINMA's statutory powers to supervise banks, insurers, stock exchanges and other participants in financial market are codified in the Swiss Financial Market Supervisory Act. FINMA can issue ordinances, circulars, and guidance.

147. The Swiss regulatory framework for fintech companies is inter alia governed by FinSA and FinIA. FinSA establishes the supervisory framework for providing financial services and offering financial instruments. It applies to both traditional financial service providers and Fintech companies, with specific relevance to portfolio management, investment advice, and the issuance of tokenized equity rights or bonds. FinIA provides a licensing regime for financial institutions, including portfolio managers, trustees, managers of collective investment schemes, fund management companies, and securities firms. FinIA adopts a "pyramid approach," with lighter regulations for portfolio managers and trustees, and stricter regimes for other financial institutions.

148. Switzerland also has Fintech-specific regulations, including the Fintech license, a regulatory sandbox, and settlement accounts exemption. These regulations are based on the technological-neutrality principle, meaning that, to the extent possible, an activity such as securities dealing or banking activities, shall be regulated the same, regardless of the technology used. The Fintech license, introduced as part of the Banking Act, allows companies to accept deposits of up to CHF 100 million from the public or of crypto assets (i.e. payment-tokens), provided these deposits are not invested and no interest is paid. This license is designed for companies not engaged in classic banking activities such as interest margin business. The "sandbox" creates a regulatory safe harbor for FinTech companies to test business ideas and provide financial services, with a limit of accepting public deposits of up to CHF 1 million without a license but typically under SRO-supervision regarding AML.

149. Other applicable federal laws relate to banking activity, FMIs, anti-money laundering, and consumer protection. The Banking Act (BA), which regulates banking activities, deposit-taking,

[54] This Technical Note only discusses the institutional and legal framework pertaining to fintech activities. The detailed assessment principles for Basel Core Principles for banks provides a deeper examination on FINMA's institutional structure.

and supervision of banks and Fintech license holders. Only licensed banks and holders of Fintech licenses can professionally accept deposits from the public. The FinMIA governs financial market infrastructures such as trading venues and payment systems. The Anti-Money Laundering Act (AMLA) and implementing regulations require due diligence, reporting, and record-keeping. The Consumer Credit Act (CCA) regulates consumer credits. The Collective Investment Schemes Act (CISA) regulates pooled investment funds.

150. The regulatory framework also considers DLT and blockchain. FINMA categorizes tokens as payment tokens, utility tokens, and asset tokens. The DLT Law, which came into force in 2021, aims to integrate DLT into the existing legal framework. This law includes adjustments to existing laws and ordinances, particularly regarding the segregation of client's crypto assets from the custodian's own assets. FINMA also issued guidelines on stablecoins and staking, which are reviewed in the Crypto assets section of this TN.

151. FINMA licenses fintech businesses that intend to operate as a DLT trading facility. To obtain such a license, next to operating an exchange of DLT-based securities applicants must at least satisfy one of three conditions set out in the FinMIA, namely (i) hold DLT securities in central custody, (ii) clear and settle transactions in DLT securities or (iii) allow access for private persons (firms or natural persons). , Under FINMA's supervisory system, supervision is carried out directly by FINMA, authorized auditing firms are involved on a regular basis (See TN on Securities Markets, Box 2).

Box 2. DLT Developments

This timeline highlights Switzerland's approach to integrating DLT and blockchain into its financial ecosystem.

Early Regulatory Recognition: In February 2018, FINMA published its "ICO Guidelines", which categorized tokens, providing initial regulatory clarity for DLT and blockchain activities. This was followed by a supplement in September 2019, which focused exclusively on "stablecoins".

First Licensed Crypto Asset Manager: August 2018 saw FINMA grant the first asset manager of collective investment schemes license to a company focusing on investment management in crypto assets, Crypto Fund AG.

First Crypto Asset Exchange Traded Product: In November 2018, the world's first exchange-traded product for investments in crypto assets was launched on the Swiss stock exchange, SIX, by 21Shares AG.

Government Report on DLT: In December 2018, the Federal Council released a detailed report on the legal framework for DLT and blockchain, concluding that the existing legal framework was generally "fit" for such technologies but identified areas for improvement. A draft law was subsequently prepared and finalized in November 2019.

Establishment of Sygnum and SEBA Bank: In August 2019, FINMA granted banking as well as securities dealer licenses to two companies focusing on products and services relating to digital assets, Sygnum Bank AG and SEBA Bank AG (later re-named Amina Bank). These were the first fully regulated banks specializing in crypto assets.

SIX Digital Exchange (SDX) Launch: In December 2018, SIX launched the world's first fully regulated digital exchange. This was followed by the issuance of the world's first digital bond in a fully regulated environment in November 2021. In September 2021, SIX Digital Exchange AG (SDX) formally received regulatory approval as a central securities depository from FINMA, and SDX Trading AG was approved to act as a securities exchange.

Box 2. DLT Developments (Concluded)

First Approved Crypto Fund: In September 2021, FINMA approved the first crypto fund under Swiss law. The distribution of the fund is restricted to qualified investors.

DLT Law Implementation: The DLT Law came into effect in 2021, aiming to integrate DLT into the existing legal framework, including adjustments to laws and ordinances, particularly on the segregation of crypto assets from custodians' assets.

Tokenization Initiatives: There have been several initiatives involving the tokenization of assets, including tokenized investment products, tokenized precious metals, and tokenized art. Examples include the tokenization of bonds issued by UBS and the City of Lugano on the SIX Digital Exchange (SDX) blockchain platform. In addition, Sygnum Bank AG tokenized the Andy Warhol artwork "Four Marilyns (Reversal)" in cooperation with art investment company Artemundi.

Proof of Concept for Tokenized Products: The CMTA (Capital Markets and Technology Association), alongside market participants, conducted a proof of concept in December 2022 for the DLT-based issuance, trading, and settlement of tokenized investment products on an Ethereum test blockchain.

DLT-based infrastructure: aXedras AG is developing a distributed Corda application on a permissioned and private blockchain to combine integrity, traceability, and confidentiality of business transactions.

Core banking on blockchain: Fiat24 is a core banking system built on blockchain that uses NFTs to represent client IDs and smart contracts to manage booking logic, aiming to reduce operational costs.

First DLT trading facility. In 2025, FINMA licensed BX Digital as the first Distributed Ledger Technology trading facility. This DLT trading facility settles in Swiss francs and executes the transfer of assets on a public blockchain. Payments and asset transfers at BX Digital are based on verified delivery versus payment (DvP) agreements. A direct connection to the Swiss National Bank's payment system enables seamless integration with existing banking systems. Derivatives and anonymous instruments that could significantly impede the implementation of AML requirements or impair the stability and integrity of the financial system are not permissible for trading.

152. With stretched resources, FINMA's Fintech Desk backs fintech innovation and provides guidance. The Fintech Desk has a staff of eight people who are responsible for various activities. The Desk supports FINMA on fintech topics, including acting as competence center and participating in working groups. Moreover, the Desk engages in the authorization of entities applying for a fintech license and for DLT trading facilitites. It also reviews projects that may give rise to a Fintech License to familiarize with the business model of the initiative and to conduct an initial regulatory assessment. While the number of enquiries has stabilized at around one hundred per year over the last four years, Fintech Desk resources are stretched given the multiplicity of tasks, the complexity of projects under analysis, the overseas expansion of DLT-focused regulated firms, and the increasing involvement in onsite inspections.

B. Fintech Monitoring, Financial Literacy, and Enforcement

153. FINMA monitors fintech developments by conducting audits and horizon scanning exercises; participating in international forums; and other regulatory activities. To supervise fintech license holders, FINMA relies on audit firms who are mandated by the supervised institution to review whether the supervised institutions meets regulatory requirements.[55] These firms can

[55] FINMA issued guidelines setting out specific requirements on the audits of fintech licensed firms.

conduct supplementary audits focusing on specific areas, fields, and/or points. On a risk-oriented basis, FINMA collects information from fintech licensed companies aiming to gain insights on the amount of public deposits held, composition of capital, number of customers, and liquidity position. FINMA can additionally conduct on-site inspections which may involve other departments, if necessary. Furthermore, the regulator conducts horizon scanning activities focusing on issues such as governance and risk management practices across the financial sector (see as an example the Artificial Intelligence section). FINMA regularly exchange views of fintech matters with the SNB, the SIF, and the FFA. To keep up with market developments, it participates regularly in workshops and roundtables on digitalization topics. FINMA is in the process of improving data collection on interdependencies with technology and other providers, aiming to address systemic concentration risks.

154. FINMA engages in financial literacy activities aiming at improving consumers' knowledge on fintech topics. For example, FINMA provides public warnings for market participants to review, highlighting potential risks in the financial market.[56] Furthermore, the financial market regulator issued guidance on how investors can protect against fraudulent activities, covering topics such as crypto assets and crowdfunding.[57]

155. Most enforcement actions conducted between 2020-2024 originated in suspected unauthorized activities under financial markets laws. During that period, FINMA initiated 385 investigations into fintech companies which mostly concluded with companies being published in the regulator's warning list (235 cases). Twelve cases gave rise to enforcement proceedings due to companies conducting business without licensing, whilst criminal charges were filed in 31 cases. The total number of investigations includes seven cases into companies with links to crowdfunding. As of today, 42 cases remain under investigation.

C. International Cooperation

156. Regulatory authorities actively engage in international cooperation activities that address fintech issues. Switzerland is represented or participates in multiple international organizations related to fintech activities, such as BCBS, FATF, FSB, IOSCO, IAIS, and OECD. FINMA experts participate in the BCBS Financial Technology Group and in the FSB Crypto Working Group. Additionally, FINMA has subscribed numerous Memorandums of Understanding (MoUs) that set out the terms of bilateral cooperation on fintech topics. Moreover, FINMA subscribed the IOSCO MoU which facilitates cooperation and the exchange of information with foreign authorities related to new products, services and technologies in a fintech context. Under the Swiss legal framework, FINMA can also cooperate with foreign authorities outside the provisions of the IOSCO MoU when such an authority shows that it has jurisdiction over the investigated matter under its local applicable laws.

[56] Public warnings issued by FINMA.

[57] How investors can protect themselves against unauthorized financial market providers

AREAS OF FOCUS

A. Crypto Assets

157. Since November 2024, the global crypto-asset market has experienced significant growth. On December 6th, the total market capitalization of crypto assets hit a record $3.8 trillion, with Bitcoin surpassing the $100,000 mark for the first time. Favorable macroeconomic conditions such as expectations of interest rate cuts and significant inflows into Bitcoin exchange-traded products (ETPs) were among likely drivers for surging prices. Nevertheless, global acceptance of crypto assets continues to be limited. An FSB report informs the market value of crypto assets represents less than one percent of global financial system assets.

158. Crypto asset adoption in Switzerland mirrors international patterns. The use of crypto assets as a means of payment is extremely rare in the country, investment being the preferred alternative.[58] According to a study conducted by the Lucerne University of Applied Sciences and Arts (HSLU)[59], crypto investors' main interests are curiosity and experimentation with this investment category. Nevertheless, market activity in the crypto asset regulated segment represents a small fraction of the overall Swiss financial activity. Turnover for indirect investments in crypto assets peaked during the first half of 2021 reaching CHF 1,200 million, to then decrease steadily to CHF 183 million as of December 2023 (Appendix VIII). [60] [61] Trading for clients, third-party custody, and transfer in and out prevail as crypto services within FINMA-regulated banks and securities firms. As of December 2024, these regulated institutions held in custody about CHF 13.9 billion of crypto assets, values significantly lower than those deposited and managed by Swiss banks (CHF 1,983.5 billion deposits and CHF 9,782.5 billion assets under management as end-of-2024). Despite these volumes, numerous regulated entities underscored during interviews their expansion plans both locally and abroad. They mentioned having already applied for licenses or set up international offices.

159. Since the approval of two crypto banks in 2019, the number of regulated entities offering crypto-related services increased. At the end of 2024, FINMA supervised forty banks and securities firms providing crypto assets services, such as trading and custody, while SROs supervised 203 Virtual Asset Service Providers (Appendix VIII). For 2022 and 2023, the number of banks and securities firms regulated by FINMA was 30 and 34 respectively.

160. While banks' involvement in trading through crypto exchanges is limited, this activity warrants close monitoring by authorities. An academic study conducted by HSLU collected information from global trade volumes and website traffic originating from Switzerland, presenting indicative figures for three distinct categories of crypto exchanges: centralized, decentralized, and

[58] SNB's Payment Methods Survey of Private Individuals (2022)

[59] Neue Studie: So ticken Schweizer Krypto-Anlagerinnen und -Anleger | Hochschule Luzern

[60] Indirect investments comprise Exchange Traded Products (ETPs), structured products, and derivatives.

[61] IFZ FinTech Study 2024 - An Overview of Swiss and Liechtenstein FinTech

derivatives crypto exchanges.[62] Monthly trading volume on centralized exchanges peaked in May 2021, reaching CHF 21 billion. Since then, trading volumes followed a downward trend, reaching CHF 4.4 billion as of June 2024. Trading activity in decentralized exchanges is significantly lower vis-à-vis centralized exchanges, peaking at CHF 1.3 billion by November 2021. In the first half of 2024, Pancakeswap, Raydium, and Balancer emerged as the most relevant decentralized exchanges for Swiss investors. Derivatives crypto exchanges display a similar temporal development as the spot trading in centralized exchanges. In June 2024, trading volumes reached CHF 20 billion, exceeding those observed on traditional exchanges as well as spot on centralized and decentralized exchanges. During the first half of 2024, Binance, XT Futures and Bybit were the most popular exchanges for derivatives trading. Banks' involvement with these exchanges is very limited, and their role as counterparties decreased significantly after notorious market events (e.g., FTX, Terra-Luna). While crypto exchanges do not have presence in Switzerland, and therefore are not subject to mandatory reporting, authorities should periodically collect information on trading activity to comprehensively monitoring crypto activity. Likewise, while further developments on investor protection regulation take place, authorities could intensify warnings to investors about related risks.

161. The Swiss regulatory framework covers most relevant participants and activities in the crypto ecosystem. Notably, the DLT Act (2021) outlined the prudential supervision of crypto-asset custodians, defined ledger-based securities and created a dedicated license for DLT-securities trading. Moreover, crypto asset service providers are regulated by various existing financial market laws, depending on their business model and qualification. FINMA also drafted guidance on various topics such as taxonomy of crypto assets (Box 3), issuance of stablecoins (Box 4), and staking services (FINMA Guidance 08/2023 "Staking"). In light of increasing appetite on crypto-ETPs, observed weaknesses in the quality of the collateralization of such products, and aiming to enhance investor protection, FINMA imposed amendments to the stock exchange rules and regulations (FINMA's Annual Report 2023, page 65). To address the challenges to the safeguard of crypto assets in case of bankruptcy, FINMA requires a "Cryptoassets Resolution Package" for those regulated entities involved in custody and staking. This package contains information for the identification and safeguarding of crypto assets, such as description of the custody type, details of contact persons with access to the private keys, and details of third-party custodians. Should Swiss banks and securities firms opt for custody crypto assets abroad, they should meet certain supervisory requirements which if not met may impact on capital requirements.[63]

162. Foreign investment funds linked to crypto assets are not subject to FINMA approval, if those are solely distributed to qualified investors. Foreign investment funds are not subject to FINMA product approval, if those are solely distributed to qualified investors. While there is no reliable information at present on the distribution of these funds, FINMA indicated that it is working on incorporating it in its periodic reports.

[62] Crypto Assets Study 2024 – An overview of the Swiss and Liechtenstein crypto assets ecosystem
[63] Requirements refer to selecting a prudentially supervised entity whose home jurisdiction must provide the same legal certainty as Switzerland for crypto assets held in custody in case of bankruptcy.

Box 3. Taxonomy of Crypto Assets

In February 2018, FINMA issued guidance on the classification of crypto assets. Based on their economic function, FINMA classifies tokens under three categories: (1) Payment tokens, (2) Utility tokens, and (3) Asset tokens. It should be noted that tokens may pertain to more than one category (hybrid tokens). For example, asset and utility tokens can be also classified as payment tokens. Should that scenario be verified, tokens are deemed to be both securities and means of payments and they should meet cumulative regulatory requirements.

Payment tokens meet the transactional functions of money. They are intended to be used as a means of payment for acquiring goods or services or to transfer value. The issuance of payment tokens is subject to AMLA regulations and laws apply regardless of whether this issuance takes place at the time of the Initial Coin Offering (ICO) or a later time.

Utility tokens provide digital access to an application or services through a blockchain infrastructure. FINMA can treat them as securities if they have an investment purpose.

Asset tokens represent a claim against an issuer. These tokens are analogous to equities, bonds, and derivatives. The category also includes tokens that enable physical assets to be traded on the blockchain. Under the FinMIA, tokens will be considered securities if they represent an uncertificated security and are standardized and suitable for mass standardized trading. Tokens representing derivatives, presented in a standardized form and suitable for mass standardized trading will be also treated as securities.

Tokens to be put into circulation because of pre-sale or pre-funding of ICOs can receive the same treatment as securities, had they been standardized and suitable for mass standardized trading.

163. The exposure to crypto assets within banks is subject to conservative capital requirements. The Basel Committee on Banking Supervision's prudential standard on crypto asset exposures, which will come into force January 1st, 2026, classifies banks' exposures into two groups, depending on meeting certain conditions.[64] Group 1 includes tokenized traditional assets (Group 1a) and crypto assets with effective stabilization mechanisms (Group 1b). Capital requirements for Group 1 crypto assets are based on the risk weights of underlying exposures as set out in the existing Basel Framework.

164. Group 2 includes crypto assets that do not meet classification conditions (e.g. bitcoin) and the exposures are subject to a risk weight of 1,250 percent. In addition, the standard includes descriptions of how the operational risk, liquidity, leverage ratio and large exposures requirements should be applied to banks' crypto asset exposures. While not yet announcing how to locally implement the standard, FINMA decided to apply an 800 percent risk weight to on-balance-sheet exposures. However, as the prevalent offer of crypto services by banks entails trading for clients, third-party custody, and transfer in and out, these positions are not subject to capital charges. Anecdotal evidence from interviews with the industry indicates that some market participants may experience difficulties in meeting the Basel standard capital requirements.

[64] Basel Committee on Banking Supervision - Prudential treatment of cryptoasset exposures

Box 4. Guidelines for the Issuance of Stablecoins

Stablecoins are generally created, and distributed through trading platforms, in exchange for fiat currency. With the proceeds of the fiat currency, the issuer of a stablecoin can invest in the reserves or in other assets.[1] Two important characteristics distinguish stablecoins from other crypto assets: (i) the existence of a stabilization mechanism, and (ii) the usability as a means of payment and/or store of value. Consequently, stablecoin holders generally have a payment claim against the issuer at any time.

Complementing the 2019 "Stable Coin Guidelines (sic)", FINMA issued in 2024 guidance on the applicable law for stablecoin projects and on risks such projects can convey to the supervised institutions. The supervisory body draws attention to the increased risks of AML/CFT as stablecoins can facilitate circumventing sanctions. Furthermore, considering the rising use of default guarantees provided by banks to stablecoin issuers and with the goal of safeguarding depositors, FINMA outlines the minimum requirements for these guarantees.

Stablecoins can be either categorized as deposits or collective investment schemes. If the underlying assets (the reserves) are managed for the account and risk of the issuer, the stablecoins will be categorized deposits. Conversely, if they are managed for the account and risk of the stablecoin holder, the stablecoin will be deemed collective investment schemes. The regulation includes exemptions to licensing obligations, mainly related to issuing stablecoins with bank guarantee.

To comply with AML/CFT legislation, the stablecoin issuer or an appropriately supervised financial intermediary must verify the identity of the stablecoin holder and establish the identity of the beneficial owner. In addition, FINMA emphasized the contractual and technological transfer restrictions that are required for the issuance of stablecoins by supervised institutions.

Default guarantees must meet disclosure and quantitative minima to protect stablecoin holders, albeit they are not equivalent to insured deposits. On disclosures, customers must be informed of the existence of the guarantee. On quantitative minima, the default guarantee must cover at least the total of all public deposits including any interest earned by customers and the total deposits covered by the cover requirement never exceed the upper limit of the default guarantee. FINMA underscores that stablecoin holders do not benefit from the same protection granted to bank depositors.

Banks issuing default guarantees can be exposed to legal and reputational risks. Should irregularities at the stablecoin issuer occur, banks may suffer reputational damage due to its contractual relationship with the issuer and may also be exposed to legal risks. Also, if dishonest stablecoin holders execute the default guarantee against the issuer bank, legal and reputational risks can compound with regulatory risks, particularly AML/CFT.

SIF is working on amendments to the regulatory framework for the issuance of stablecoins in Switzerland. This work is taking place as part of the legislative project that aims at enhancing the fintech license.

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[1] As per FSB definition.

Recommendations

165. Authorities should assess bank's crypto assets exposures comprehensively and implement the Basel prudential standard in a faithful and timely manner. Authorities should evaluate whether on and off-balance sheet positions merit additional capital charges. In addition, given the proximity of the prudential standard implementation date, authorities should announce when and how they will adopt it.

166. FINMA should be equipped with sufficient resources. FINMA appears understaffed in fintech supervision. The number of regulated entities has consistently increased in the last three years. Enquiries - while having stabilized to some extent in terms of numbers - have become more complex and demands careful analysis by the Fintech Desk. New entities (e.g. the DLT trading facility), the expansionary plans abroad of crypto-related licensed firms, and increasing interest in offering crypto services, call for intensified supervision of the sector. In addition, implementing pending aspects of international standards while keeping up with constant developments in financial innovation requires that the financial regulator has appropriate resources.

B. Fintech License and Sandbox

167. A new Fintech License with relaxed regulatory requirements has been introduced in 2019. FINMA, who is responsible for granting and overseeing this type of license, has issued guidelines for the application process.[65] The license allows institutions to accept public deposits up to CHF 100 million or crypto assets, if these are not invested, or no interest is paid on them. Should an institution exceed the CHF 100 million threshold, it must inform FINMA within ten days and apply for a banking license within ninety days. This license prescribes a minimum capital requirement of CHF 300,000 or 3 percent of deposits, but it does not set risk-based capital or liquidity requirements.[66] Similarly, it is subject to less auditing and monitoring compared to banks. FINMA authorized six companies to operate under the fintech license, out of which four are fully operative. The license enables business models in which customer funds can be accepted and corresponding accounts can be held for an unlimited period. Since it is not possible to invest or pay interest on public deposits, these models have so far been limited to payment services. In the event of the FinTech institution's bankruptcy, client assets are neither privileged nor protected by deposit protection, which future clients must be informed about (Art. 1b para. 4 let. d Banking Act and Art. 7a para. 3 Banking Ordinance). In its report of 16 December 2022, the Federal Council recognized the need for action in this area, which should be addressed as part of the regulatory project to amend financial market legislation regarding innovative business models of financial institutions. The bill is to be submitted for consultation in 2025.[67]

168. The regulatory sandbox operates as an exemption to banking law.[68] Aiming at facilitating innovation in the financial sector, Federal Council (FC) in 2017 approved the creation of a regulatory sandbox. While entities operating in the sandbox can receive deposits up to CHF one million, they are neither allowed to engage in interest rate differential business nor subject to licensing. In addition, depositors must be duly informed before making a deposit that the business is not supervised by FINMA and that the deposit is not covered by the deposit guarantee. In the Swiss framework, entities operating in the sandbox are not required to report to FINMA; therefore, authorities have little data on this license-free area.

[65] weg_bewilligungfintech_20230505.pdf

[66] See DAR.

[67] Amendment of financial market legislation with regard to innovative business models of financial institutions.

[68] Regulatory sandboxes are intended to monitor fintech developments and provide insights for potential regulatory changes.

C. Open Finance

169. The government fosters a market-driven approach for open finance. FDF set in 2022 targets conducive to a voluntary exchange of customers' information via APIs between financial institutions and third parties or open finance. Aiming at strengthening the ability of customers to freely use their financial data and the innovative capacity and competitiveness of the Swiss economy and the financial sector, the targets refer to the adoption of common standards for exchange of data, open interfaces, and scalable solutions.[69] During 2024, the FDF informed on the developments of open finance that include the subscription of a memorandum of understanding (MoU) on multibanking by 40 banks.[70] While other targets are yet to be achieved (common standards, opening of interfaces, scalability), FDF concluded that no government measures are required at present.[71]

170. The data and consumer protection frameworks lay the regulatory foundation for open finance. The Federal Act on Data Protection (FADP) is the central piece of legislation regulating data protection in Switzerland which outlines how personal data can be collected, stored, used, and transferred, ensuring individuals' privacy rights. Under the provisions of the FADP, consent on data processing is valid only if given voluntarily and data subjects were provided with adequate information ("informed consent"). The Federal Data Protection and Information Commissioner (FDPIC) is responsible for enforcing the FADP and has authority to investigate complaints and issue rulings regarding data protection violations.[72] Switzerland's consumer protection framework includes laws that protect customers from unfair business practices, excessive interest rates, and faulty products.[73]

171. There are multiple providers of platforms that operationalize open finance, but the uptake is limited. For example, the financial infrastructure provider SIX developed a platform called bLink that enables exchange of data. Reflecting views from the financial industry and business and technical principles recommended by Swiss Fintech Innovations (SFTI), bLink connects data providers and data users (i.e., financial institutions and third parties) via APIs, manages administrative aspects of the relationships between participants, and ensures compliance with security standards. bLink's API standards are suitable for use cases from the banking and insurance sectors, such as account information, payment initiation, loans, and wealth management. The platform builds upon one uniform contract, a standardized admission test for all participants, digital consent management and standardized interfaces. Each new participant must pass the admission

[69] Open finance objectives in Switzerland

[70] Multibanking refers to a group of functionalities that enable bank customers to manage multiple bank accounts through a single platform. The scope of those functionalities comprises transactions and balances of private, savings and current accounts of individual customers, defined as natural persons domiciled in Switzerland, Retail_Multibanking_MoU_EN.pdf

[71] Progress in implementing open finance in Switzerland

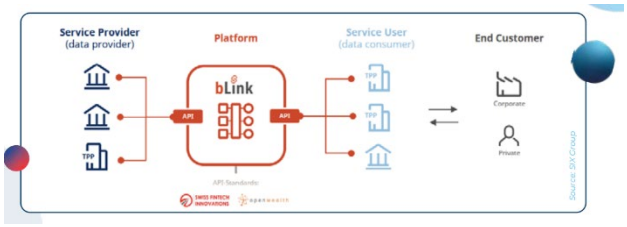
[72] Data Protected Switzerland | Insights | Linklaters

[73] Consumer Protection Laws and Regulations Report 2024-2025 Switzerland

process on bLink (Figure 2). At present, Open Finance platforms funnel significantly lower volumes of transactions vis-à-vis basic financial infrastructures.[74]

Figure 2. Switzerland: Open Banking

bLink platform



Source: Konsentus.

172. The authorities' commitment to regularly review progress is instrumental to the achievement of policy objectives, but additional measures are required. Open finance can impact positively on the economy by fostering competition, spurring innovation, and enhancing customer empowerment and experience. However, early adopters have indicated that increased data sharing heightens fraud, data security, protection and privacy risks. Therefore, setting up an open finance framework requires coordination and collaboration between the financial sector, financial, cybersecurity, consumer, competition, and data protection regulators, even under market-driven scenarios. Public authorities' involvement is pivotal to ensure that a governance structure that provides adequate representation to all relevant stakeholders is in place. Also, authorities should promote consumer information and awareness and ensure that proper mechanisms for redress exist. While private developments of infrastructure and standards are welcome, authorities should review whether these developments exclude participants and prices are fair.

Recommendation

173. Authorities should strengthen the governance structure of the open finance framework. Formal instances of coordination and collaboration between the financial sector, and financial, competition, cybersecurity, data, and consumer protection authorities need to be in place to mitigate emerging risks. On that, authorities should have powers and resources to articulate and implement risk-based supervision of all participants while addressing consumer protection issues. Monitoring pricing and establishing principles for compensation should warrant fairness and reduce the complexity of the system.

D. Use of AI by the Financial Sector

174. The government is following closely AI developments while assessing the need for action. The FC instructed FDF and other relevant agencies in 2022 to prepare an overview of the AI regulatory framework applicable to the financial sector. This overview would satisfy three objectives: (i) summarize relevant regulations, (ii) highlight the potential for innovation and reduce the risk of

[74] IFZ FinTech Study 2023 - An Overview of Swiss FinTech

abuse and other risks, and (iii) identify potential updates in the existing framework and standardization requirements. FC also acknowledged the need of leadership and active external communication on the use of AI by the financial sector to promote local innovation and attract external investment.[75] In November 2023, the FC ordered the preparation of an overview of possible regulatory approaches to AI, considering the different industries affected as well as the EU AI Act and the Council of Europe's AI Convention.[76] In February 2025, FC mandate the FDJP to draft a bill by the end of 2026 to implement the Council of Europe's AI Convention by defining the necessary legal measures, in particular in the areas of transparency, data protection, non-discrimination and supervision.[77] Also, there is no AI-specific financial market legislation in Switzerland. Financial market regulations are technology-neutral and set principles for effective governance and risk management practices.

175. Against the backdrop of increasing interest in AI adoption, FINMA set out in 2024 its expectations on risk management practices by regulated institutions. According to a survey published in 2022 by the financial sector regulator, around half the institutions polled are using AI or plan to do so. While most institutions develop applications in-house but also make use of third-party service providers, others rely completely on externally developed applications.[78] The guidance draws attention on the risks associated with the use of AI; underscores the need of identification, assessment, management, and monitoring of risks; and provides information on practices observed during onsite inspections. Risks are mostly related to operational issues, such as model risk (robustness, explainability, bias), data-related risks (availability, quality, security), IT and cyber risks, third-party dependencies, legal, and reputational risks.

176. To address those risks, regulated institutions have responded by focusing on data protection risks, but less on model risks. Institutions have adopted a narrow definition of AI and deploy AI systems in a decentralized manner which makes it difficult to have a comprehensive inventory of applications. In addition, they have not defined requirements or perform data quality controls. Also, performance indicators, testing and ongoing monitoring of applications exhibit weaknesses while documentation is not sufficiently detailed and recipient oriented. On explainability, supervisors observed that regulated institutions often cannot understand, explain, or reproduce systems' outputs. Finally, an independent review of AI systems is lacking in all cases. As the adoption of AI is rapidly increasing, FINMA continues to refine its expectations on governance and risk management practices following a technology-neutral, proportional, standardized approach across all sectors and based on international recommendations.[79]

E. Regtech and Suptech

177. The government fosters Regtech and Suptech adoption. The government acknowledged

[75] Microsoft Word - [763029212] Report Digital Finance_EN

[76] Fintech Laws & Regulations 2024 | Switzerland

[77] Communication of the Federal Council of 12 February 2025.

[78] FINMA Annual Report 2022 (page 22 et seq)

[79] 20241218-finma-aufsichtsmitteilung-08-2024.pdf

the importance of regulatory and supervisory technologies in its financial market strategy of December 2020. Paving the way to the deployment of Regtech tools, authorities launched Fedlex, a platform with secure online access to all federal legislation (incl. directives and ordinances from the FC, FINMA and the SNB).[80] Publications on the platform must follow internationally recognized standards and be available in machine-readable formats. Aligned with government's goals, FINMA issued regulation warranting video and online identification of clients (Circular 2016/7 and posterior revisions). Moreover, the government welcomed data-driven supervisory initiatives by both FINMA and SNB and the integration of Suptech tools to the supervisory process. For example, both institutions have deployed tools that ease automated collection and validation of data.

178. FINMA has deployed tools that have contributed to the effectiveness of the supervisory process. The supervisory body adopted in 2022 a Digital Strategy where the use of technology plays a key role. Ongoing developments in AI present opportunities to further enhance activities, such as regulation, supervision, and monitoring. During 2023, FINMA deployed Suptech tools related to summarization of market developments, processing of transactions for conduct supervision purposes, supporting the processing of securities market applications, and calculation of regulatory indicators for the insurance sector.

F. Crowdfunding

179. Serving mostly to SMEs, numerous crowdfunding platforms operate in Switzerland. According to a survey by Lucerne University, there were thirty-six crowdfunding platforms operating in the country by March 2024.[81] They raised a total of CHF 558.7 million during 2023. The segment raised a total of CHF 4.2 billion in funds since the first platform was launched in 2018, peaking in 2021 (Figure 2). Due to the proximity with the financial sector, three out of five business models are considered fintech activities: (i) Crowdinvesting, (ii) Crowdlending, and (iii) Invoice trading.[82] Crowdinvesting allows investors to acquire a stake in a business or in a tenanted property via equity or a mix of debt and equity. Investors receive as compensation ownership/dividends and rental income/property appreciation respectively. With Crowdlending, individuals and businesses get access to financing via loans. In this case, lenders receive interest on their loans as compensation. Crowdlending mostly finances SMEs, which in turn use it to fund projects, reschedule debt or manage short-term liquidity. Invoice trading refers to the purchase of unsettled business invoices at a discount. This form of crowdfunding enables SME's access to short-term liquidity. Investors receive as income the difference between the amount paid for the invoice and the amount of the invoice itself.

180. Crowdfunding represents a niche segment that does not pose significant risks to financial stability. The total volume of credit granted by Swiss banks in 2023 totaled CHF 1,36 trillion, of which CHF 395.2 billion were loans to SMEs. This compares to CHF 398.1 million in

[80] FINMA circulars or financial self-regulation rules cannot be accessed via the publication platform at present.

[81] Crowdfunding Monitor Schweiz 2024

[82] The other two are Reward-based crowdfunding and Donation-based crowdfunding.

total crowdlending during the same year. Between 2020–2024, FINMA conducted investigations into companies with links to crowdfunding due to suspected unauthorized activities under financial market laws.[83] As a result of these investigations, two companies were published on FINMA's warning list, one company was criminally charged, other solved compliance issues, and the rest was not found in violation of regulations. As of today, around six informal investigations against companies with a connection to crowdfunding are ongoing.

[83] Crowdfunding platforms that directly allocate funds from financers to developers generally do not need a financial market license. This also applies if an independent third party, like an escrow agent, is involved. However, if the platform channels funds through its accounts, it must check if a Banking Act license is needed. Holding funds for over 60 days requires a license unless the amount is under 1 million Swiss francs. Platforms must inform financers that their deposits are not protected by FINMA and cannot be used for interest margin business. Money laundering provisions apply if the platform provides professional services. Project developers might also need a Banking Act license if they accept funds commercially, especially if advertising for funds.

Appendix I. The Five Responsibilities for Authorities in the PFMI

Responsibility A: Regulation, supervision, and oversight of FMIs
FMIs should be subject to appropriate and effective regulation, supervision, and oversight by a central bank, market regulator, or other relevant authority.

Responsibility B: Regulatory, supervisory, and oversight powers and resources
Central banks, market regulators, and other relevant authorities should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.

Responsibility C: Disclosure of policies with respect to FMIs
Central banks, market regulators, and other relevant authorities should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.

Responsibility D: Application of the principles for FMIs
Central banks, market regulators, and other relevant authorities should adopt the CPSS-IOSCO Principles for financial market infrastructures and apply them consistently.

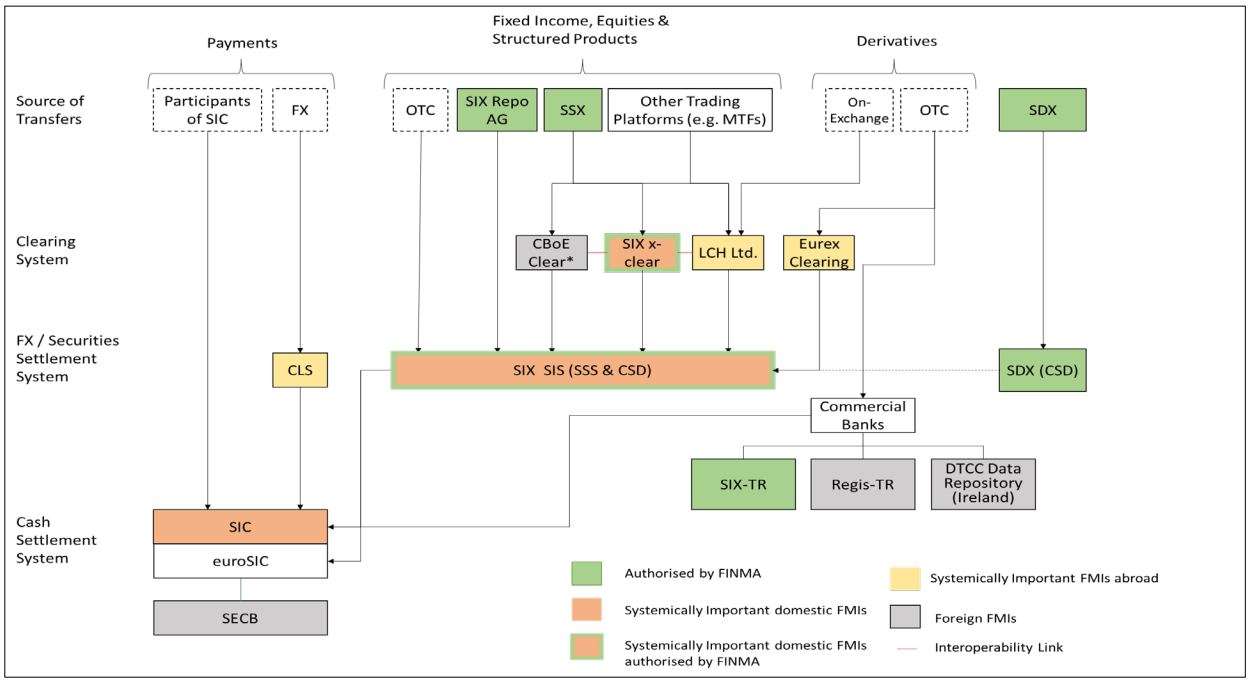
Responsibility E: Cooperation with other authorities
Central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMIs.

Source: CPSS-IOSCO Principles for Financial Market Infrastructures, April 2012.

Appendix II. Status Update 2019 FSAP Recommendations

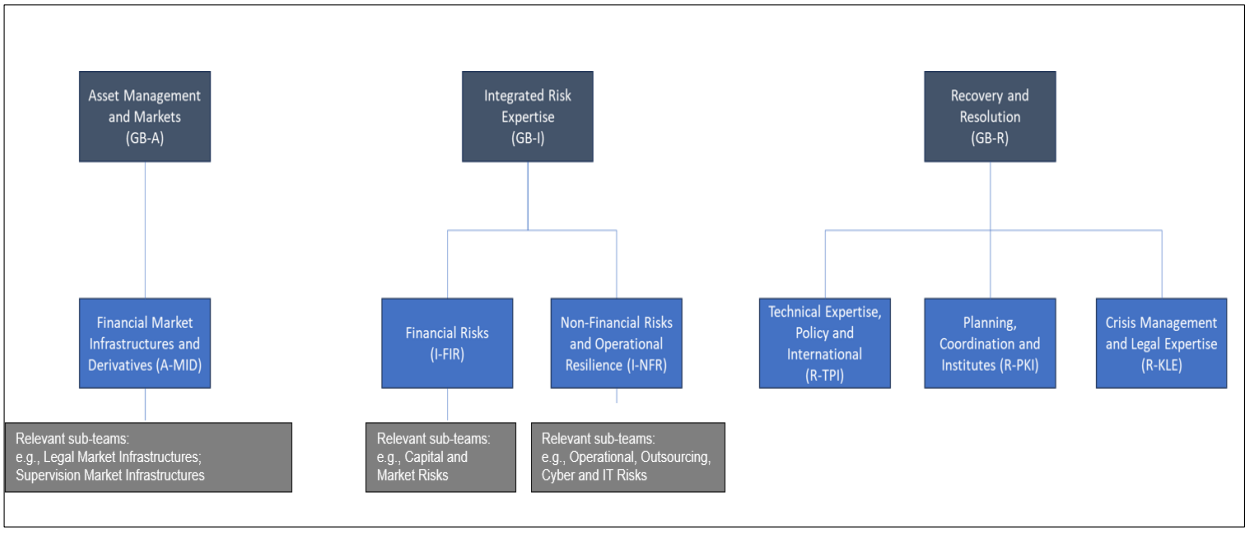
Recommendation	Implementation status	Justification provided by the authorities
Increase resources dedicated to FMI supervision	Implemented	Increase by 1 FTE
Address gaps identified in the CPMI-IOSCO assessment of implementation of the PFMI in Switzerland	Not fully implemented	Revised FinMIA / FinMIO /NBO expected to be enacted only in 2028 or 2029.
Finalize work to refine the supervisory approach for FMIs, in particular regarding consolidated group supervision	Implemented	The concept of consolidated supervision was adjusted in 2022, e.g. regarding consolidated capital requirements and governance. Consolidated capital requirements no longer apply at SGA level, but to SIX Securities Services (Sub-Holding of the systemically important FMI).
Introduce regular discussions with FMI participants and market participants	Not fully implemented	No sufficient benefit from introducing regular discussions with FMI and/or market participants
Increase resources dedicated to FMI recovery and resolution	Implemented	Increase by 1 FTE
Finalize work to develop FMI crisis coordination plans	Implemented	A crisis management framework ("Framework for FMI stress- and crisis situations") was finalized by FINMA and the SNB in June 2021.
Continue to improve recovery plans to ensure each FMI meets the requirements of the PFMI	Implemented	FINMA assesses the recovery plans for SIS and SXC on a yearly basis in consultation with the SNB. The plans comply with the PFMI Recovery Guidance.
Develop resolution plans for SXC and SIS and assess the legislative framework for FMI resolution	Not fully implemented	Necessary legal basis for some resolution tools included in the draft amendments to the FinMIA (entry into force not before 2028 or 2029)
Improve independence of SXC and SIS governance arrangements to support sound FMI risk management	Implemented	Significant adjustments to the governance of SXC and SIS, the independence of their risk management and from group support in crisis situations were implemented. Changes deemed adequate by FINMA.
Monitor the effectiveness of the revised SIC governance arrangements	Implemented	SIC governance arrangements have been assessed to observe the PFMI since 2020.
Meet regularly with the independent members of the SIS and SXC BoDs.	Implemented	FINMA and SNB meet annually with independent board members of SIS and SXC.
Ensure full implementation of the relevant PFMI for the SXC clearing system replacement	Not fully implemented	The most recent clearing system replacement will likely be released during 2025. The assessment is ongoing.
Ensure a strong analytical justification for all assumptions in the liquidity stress testing model	Implemented	This task was completed at the end of 2019. The liquidity concepts and the underlying assumptions are periodically reviewed and, when needed, revised.
Undertake further analysis/testing of portability in the derivatives segment	No longer relevant	No longer relevant: SXC no longer clears derivatives
Include participants in default management tests	No longer relevant	SIS and SXC use brokers to proceed the close-out. Brokers are included in the default management tests.
Analyze dependencies on commercial banks as service providers and, where required, take steps to diversify or establish back up arrangements	Implemented	SIS and SXC are constantly monitoring and reviewing their counterparty portfolio. SIS and SXC increased the number of FX- and repo counterparties and diversified across different industry groups and geographically.
Consider alternative approaches to mitigate potential cliff edge effects of the risk coefficient margin add on.	Not fully implemented	The new clearing model by SXC aims to comply with EU EMIR requirements, therefore, SXC removed the procyclical component of the risk coefficient margin add-on.
Undertake work on cross-sectoral cyber resilience	Implemented	SIX participates in cyber resilience tests and deep dives conducted by FINMA's Banks division.

Appendix III. FMI Landscape[1]



[1] BX Digital AG not shown, as not live as of Q2:2025.

Appendix IV. Organizational Aspects[1]



[1] Current, partial representation – subject to change.

Appendix V. Cross-Border Cooperative Arrangements

	Multilateral Cross-border Cooperative Arrangements	Involved Authorities
1	Cooperative oversight arrangement with respect to LCH Ltd	SNB, FINMA
2	Cooperative oversight arrangement with respect to Eurex Clearing AG	SNB, FINMA
3	Cooperative oversight arrangement with respect to Cboe Clear Europe N.V.	FINMA
4	Cooperative oversight arrangement with respect to monitoring of the ongoing compliance with recognition conditions by CCPs established in Switzerland	SNB, FINMA
5	Cooperative arrangement with the Danish, Finnish, Norwegian and Swedish authorities with respect to SXC	SNB, FINMA
6	Roundtable with the UK and Dutch authorities with respect to interoperability between UK, Dutch and Swiss CCPs	SNB, FINMA
7	Cooperative arrangement with respect to Target-2-Securities	SNB, FINMA
8	Crisis management group with UK, Dutch, French, German and Norwegian authorities as well as ECB, ESMA and SRB with respect to SXC	SNB, FINMA
9	Crisis management groups/Resolution colleges with respect CBoE, Eurex and LCH Ltd.	FINMA
10	Cooperative oversight arrangement for Continuous Linked Settlement	SNB
11	Non-FMI: Cooperative oversight arrangement with respect to SWIFT	SNB

	Bilateral Cross-border Cooperative Arrangements	Involved Authorities
1	Cooperative arrangement with the CNMV with respect to BME Group	FINMA
2	Cooperative arrangement with UK authorities with respect to SXC. (MoU currently under review)	SNB, FINMA
3	Cooperative arrangement with UK authorities with respect to LCH Ltd. MoU currently under review)	SNB, FINMA
4	Cooperative arrangement with the German authorities with respect to Eurex	SNB, FINMA
5	Cooperative arrangement with ESMA with respect to the foreign recognized TRs, SIX-owned REGIS-TR and DTCC Data Repository Ireland (DDRIE)	FINMA

Appendix VI. Basic Statistics

SIC	2019		2020		2021		2022		2023		2024 (Q2)	
	Number of transactions (in thousands)	*Turnover (in CHF millions)*	*Number of transactions (in thousands)*	*Turnover (in CHF millions)*	*Number of transactions (in thousands)*	*Turnover (in CHF millions)*	*Number of transactions (in thousands)*	*Turnover (in CHF millions)*	*Number of transactions (in thousands)*	*Turnover (in CHF millions)*	*Number of transactions (in thousands)*	*Turnover (in CHF millions)*
Daily Average	*2620*	*158024*	*2870*	*178214*	*3490*	*163319*	*3720*	*199647*	*3860*	*227840*	*4000*	*227840*
Source: Swiss Authorities												

SIX X-CLEAR	2019		2020		2021		2022		2023		2024 (Q2)	
Contracts Cleared (Daily Average)	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*
Equities	*2'338.58*	*25'235.51*	*2'677.84*	*26'910.61*	*2'844.22*	*29'886.26*	*3'139.46*	*34'507.69*	*2'549.52*	*29'565.24*	*2'562.32*	*37'005.08*
Bonds	*2.111*	*354.068*	*1.951*	*343.013*	*1.491*	*305.269*	*1.975*	*353.943*	*2.589*	*339.583*	*2.164*	*282.54*
ETD derivatives	*0.945*	*139.12*	*1.247*	*118.788*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
OTC derivatives	*0.011*	*3.967*	*0.007*	*1.819*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Other	*18.92*	*424.55*	*27.48*	*497.04*	*29.90*	*474.78*	*38.09*	*757.53*	*35.30*	*793.18*	*45.68*	*1'156.52*
Total	*2'360.57*	*26'157.21*	*2'708.53*	*27'871.27*	*2'875.61*	*30'666.31*	*3'179.518*	*35'619.17*	*2'587.412*	*30'698.00*	*2'610.16*	*38'444.14*
Source: Swiss Authorities												

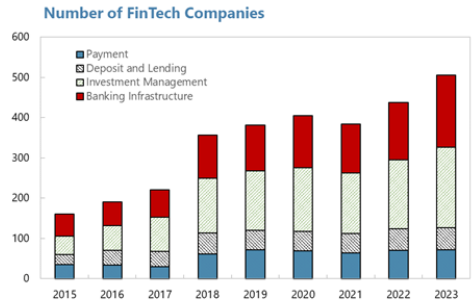
SIS	2019		2020		2021		2022		2023		2024 (Q2)	
	Volume (in thousands)	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*
Securities held (YE)												
Debt Securities	*174*	*811332.89*	*164.7*	*732029.32*	*149.01*	*696308.75*	*163.42*	*722970.8*	*193.26*	*798570.27*	*206.39*	*803776.76*
Equities	*225.2*	*2168905.31*	*238.77*	*2238697.78*	*250.9*	*2552501.46*	*250.31*	*2023125.89*	*248.5*	*2044216.88*	*239.38*	*2214784.01*
Other	*288.69*	*568242.22*	*340.69*	*608345.83*	*386.27*	*700768.87*	*389.86*	*615142.9*	*412.83*	*648706.66*	*463.5*	*710580.39*
Total	*687.89*	*3548480.42*	*744.16*	*3579072.93*	*786.18*	*3949579.08*	*803.59*	*3361239.59*	*854.59*	*3491493.81*	*909.27*	*3729141.16*
Delivery instruction (daily averages)												
Free of Payment	*16.842*	*N.a.*	*20.9*	*N.a.*	*22.18*	*N.a.*	*21.24*	*N.a.*	*20.79*	*N.a.*	*24.94*	*N.a.*
Delivery Vs Payment	*105.127*	31051.95	*139.09*	*34440.21*	*143.78*	*34232.55*	*126.06*	*33638.23*	*121.51*	*35395.96*	*131.82*	*39323.25*
Debt securities	*7.121*	4703.29	*8.1*	*12240.87*	*8.78*	*13351.21*	*8.93*	*14752.68*	*10.5*	*1755142.23*	*11.2*	*18428.58*
Equities	*79.6*	24493.32	*101.56*	*20770.86*	*105.03*	*19724.75*	*89.8*	*17781.75*	*85.01*	*16911.17*	*82.5*	*196657.32*
Other	*18.4*	1855.34	*29.43*	*1428.48*	*29.97*	*1156.59*	*27.33*	*1103.8*	*26.01*	*972.56*	*38.11*	*1237.35*
Total	*121.97*	31051.95	*160*	*34440.21*	*165.96*	*34232.55*	*147.3*	*33638.23*	*142.31*	*35396*	*156.76*	*39323.25*
Source: Swiss Authorities												

SDX	2020		2021		2022		2023		2024 (Q2)	
	Volume (in thousands)	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*	*Volume (in thousands)*	*Value (in CHF millions)*
Securities held (YE)										
Debt Securities	*0.0*	*0.0*	*0.0*	*79.7*	*0.0*	*451.7*	*0.0*	*710.1*	*0.0*	*1'258.6*
Other	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Total	*0.0*	*0.0*	*0.0*	*79.7*	*0.0*	*451.7*	*0.0*	*710.1*	*0.0*	*1'258.6*
Delivery instruction (daily averages)										
Free of Payment	*0.0*	*0.0*	*0.0*	*20.8*	*0*	*374.6*	*0*	*352.7*	*0.0*	*683.1*
Delivery Vs Payment	*0.0*	0.0	*0*	*99.9*	*0*	*75.8*	*0*	*37.7*	*0.0*	*142.8*
Debt securities	*0.0*	0.0	*0.0*	*120.7*	*0*	*450.4*	*0.0*	*390.4*	*0.0*	*825.9*
Other	*0.0*	0.0	*0.0*	*0.0*	*0*	*0*	*0.0*	*0*	*0.0*	*0.0*
Total	*0.0*	0	*0.0*	*120.7*	*0*	*450.4*	*0.0*	*390.4*	*0.0*	*825.9*
Source: Swiss Authorities										

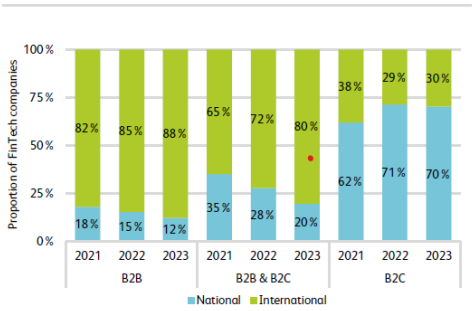
Participation in Swiss FMIs			
Number of Participants (YE 2023)	**Domestic**	**Foreign**	**Total**
SIX SIC	261	57	318
of which			
Central Banks	1	0	1
Banks/FMIs/Other	260	57	317
SIX x-CLEAR	42	27	69
of which			
Banks	40	16	56
FMIs	0	2	2
Other	2	9	11
SIX SIS	194	125	319
of which			
Banks	135	80	215
Other	59	45	104
SDX	11	1	12
of which			
Central Banks	1	0	1
Banks	9	1	10
FMIs	1	0	1
SIX TR (as per 09.12.2024)	136	22	158
of which			
Central Banks	0	0	0
Banks	108	2	110
FMIs	0	0	0
Other	28	20	48
Source: Swiss Authorities			

Appendix VII. The Fintech Ecosystem

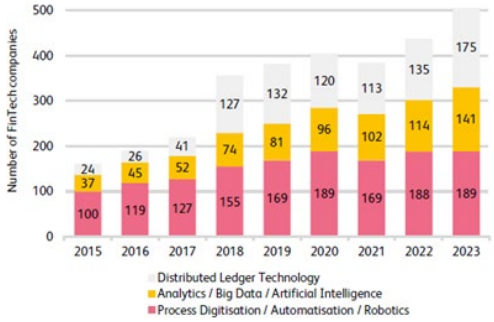
Investment management and banking have experienced the largest increase in FinTech companies.



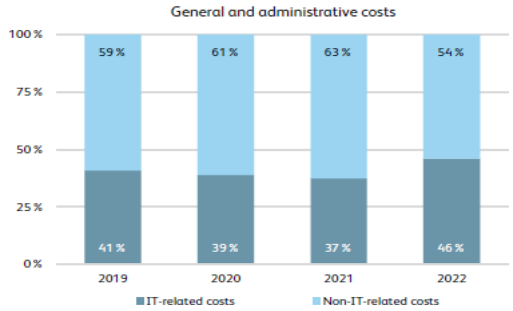
Fintech companies operate in the B2B segment and are externally oriented



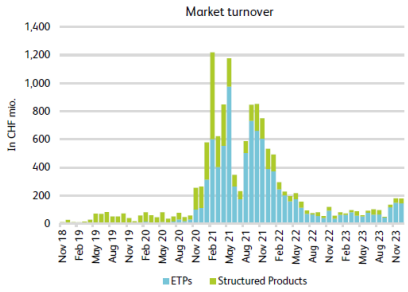
DLT companies stand out in the fintech ecosystems



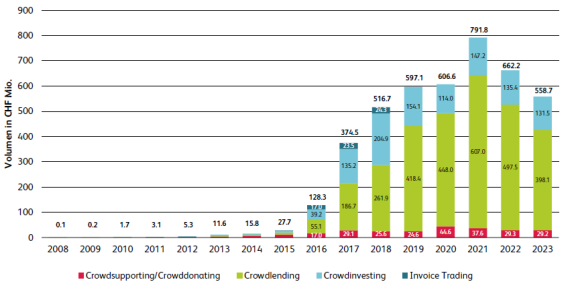
Banks are increasingly investing in technology



Turnover in indirect investment peaked in 2021



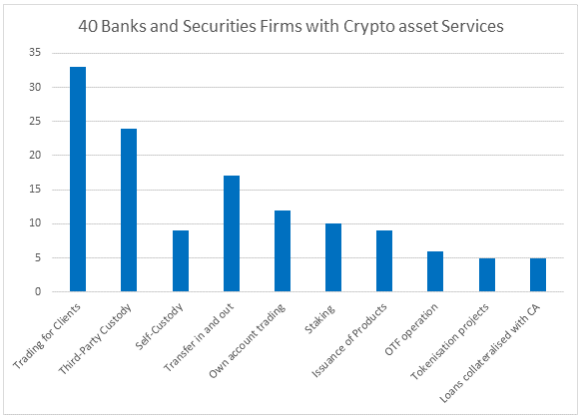
Crowdfunding is a niche sector



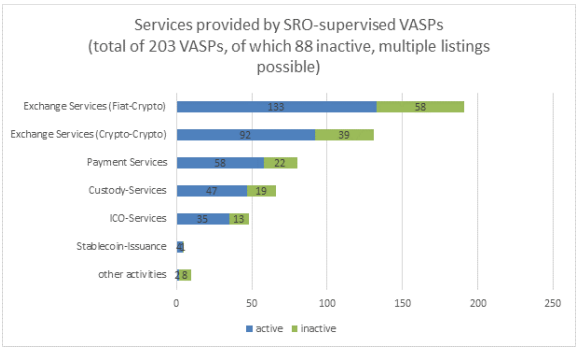
Sources: IFZ FinTech Study 2023 and 2024; Crowdfunding Monitor 2024

Appendix VIII. Regulated Crypto Asset Service Providers

Regulated entities mostly hold off-balance sheet positions



Exchange activities concentrate the attention of SROs



Sources: FINMA